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January 5, 1996

Even in Extreme Cold, Swine Buildings Need Continuous Air Exchange

Even in subzero weather, swine buildings need a small but continuous air exchange, a University of Minnesota agricultural engineer points out.

Larry Jacobson of the university's Minnesota Extension Service says the air exchange is necessary to control moisture and maintain acceptable indoor air quality.

"Continuous air exchange is necessary whether the barn is mechanically or naturally ventilated," says Jacobson. "If the building contains pigs under 120 pounds, you may need supplemental heat from a furnace or heater during extreme cold weather to maintain room temperatures greater than 60 degrees F. An alternative is to provide some type of radiant heat, whether from heat mats, infrared heaters, or a hover. This creates a warm floor and/or a warmer microenvironment for the pigs. This is especially beneficial in naturally ventilated buildings where trying to add heat with a furnace is not economical."

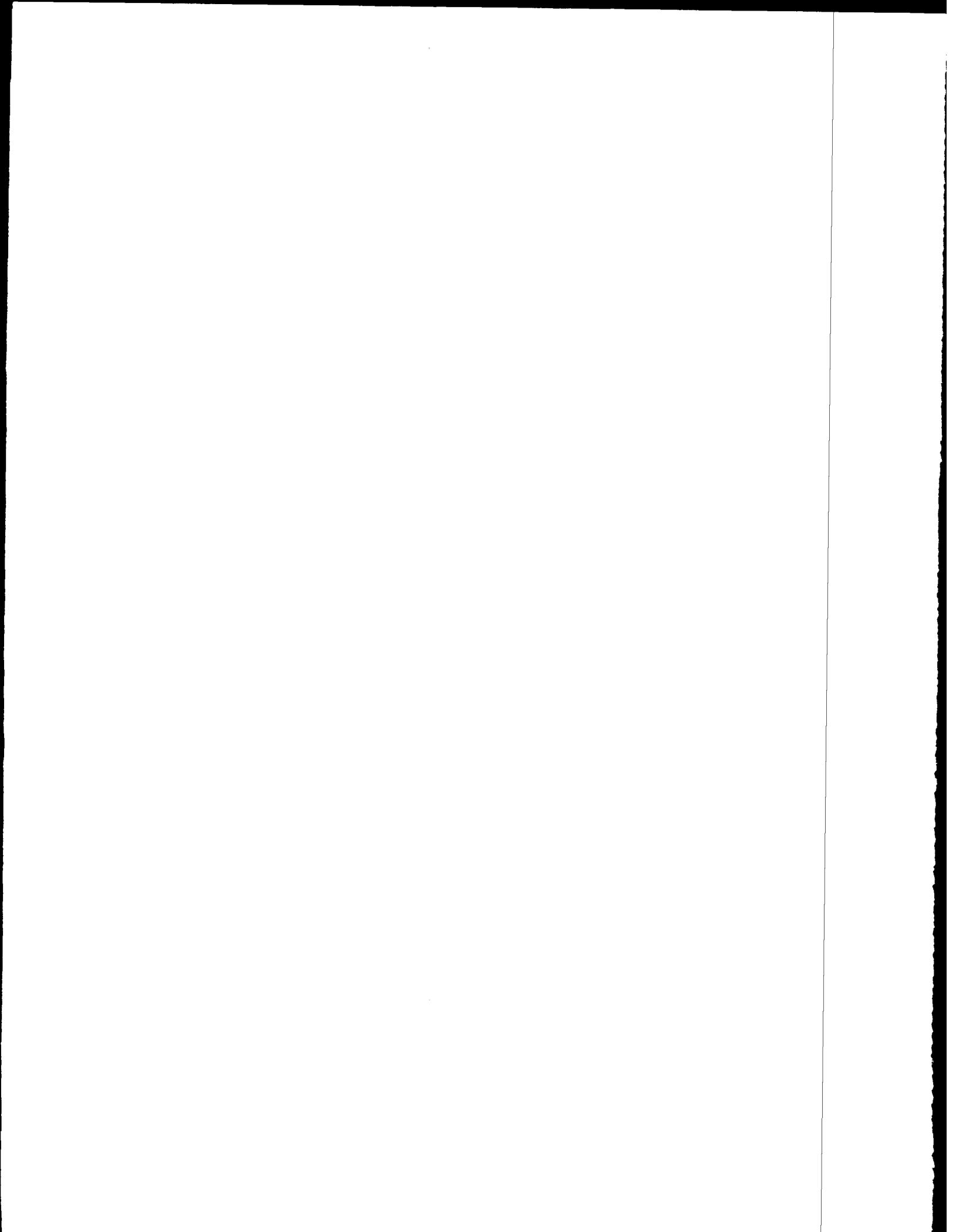
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GOPH,DTN,V2,S2

NAGR5188

Source: Larry Jacobson (612) 625-9733
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu





MSC
EATP

January 5, 1996

Phosphate Fertilizer Increases Soybean Yields in Minnesota Study

Applying phosphate fertilizer substantially increased 1995 soybean yields in a study at the University of Minnesota's West Central Experiment Station at Morris.

The experimental area was in corn in 1994 and phosphate fertilizer was applied at four different rates following corn harvest. In 1995, soybeans were planted in both 7-inch and 30-inch rows using either a no-till or fall chisel planting system. The phosphate was either banded at a depth of 3-4 inches below the soil surface or broadcast. The broadcast phosphate was incorporated only in the fall chisel system. Yields were measured in the fall of 1995.

"Applying phosphate fertilizer increased soybean yields for both tillage systems and each row spacing in the two systems," says U of M soil scientist George Rehm. "The value of the increase was more than the cost of the phosphate fertilizer."

When averaged over other factors, yields were higher with the fall chisel system compared with the no-till system (47.2 bu/acre vs. 44.2 bu/acre). Yields were also higher with 7-inch rows compared with 30-inch rows (53.4 bu/acre compared with 38.0 bu/acre). The advantage of narrow rows was consistent for both tillage systems.

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When averaged over all rates, both tillage systems and both row spacings, yields were higher with broadcast phosphate applications compared with banded applications. Rehm emphasizes that the results are from 1995 only.

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GOPH,DTN,V2,F4

NEXP5187

Source: George Rehm (612) 625-6210

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MISC
EATP

January 5, 1996

Troublesome Weed Species in Corn, Soybeans Change over Time

Trying to control weeds in corn and soybeans is like shooting at a moving target. The weed species that are hardest to control continue to change, says Jeff Gunsolus, weed scientist with the University of Minnesota's Extension Service.

"In the past, problems controlling velvetleaf, common cocklebur, wild proso millet, shattercane, and woolly cupgrass were common in Minnesota," says Gunsolus. "Over the last several years the focus has moved to weed species such as Canada thistle, quackgrass, horseweed/marestail, common lambsquarters, common ragweed, and the increasing woolly cupgrass and waterhemp infestations."

Gunsolus says weeds are genetically diverse and can readily take advantage of the variety of conditions created by any given crop production system. "Many common weed species have the ability to rapidly establish themselves in a field in just a couple of years," he points out. "In a single growing season, annual weeds have the ability to produce a large quantity of viable seeds, and perennial weeds can produce vegetative tissues such as rhizomes. Most weed species also have the attribute of seed or bud dormancy. This allows a diversity of weed species to exist for long periods of time in the soil. Thus, when changes in the cropping system occur that are favorable for its germination and development, a particular weed species is able to respond fairly quickly and rapidly, often within three to five growing seasons, and establish itself in the cropping system."

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There are many factors that interact and influence weed population dynamics in Minnesota's corn and soybean cropping system, notes Gunsolus. Changes in tillage practices, cultural practices such as soybean row spacing and planting date, and weed management practices have all had an impact on the weed spectrum. And the ever-changing weather patterns only complicate the matter.

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GOPH,DTN,V2MN,F4

NAGR5189

Source: Jeff Gunsolus (612) 625-8700

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January 9, 1996

Mechanically Ventilated Swine Barns Are Cold-Weather Challenge

Minnesota's sub-zero winter temperatures can be a challenge for pork producers with mechanically ventilated swine buildings. Larry Jacobson, agricultural engineer with the University of Minnesota's Extension Service, suggests using the following checklist for operating mechanically ventilated barns in cold weather. These include the newer "curtain-sided" finishing facilities.

--Make sure at least one ventilation fan runs continuously and delivers from two (nursery) up to 10 (finishing) cubic feet per minute of air per pig. The fan or fans delivering this air exchange should be single speed or, if variable speed, the speed should never be lower than half the fan's maximum. This improves the fan's ability to overcome wind forces.

--The building should be as tight as possible, with air entering only through designed air inlets rather than through undesigned "leaks." Provide at least one square foot of inlet area for every 400 cfm of continuous air exchange provided by the exhaust fans. To reduce wind effects on them, inlets should take air from the attic or adjacent rooms or hallways rather than directly from outside. Attics and hallways, in turn, need to have intakes that allow fresh air to enter. Remember, there must be some way for air to enter the building if you want to remove moisture and other air contaminants with the exhaust fans.

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--Walls and ceilings need to be insulated and protected with a vapor retarder (sheet of plastic) on the warm side of the insulation to prevent condensation on the walls. R-values in the mid-teens for the walls and in the mid-twenties for the ceiling are adequate for pig buildings. Because curtain barns can't meet these insulation requirements for walls, wet and sometimes frosted (during extreme cold) curtains need to be tolerated.

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GOPH,DTN,V2,E4,S2

NAGR5192

Source: Larry Jacobson (612) 625-9733
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

January 9, 1996

Help Is Available in Deciding Use of Raw Materials

Which is a "better" environmental choice--buying a plastic chair or buying one made of wood? Most of us rarely think about the environment when considering such a purchase. But a University of Minnesota expert says consumers need to consider the environment along with more traditional factors such as price, appearance and comfort.

"Our growing population is the number one reason why we need to consider the environment in our buying decisions," says Jim Bowyer, professor in the university's Department of Forest Products. "Each day there are more people placing demands on our planet's natural resources. We can carry on as we are and meet problems as they arise, or we can plan ahead so as to avoid the need for making quick decisions in a crisis."

Bowyer says the world's population, estimated at 5.8 billion, is predicted to double within 70 to 100 years. While the global birth rate (26 per 1,000 population) has fallen somewhat in recent years, it far exceeds the global death rate (9 per 1,000).

Going back to the example of the chair, plastic vs. wooden, Bowyer says, "There are many hidden consequences in choosing each type." The plastic chair has a longer "chain of consequences," including drilling and transporting the oil (and all the environmental hazards associated with drilling and transporting it), refining the oil into plastic resin, and then molding the chair. The wooden chair, on the other hand, requires harvesting of trees, transport, cutting of logs, drying of lumber, shaping of wood into chair parts, and finishing. "At each step there are environmental impacts and energy use consequences," Bowyer says.

Bowyer emphasizes the need to be an informed consumer. A new educational package produced by the Minnesota Extension Service can help get you started on the road to becoming

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informed. "Materials and the Environment: Wood as a Global Resource" includes a 15-minute videotape and printed materials.

"The package is intended for presentations to groups," says Keith Jacobson, a forester in the Minnesota Department of Natural Resources' Lake City office, "but interested individuals also will benefit from the materials." The package includes a Leader's Guide with handouts and a raw materials perceptions and reality quiz.

Jacobson helped develop the package, which was a joint effort of the university's Minnesota Extension Service and College of Natural Resources and the Minnesota Department of Natural Resources--Forestry Division.

The package explains the important role wood can play in meeting our raw materials needs. "We feel wood is a better choice in many instances," Jacobson says. "That doesn't mean we should close our eyes to the environmental impacts of using greater amounts of wood, but we feel the consequences of using wood are less in most cases than the consequences of using other raw materials."

"Materials and the Environment: Wood as a Global Resource," item EP-6507-NR2, costs \$23 plus \$4 shipping. Volume discounts are available. Call (800) 876-8636 or (612) 625-8173 for details. Price and availability are subject to change. This item is available to disabled persons in alternate formats upon request.

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GOPH,V4MN,V5MN,V6,V8MN,F8,T2,X9

NNRD5190

Source: Jim Bowyer (612) 624-4292
Keith Jacobson (612) 345-3216
Writer: Martin Moen (612) 625-6243; mmoen@mes.umn.edu

January 9, 1996

Swine Buildings Without Fans Need Continuous Ventilation

Swine buildings that don't have fans need to have continuous ventilation, even during cold winter weather. Larry Jacobson, agricultural engineer with the University of Minnesota's Extension Service, suggests the following check list for operating naturally ventilated (without fans) swine buildings during winter.

--Make sure there is adequate outlet area, either a ridge opening or chimneys. For modified environment buildings (pig grow-finish and sow gestation), provide at least one inch of continuous ridge opening per 10 feet of building width. Watch for frosting at the outlets and clear excessive ice and frost build-up periodically to maintain this amount of opening.

--The building shell should be as tight as possible, making sure that air only enters through designed air inlets. During subzero temperatures, air should only enter on leeward (typically the south or east) sides of naturally ventilated buildings. Temperature-controlled curtains or vents are the most common inlets. However, curtains or vents must be adjusted to provide a small but permanent opening so that even though the room temperature is below the setpoint, some air is continuously moving through the building. If this is not done and there are few cracks or leaks in the barn, insufficient air exchange will result in high humidity and poor air quality. Also, without this minimum amount of sidewall inlet area in a naturally ventilated barn, air often enters the ridge or outlet at one end of the barn and exits at the other end. This creates a reverse or downward air flow plus a large temperature variation down the length of the building.

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--A naturally ventilated pig barn also needs to be insulated, especially on the underside of the roof, to prevent condensation and frosting. R-values of at least 6 to 8 should be provided under the roof or in the sloping ceiling.

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GOPH,DTN,V2,E4,S2

NAGR5191

Source: Larry Jacobson (612) 625-9733
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

MSC
9 A 27p

January 12, 1996

Purchase of CO Detector Should Come after Heating System Inspection

Buying and using a carbon monoxide (CO) detector can be a step toward preventing carbon monoxide poisoning. But another step should come first, says William Angell, housing specialist with the University of Minnesota's Extension Service.

"Before buying a carbon monoxide detector, remember a detector doesn't reduce the importance of a regular inspection of the heating system by a qualified serviceperson," says Angell.

He says a number of carbon monoxide detectors intended for home or recreational vehicle use have come on the market in the past few years. There are 110-volt AC (plug-in and hard-wired) and battery-powered detectors that sound an 85-decibel alarm in the presence of certain concentrations of CO over pre-set periods of time. These detectors are commonly priced in the \$30 to \$60 range, depending on features.

Angell says the advantage of a battery-powered detector is that it can detect carbon monoxide during power outages. However, a battery-powered detector won't perform if batteries are removed or rundown batteries aren't replaced. This isn't an issue with AC-powered detectors. A CO detector that uses AC with a battery back-up offers an advantage over a detector that is solely AC or battery powered.

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Passive (meaning no power required) colorimetric sensors are also available, says Angell. These are intended to change color when exposed to high levels of carbon monoxide. They usually cost \$5 to \$15. However, "Consumer Reports" exposed three colorimetric sensors to 100 parts per million of carbon monoxide for two hours and only one changed color. Passive sensors don't sound an alarm, so aren't capable of alerting someone who may be asleep or in other areas of the home. "Consumer Reports" rated the three passive sensors it tested as unacceptable for home use.

The Consumer Product Safety Commission recommends that every home have at least one carbon monoxide detector, preferably located outside the bedrooms.

A set of questions and answers Angell has compiled concerning carbon monoxide is on the Internet at <http://www.mes.umn.edu/>. Information on carbon monoxide is also available by calling INFO-U at 624-2200 in the metro calling area or 1-800-525-8636 in participating outstate counties (select message 654).

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GOPH,DTN,V4,V5,V6,V7,A1,A3,F2,H3,H5,N1

NHEC5195

Source: William Angell (612) 624-6786; wangell@che2.che.umn.edu

Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

MSE
g 427p

January 12, 1996

Inspection of Combustion Appliances Helps Prevent CO Poisoning

Having furnaces and other combustion appliances inspected, serviced, and maintained regularly is a key to preventing carbon monoxide poisoning. That's a reminder from William Angell, housing specialist with the University of Minnesota's Extension Service.

Carbon monoxide (CO) is a colorless, odorless, and tasteless gas that is produced from the incomplete combustion of fuels such as charcoal, kerosene, LP gas, natural gas, oil, and wood. The gas combines with hemoglobin in the blood and prevents oxygen from being carried to the body, causing asphyxiation. In an average year over a thousand people die from unintentional, non-fire related carbon monoxide poisoning across the U.S., says Angell.

"Make sure all combustion appliances are working properly," says Angell. "These include space heaters, ranges, ovens, stoves, fireplaces, furnaces and boilers, water heaters, clothes dryers, lanterns, grills, lawn mowers, snow blowers, generators, and other small engines. In addition, when replacing or adding vented appliances--those that use a chimney, flue, or other means to carry combustion pollutants out of the home--have the chimney or flue inspected."

Angell says there are carbon monoxide detectors available for home use; most cost in the \$30 to \$60 range, depending on features. "But a detector doesn't reduce the importance of a regular inspection of the heating system by a qualified serviceperson," he says.

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Angell has put a set of questions and answers on carbon monoxide on the Internet at <http://www.mes.umn.edu/> . Information on carbon monoxide is also available by calling INFO-U at 624-2200 in the metro area or 1-800-525-8636 in participating outstate counties (select message 654).

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GOPH,DTN,V4,V5,V6,V7,A1,A3,F2,H3,H5,N1

NHEC5194

Source: William Angell (612) 624-6786; wangell@che2.che.umn.edu
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

January 12, 1996

Follow Combustion Appliance Instructions To Avoid CO Poisoning

One of the most important ways to prevent carbon monoxide (CO) poisoning in your home is to read and follow instructions and warning labels for all combustion appliances. "Doing so can save your life and the lives of your loved ones," says William Angell, housing specialist with the University of Minnesota's Extension Service.

Angell cites several examples. Some unvented space heaters contain cautions to use them only in a well-ventilated area. If you use a kerosene heater, use the correct fuel, ASTM 1-K kerosene. In fireplaces or wood stoves, use seasoned hardwoods that burn cleaner and produce less creosote and smoke than softwoods or unseasoned wood. Never close the damper on a fireplace before the coals are completely burned out. The coals are effective carbon monoxide producers. Never burn preservative-treated wood or painted wood, plastics, charcoal, or colored paper in a fireplace or stove. Never use a gas stove, oven, or clothes dryer to heat your home. Never use an unvented space heater overnight or in a room where you sleep.

In an average year over a thousand people die from unintentional, non-fire related carbon monoxide poisoning across the U.S., says Angell.

Angell has compiled a set of questions and answers about carbon monoxide which can be found on the Internet at <http://www.mes.umn.edu/>. Information on carbon monoxide is also

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available by calling INFO-U at 624-2200 in the metro calling area or 1-800-525-8636 in participating outstate counties (select message 654).

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GOPH,DTN,V4,V5,V6,V7,A1,A3,F2,H3,H5,N1

NHEC5193

Source: William Angell (612) 624-6786; wangell@che2.che.umn.edu
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

January 17, 1996

Voting in Sheep Referendum Will Be Feb. 6 at Extension Offices

The U.S. Department of Agriculture has announced procedures for a referendum on a proposed Sheep and Wool Promotion, Research, Education and Information Order. The referendum will be conducted Feb. 6.

USDA's Agricultural Marketing Service, an agency in the marketing and regulatory programs mission area, has oversight responsibility for federal research and promotion programs. AMS administrator Lon Hatamiya said all producers, feeders and importers who certify they were engaged in the production, feeding, or importation of sheep or sheep products (except importers of raw wool only) between Jan. 1 and Dec. 31, 1994, are eligible to vote.

Voters may register and vote in person or request absentee ballots at their county extension office. Absentee ballots must be requested from the office serving the county of voter residence for individuals, or the county where the business headquarters is located for corporations. Absentee ballot requests, filed in person or by mail, may be made between Jan. 16 and Jan. 26. Absentee ballots must be received in county offices by close of business Feb. 2.

The Farm Service Agency, formerly the Agricultural Stabilization and Conservation Service, will count ballots, determine eligibility of voters, and tabulate results.

For the order to go into effect, the proposal must be approved either by a simple majority of voters or by voters who account for two-thirds of the sheep and wool production represented in the referendum.

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If approved, the program would be funded by mandatory assessments. Domestic producers and feeders would be assessed one cent per pound on sales of live sheep and two cents per pound on sales of greasy wool. Importers would be assessed one cent per pound or the equivalent on imported degreased wool and wool products.

Details of the voting procedures were published in the Dec. 15 "Federal Register." Copies of the final referendum rules, the proposed order and additional information are available from Ralph L. Tapp, Chief, Marketing Programs Branch, Livestock and Seed Division, AMS, USDA, Room 2606-S, P.O. Box 96456, Washington, D.C. 20090-6456.

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GOPH,DTN,V2MN,S1MN

NAGR5198

Source: Dale Carter (218) 463-1052
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

January 17, 1996

Verde Is New Hard Red Spring Wheat Variety Released in Minnesota

Verde, the Spanish word for green, is a new hard red spring wheat variety that will be available for 1996 plantings.

Verde was developed and released in spring 1995 to certified and registered growers by the Minnesota Agricultural Experiment Station and the Agricultural Research Service, U.S. Department of Agriculture. Researchers released Verde because of its high yield in northern and central Minnesota, desirable agronomic traits, disease resistance and acceptable bread-making quality.

Verde is a semidwarf variety with good resistance to lodging--similar to the older variety Marshall but better than 2375 or Grandin. It is moderately resistant to leaf rust, resistant to stem rust and moderately susceptible to loose smut.

Also moderately susceptible to scab, Verde expresses relatively low spread of scab in the spike. It maintains yield under severe scab infection better than Grandin, but not as well as 2375. Similar to Marshall in scab reaction, it has good green leaf retention late in the season.

In statewide yield trials in 1992, with little scab present, Verde averaged 10 and 12 percent better than 2375 and Grandin, respectively. In statewide yield trials from 18 environments from 1993 through 1995, Verde yielded 10 percent more than Grandin but 4 percent less than 2375. Scab was present in all three years of testing.

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Bread-making properties of Verde were judged acceptable in both USDA and industry tests. Verde is about 0.3 percent higher than Marshall in grain protein content but 1.0 to 1.3 percent lower than 2375 and Grandin, respectively. Overall milling and baking quality is intermediate, similar to 2375.

Hybridization and some selection were conducted by Pioneer Hi-Bred International. Further selection and evaluation were done at the University of Minnesota by Robert Busch, USDA wheat breeder; Donald McVey, USDA plant pathologist; and Gary Linkert from the University of Minnesota's Department of Agronomy and Plant Genetics. Branch experiment station scientists John Wiersma and Dennis Warnes also collaborated in the testing.

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GOPH,DTN,V2,F4,X7

NEXP5196

Source: Ervin Oelke (612) 625-8700
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January 18, 1996

St. Cloud to Host State Forage Conference Feb. 7-8

New varieties of alfalfa, corn for silage, and the economics of intensive grazing management are two of the highlights of this year's Annual Forage Conference sponsored by the Minnesota Forage and Grassland Council (MFGC). The conference will be held Feb. 7-8 at the Holiday Inn in St. Cloud.

"Forage crop farmers and their advisors cannot afford to miss this conference," says Neal Martin, an agronomist with the University of Minnesota's Extension Service. "In addition to the many educational sessions, participants will have time to browse the numerous commercial exhibits on display," Martin says.

Registration for both days of the conference, including lunches and a conference proceedings manual, is \$35 for MFGC members and \$60 for nonmembers (includes membership in the MFGC). Single-day registrations are also available for \$20, which includes lunch and the proceedings. The deadline for all registrations is Jan. 31. Contact Martin in care of the Minnesota Forage and Grassland Council, 411 Borlaug Hall, 1991 Buford Circle, St. Paul, MN 55108.

The Feb. 7 program begins at 10:30 a.m. with registration and concludes with the annual meeting of the MFGC starting at 5:15 p.m. Topics and speakers on Feb. 7 include:

- Strengthening Minnesota's Forage-Based Livestock Industry, Gene Hugoson, Minnesota Commissioner of Agriculture.
- Marketing Alfalfa Products and Generating Energy-Minnesota Agri-Power Project, Dennis Goehring, president, Minnesota Valley Alfalfa Processors.
- New Varieties of Grasses and Legumes, Nancy Ehlke, University of Minnesota.

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--Commercial Forage and Feed Testing in the Midwest, Neal Martin, University of Minnesota.

--New Alfalfa Varieties for Minnesota Growers, Mark McCaslin, Forage Genetics Inc.

--New Corn Hybrids for Silage Quality and Yield, Jim Vannett, Mycogen Plant Sciences.

Registration begins at 9 a.m. on Feb. 8 and concludes with several concurrent sessions. The conference is expected to adjourn at approximately 4 p.m. Topics and speakers on Feb. 8 include:

--Economics of Intensive Grazing Management, Richard M. Klemme, University of Wisconsin.

--Custom Harvesting and Buying Forages, Jeff Kircher, Wisconsin Dairyman.

--Forage Feeding Strategies for Dairy in Minnesota, Jim Linn, University of Minnesota.

If you're feeding dairy cattle, horses, beef or sheep, Martin says this is one conference you don't want to miss. "It's one of the few events in Minnesota where producers can obtain product information and discuss ideas with other producers, educators and researchers."

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GOPH,DTN,V2MN,X4,B1MN,D1MN,H6MN,S1MN

NAGR5199

Source: Neal Martin (612) 625-3747

Writer: Martin Moen (612) 625-6243; mmoen@mes.umn.edu

January 24, 1996

Tour of Washington, D.C., Available Through University of Minnesota

An opportunity to see the most renowned sites in our nation's capital is available this spring through a University of Minnesota tour. The five-day Wonders of Washington tour is sponsored by the university's Minnesota Extension Service.

Among the Wonders of Washington included in the tour are the U.S. Capitol, the White House, the Washington Monument, the Lincoln and Jefferson Memorials, the Smithsonian Institution, Mount Vernon, the Vietnam Veterans' Memorial, the Korean Veterans' Memorial, the Holocaust Museum and Arlington National Cemetery.

The Wonders of Washington tour will be April 20-24. The cost is \$949 per person. This includes round-trip airfare, lodging for four nights, breakfasts and dinners, bus transportation in Washington D.C., admissions and a tour guide.

For further information, write to Leon Meger, Wonders of Washington tour, Minnesota Extension Service, 405 Coffey Hall, 1420 Eckles Ave., St. Paul, MN 55108-6068; or call (612) 625-2722 or 1-800-367-5363.

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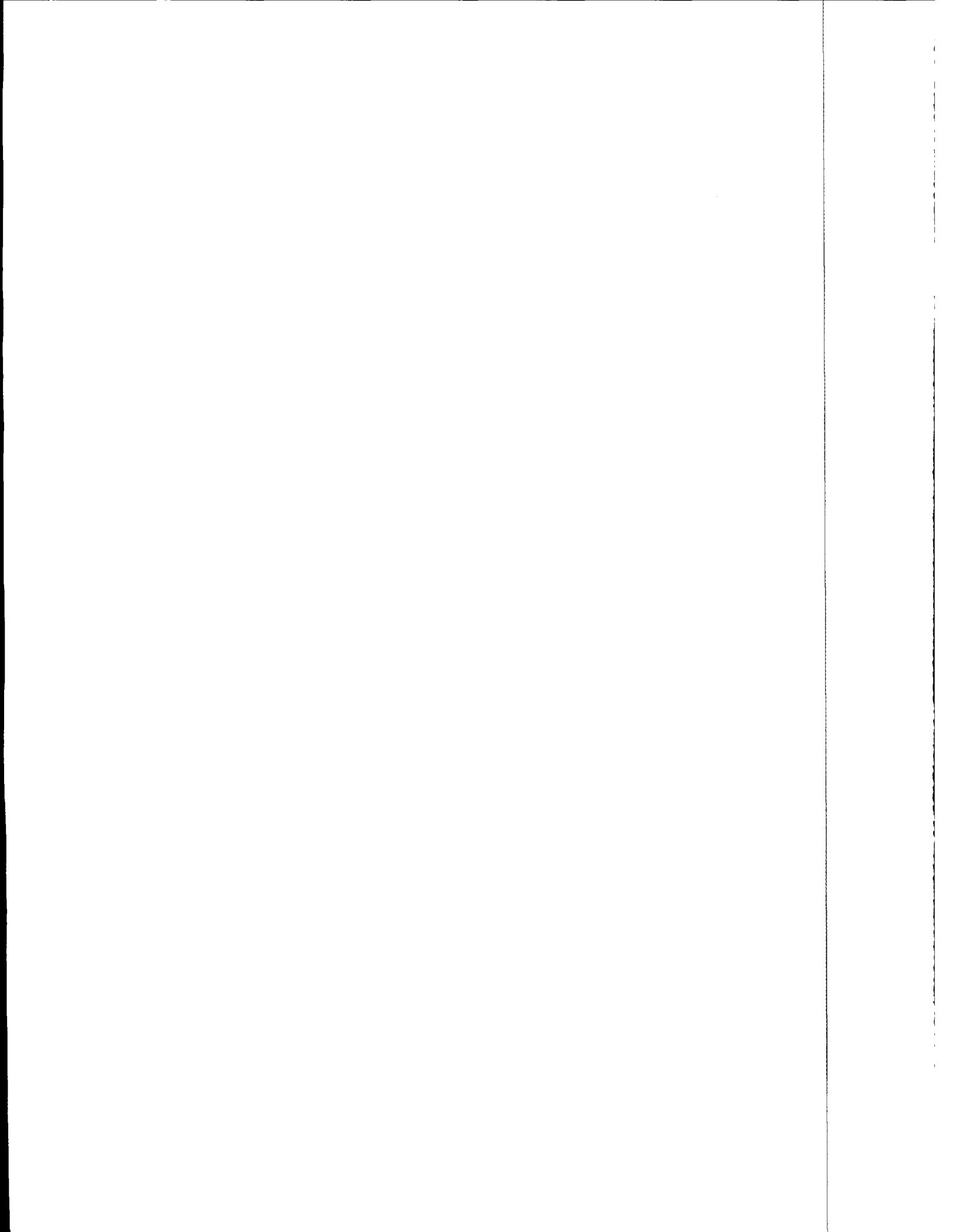
GOPH,MNF,V3,V4MN,V5,V8,A1,A3,E2,H3,N1,T1

NESP5200

Source: Leon Meger (612) 625-1214
Writer: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

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January 24, 1996

Minnesota Beef Cow-Calf Days Set at 7 Locations

Grazing and profitability will be among the main topics at the Beef Cow-Calf Days at seven locations across Minnesota in February.

The program will be similar at each location and is designed for cow-calf producers and others with an interest in the industry. The University of Minnesota's Extension Service and Department of Animal Science and the Minnesota Beef Council are sponsors.

Topics and speakers will be:

- Minnesota cow-calf research and extension update, Brent Woodward, University of Minnesota extension animal scientist.
- Trade and other political issues affecting the beef industry, Chuck Lambert, National Cattlemen's Association.
- Lessons on opportunities from the swine industry, Brian Buhr, U of M extension economist.
- Improving returns and cutting costs, Woodward.
- Injection site blemishes, Ron Eustice, Minnesota Beef Council.
- Grazing management, Neal Martin, U of M extension forage specialist.
- Selecting legumes and grasses for pasture and hay, Martin.

(over)



Dates, locations, and times for the 1996 Minnesota Beef Cow-Calf Days are:

- Feb. 20 Glenwood, Minnewaska House, 9 a.m.-4 p.m., lunch available. Contact Lynn Gordon, (612) 589-7423.
- Feb. 21 Pipestone, Southwest Technical College, Rm. 407, 8:30 a.m.-3:30 p.m., lunch available. Contact Philip Berg, (507) 825-5416.
- Feb. 21 North Mankato, by interactive television, South Central Technical College, Rm. E130, 8:45 a.m.-3:30 p.m., lunch available. Contact Jurgen Peters, (507) 835-0600.
- Feb. 22 Preston, United Methodist Church, 9 a.m.-4 p.m., lunch available. Contact Jerry Tesmer, (507) 765-3896.
- Feb. 27 Staples, Staples Technical College, Assembly Room, 9 a.m.-4 p.m., lunch available. Contact Jim Carlson, (612) 632-0161.
- Feb. 28 Grand Rapids, Sawmill Inn, 5:30 p.m.-10 p.m., refreshments served. Contact John Hall or Dan Brown, (218) 327-4490.
- Feb. 29 Hinckley, Tobie's Restaurant, 5:30-10 p.m., dinner on your own prior to meeting. Contact Steve Drazkowski, (612) 384-6156.

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GOPH,DTN,V2MN,B1MN,X1,07,23,31,59,60,63,82,85

NAGR5201

Source: Brent Woodward (612) 624-4995
Writer: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

January 26, 1996

Minnesota and Wisconsin Plan Conference on Dairy Policy Issues

How government policy affects the dairy industry will be the focus of a conference March 4 at the University of Minnesota.

The Minnesota-Wisconsin Dairy Policy Conference will be at the Earle Brown Continuing Education Center on the university's St. Paul campus. It's designed for dairy producers, directors of dairy cooperatives, representatives of dairy marketing firms, farm organization officials, government officials, members of the news media and others interested in dairy policy issues.

Registration begins at 8:10 a.m. The program begins at 8:30 a.m. The morning session will focus on dairy provisions of the 1995 farm bill. Topics and speakers will be: How we got where we are, by U.S. Rep. Steve Gunderson of Wisconsin, chair of the House Livestock and Dairy Subcommittee; economic impacts, by Tim Cox, ag economist, University of Wisconsin, and Ron Knutson, ag economist, Texas A & M University; implications of program changes for federal order administration, by Richard McKee, director, Dairy Division, Agricultural Marketing Service, USDA.; and agenda for reform of dairy price programs, by Don Storhomm, Foremost Farms-USA, Baraboo, Wis.

The afternoon will begin with a panel on dairy futures. The panel will cover products of the coffee, sugar, and cocoa exchange, products of the Chicago Mercantile Exchange, forward

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pricing with dairy futures, and use of dairy futures by producers as a cash flow tool. Speakers include Phil Plourde of the New York Coffee, Sugar, and Cocoa Exchange; Errol Baxter of the Chicago Mercantile Exchange; Larry Lemmenes of Alto Dairy Cooperative, Alto, Wis.; and Roger Blimling of Cottage Grove, Wis.

Paul Christ, vice-president of Land O'Lakes, Arden Hills, Minn., will give the final presentation. He will discuss the changing institutions of the U.S. dairy industry.

Registration fee for the conference is \$39. To register, send the fee to Registrar--Dairy Policy Conference, Extension Special Programs, P.O. Box 64780, St. Paul, MN 55164-0780. Make checks payable to the University of Minnesota. For a registration brochure or other registration information, call Leon Meger at 1-800-367-5363 or (612) 625-2722. For program content questions, call Jerome Hammond at (612) 625-2749.

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GOPH,DTN,V2,V4MN,V4WI,A2,D1,F6,X3

NESP5202

Source: Leon Meger (612) 625-1214
Writer: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

January 31, 1996

One-Pass Postemergence Weed Management Strategy Can Be Risky

Herbicide use statistics show that many Minnesota corn and soybean producers are striving for a total postemergence one-pass weed management system. This approach has both advantages and risks, says Jeff Gunsolus, weed scientist with the University of Minnesota's Extension Service.

"It has obvious advantages in saving time, labor, and cost," says Gunsolus. "But it has a higher risk of weed control failure. The risk is related to a lack of alignment between the timing of postemergence treatment and the time that weeds emerge from the diverse grass and broadleaf weed seed populations present in the soil."

He cites a three-year trial with late-planted soybeans at Rosemount, Minn. "By early June nearly 80 percent of the common lambsquarters and 95 percent of the velvetleaf that were going to emerge had done so," he says. "However, in the Powell amaranth and redroot pigweed complex, only 25 percent of the seedlings that were going to emerge had done so. Pigweed species generally require higher soil temperatures to emerge. For giant foxtail by early June for the three years, 50 percent, 63 percent, and 74 percent, respectively, of the seedlings that were going to emerge had done so.

"Different weed species emerge at different times in the growing season. The rate of weed emergence isn't consistent from year to year, and probably depends a lot on soil temperature and

(over)



rainfall. Therefore, it's highly unlikely, even with a residual postemergence herbicide, that a one-pass weed management strategy will be consistently successful."

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GOPH,DTN,V2,F4

NAGR5206

Source: Jeff Gunsolus (612) 625-8700

Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

January 31, 1996

UNIVERSITY OF MINNESOTA

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Minnesota Corn, Soybean Producers Favor Postemergence Weed Control

Using postemergence herbicides is the favored weed control strategy for Minnesota corn and soybean producers. That's shown by on-farm agricultural chemical use statistics for 1994, says Jeff Gunsolus, weed scientist with the University of Minnesota's Extension Service. He says the figures come from the National Agricultural Statistics Service.

The statistics show the top five herbicides used on the Minnesota corn crop in 1994 were: Banvel, 55 percent of corn acres, with an average use rate of 0.34 lbs. active ingredient per acre (a.i./A); atrazine, 36 percent of corn acres, average use rate of 0.71 lbs. a.i./A; Accent, 23 percent of corn acres, average use rate of 0.03 lbs. a.i./A; Dual, 21 percent of corn acres, average use rate of 2.17 lbs. a.i./A; and 2,4-D, 17 percent of corn acres, average use rate of 0.39 lbs. a.i./A.

The top five herbicides used on soybeans in Minnesota in 1994 were: Pursuit, 70 percent of soybean acres, average use rate of 0.05 lbs. a.i./A; Treflan, 47 percent of soybean acres, average use rate of 0.80 lbs. a.i./A; Pinnacle, 19 percent of soybean acres, average use rate of 0.002 lbs. a.i./A; Basagran, 17 percent of soybean acres, average use rate of 0.66 lbs. a.i./A; and Prowl, 12 percent of soybean acres, average use rate of 1.09 lbs. a.i./A.

In corn, Dual is the only one of the top five herbicides that isn't a postemergence product, notes Gunsolus. In soybeans, only Treflan and Prowl are not postemergence herbicides.

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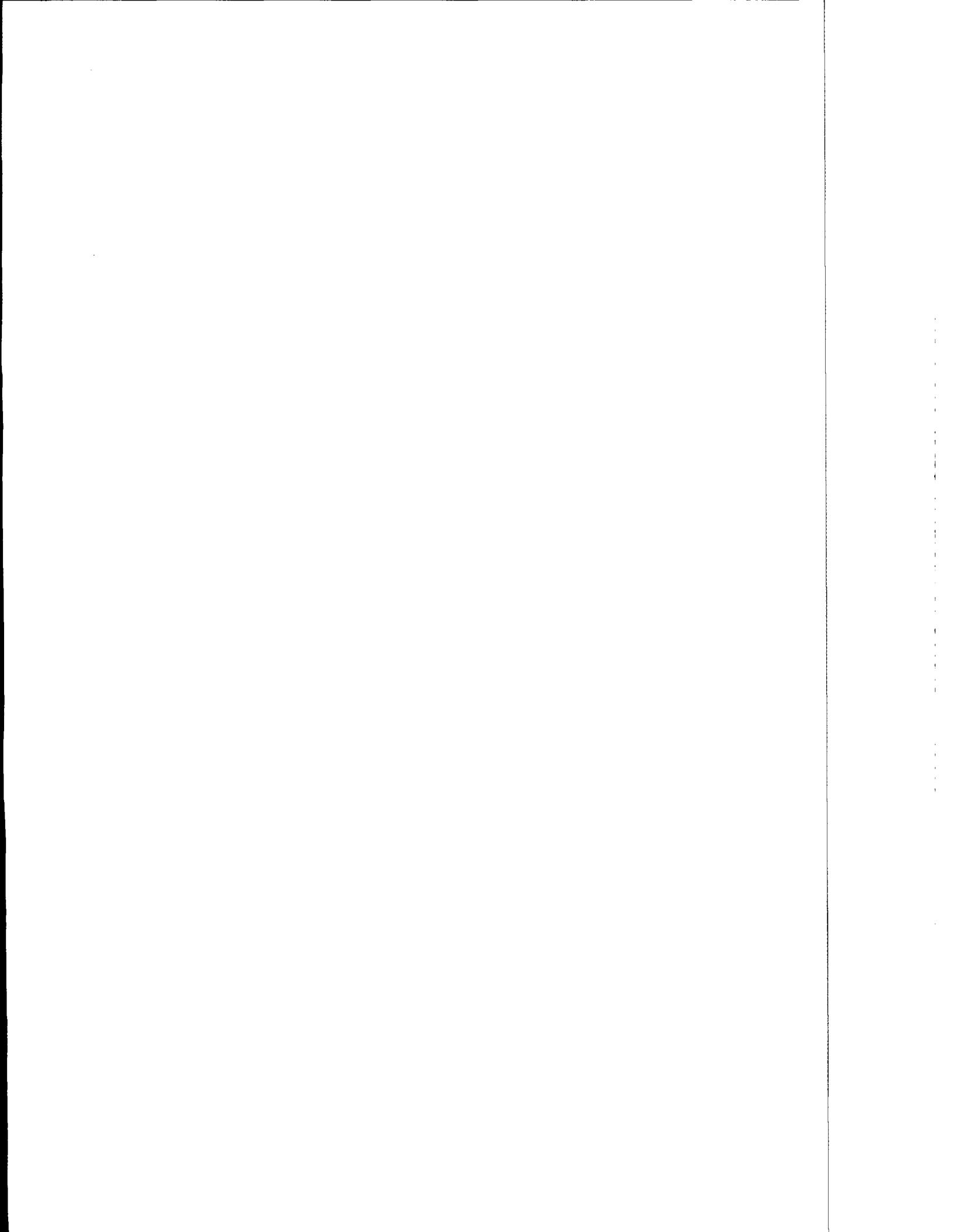
GOPH,DTN,V2,F4

NAGR5205

Source: Jeff Gunsolus (612) 625-8700
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)





January 31, 1996

Changes in Cropping Systems Mean Changes in Weed Problems

Changes in the way Minnesota corn and soybean producers grow their crops mean changes in weed control problems. Jeff Gunsolus, weed scientist with the University of Minnesota's Extension Service, says several cropping system trends are influencing weed problems. Some of these involve tillage, row spacing, planting date, and amount of mechanical weed control.

"With conventional tillage, crop seedlings get an even start with weed seedlings," says Gunsolus. "Preplant tillage makes it possible to use preplant incorporated herbicides and rotary hoeing. With conservation tillage, preemergence and postemergence herbicides must be used to substitute for this tillage. Also, reduced tillage has a dramatic effect on the environment where weeds reside."

In general, a shift to conservation tillage has increased perennial weeds such as Canada thistle and quackgrass, says Gunsolus. It also has increased winter annual weeds such as horseweed/marestail and summer annual grasses, but has decreased large-seeded weeds such as velvetleaf and common cocklebur.

There has been a shift in soybean row spacing from 30-inch rows to 10-inch rows in Minnesota over the last five years. The major impact from a weed management perspective is the loss of cultivation between the rows, says Gunsolus. To some extent this is offset by the gain in weed control associated with narrow rows shading out late-emerging weeds.

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Planting dates also affect weed problems. "Early planting dates generally result in higher yields, but weed pressure is also more intense," says Gunsolus. "Because of the weather, Minnesota producers often favor postemergence weed treatment because it eliminates having to apply preplant or preemergence herbicides. However, a postemergence weed control approach allows weeds to compete with the crop from the time of crop emergence until weeds are controlled. Also, there is risk of a lack of alignment between the timing of the postemergence treatment and the time various weeds can be controlled. If the weeds aren't controlled in a timely manner, there can be a significant yield loss due to weed competition."

More conservation tillage, narrower rows, and more acres per producer have led to a decline in rotary hoeing and cultivation in corn and soybeans. "Eliminating mechanical weed control can have a big impact on the consistency of herbicide performance," says Gunsolus.

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GOPH,DTN,V2,F4

NAGR5204

Source: Jeff Gunsolus (612) 625-8700
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

January 31, 1996

Prune Damaged Trees in Spring, but Remove Hazardous Branches Now

Look out any window or take a walk in your neighborhood. The landscape is striking, and so is the damage to trees and shrubs from this winter's ice storms and snow load. What can you do to minimize the damage to your trees and shrubs? "The simple answer is, leave them alone," says Mike Zins, extension horticulturalist with the University of Minnesota's Extension Service. "Branches which pose a hazard should be removed, but wait to prune other damaged plants after the weather warms and the ice and snow disappear."

Trees and shrubs will eventually be freed as the ice and snow melt. Trying to pull them free or tying them up will only cause more damage. Zins advises against removing remaining ice from trees and shrubs. "Removing ice may cause branches to break, buds to fall off, and bark to rip." Trees like birch, elm, silver maple and green ash which are bent over from ice and snow loads will return to their normal shape with time.

According to Zins, you should act immediately if your tree is broken or poses a hazard--some part of the tree is hanging over the street or a house, or is causing traffic problems.

"If you suspect any part of the tree is in contact with energized power lines, call your local electric company immediately. Do not approach the tree," warns Zins. Even if no wires are present, Zins advises caution when repairing damage. "Remember that placing a ladder against icy or snow-laden branches is an accident waiting to happen."

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You may be able to do your own repair work on smaller trees, says Zins. If the damage is from broken branches and stems, remove them with a three-step pruning technique. (A) Cut part way through the branch from beneath, at a point one or two feet from the tree trunk or larger branch. (B) Make a second cut from the top of the branch at a distance of two to four inches out from the first cut. This should allow the branch to fall from its own weight, breaking at the hinge and not ripping the bark down the trunk. (C) Complete the job by making a final cut next to the trunk or larger branch, just outside the swollen branch collar.

Contact your local community forester or county extension office for help with concerns about the safety of your trees. This information was provided in cooperation with the Minnesota Shade Tree Advisory Committee (MnStac). MnStac is a forum for tree advocates to form a collective vision for Minnesota's community forests. Its members represent nurseries; commercial tree services; academic institutions; federal, state and local agencies; and nonprofits.

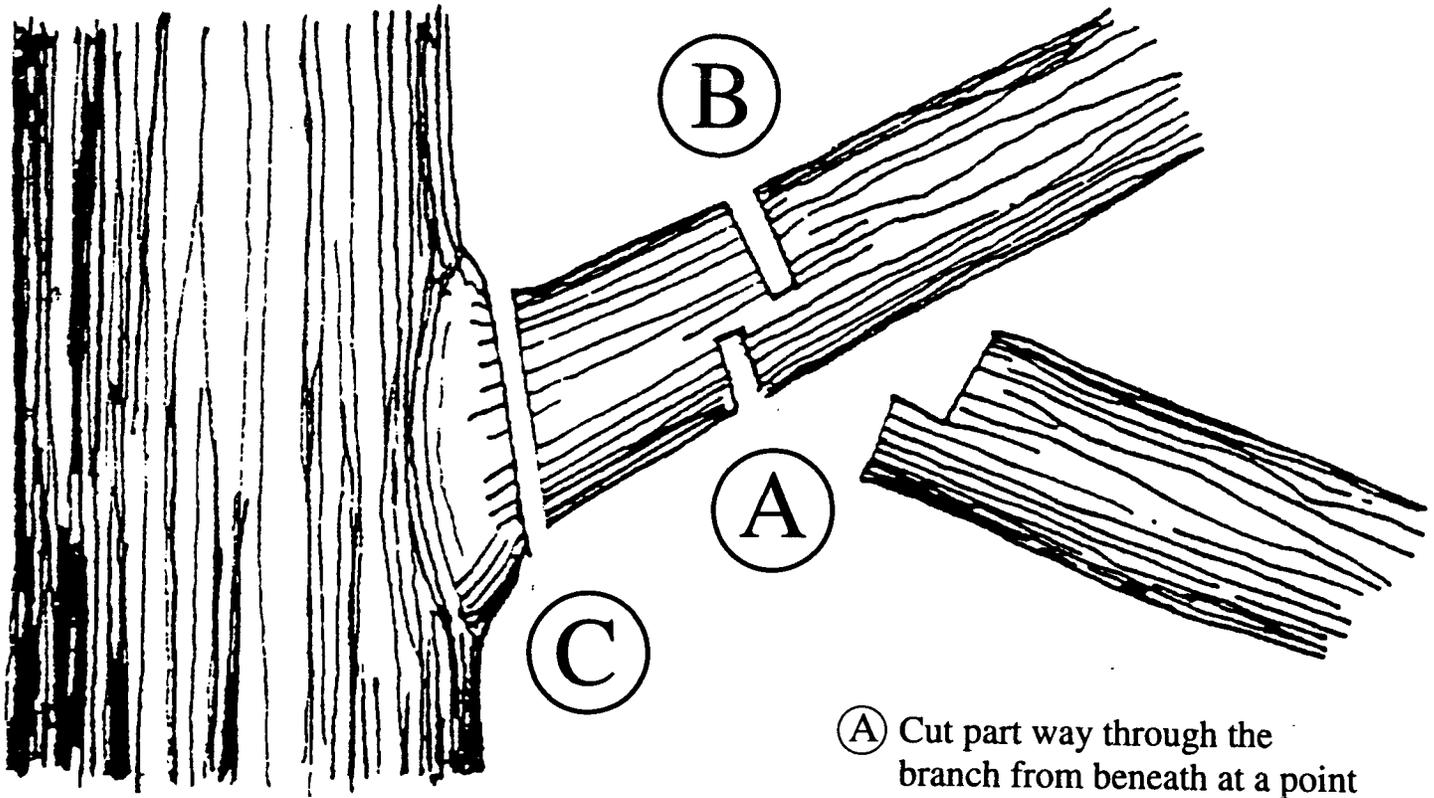
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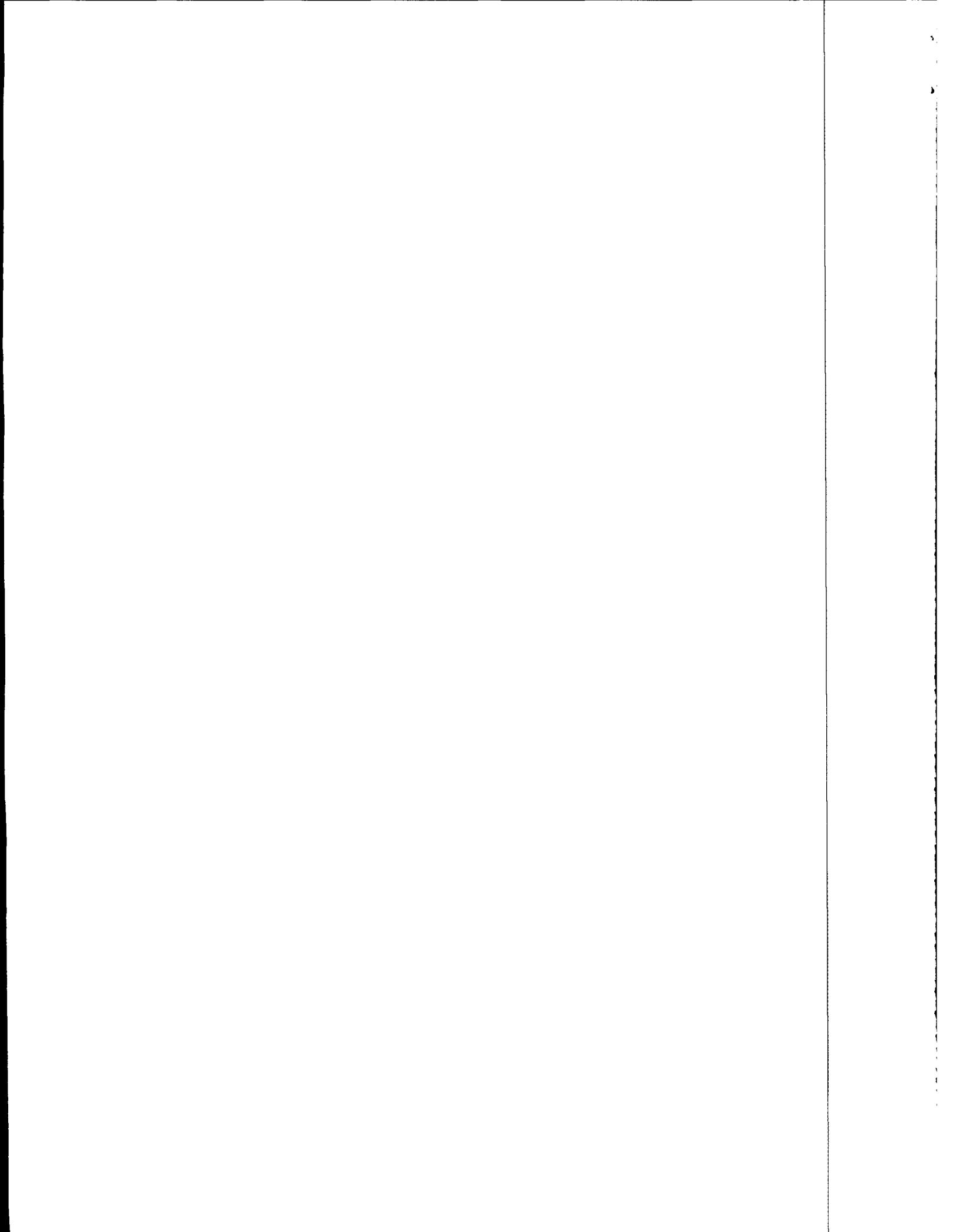
Sources: Mike Zins (612) 443-2460
Gail Steinman (612) 920-9326
Editor: Jennie Y. Rominger (612) 625-6294; jrominger@mes.umn.edu

ⓑ Make a second cut on the top of the branch at a distance of $\frac{1}{3}$ to $\frac{1}{2}$ the diameter of the limb from the first cut. This should allow the length of the limb to fall from its own weight and be safely removed.



Ⓐ Cut part way through the branch from beneath at a point one or two feet from the trunk.

Ⓒ Complete the job by making a final cut next to the trunk just outside the branch collar, with the lower edge farther from the trunk than at the top.



February 1, 1996

Dairy Heifer Raising Seminar Set at 4 Locations

Raising dairy heifers will be the focus of an educational program that will take place at four Minnesota locations in February.

The Dairy Heifer Raising Seminar will be Feb. 20 in Fergus Falls at the VFW, Feb. 21 in St. Cloud at the Holiday Inn, Feb. 22 in New Ulm at the Holiday Inn, and Feb. 23 in Rochester at the 4-H Building.

The program will be similar at each location. Topics and speakers will be:

--Introduction to custom raising dairy heifers, Pat Hoffman, dairy management specialist, University of Wisconsin, Marshfield.

--Co-mingling dairy heifers, local veterinarian.

--Computer tools, Duane Dill, Land-O-Lakes.

--Deciding who gets dairy replacements, Bob Fetzer, Elmwood, Wis.

--Nutritional needs of dairy heifers, Mark Ingstrom, Hoffmann LaRoche.

--Producing a good replacement heifer, Hoffman.

Registration at each location begins at 9:30 a.m.; the program begins at 10 a.m. The fee for registrations postmarked by Feb. 13 is \$20 per person.; after that date and at the door the fee is \$25 per person. To register, send a check for the fee to Minnesota Extension Service, Douglas County, 305 8 Ave. W., Alexandria, MN 56308. Make checks payable to Douglas

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County Extension Office. Registration brochures with additional details are available from county extension offices in Minnesota.

The seminar sponsors are the University of Minnesota's Extension Service and Dairy Initiatives Program, Hoffmann LaRoche, Land-O-Lakes, and Cargill Nutrena Feeds.

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GOPH,DTN,V2,D1

NAGR5207

Source: Dave Weinand (612) 625-9757
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

MSC
9A27p

February 6, 1996

Precision Agriculture Is Changing Farming

Precision farming uses sophisticated equipment involving satellites and computer data. But you can work into precision agriculture gradually, and you don't need to buy new equipment, says Mark Seeley, climatologist with the University of Minnesota's Extension Service (MES).

Seeley says precision agriculture is a combination of high technology and traditional agriculture. It's a mix of technology, information and applied scientific practices. Precision agriculture helps make more efficient use of farm inputs, reduces environmental risks and helps produce consistently good to excellent yields.

Precision agriculture techniques are being demonstrated at a number of Minnesota locations, Seeley says.

More information is available from a new "Precision Agriculture" video, item VH-6230-NRI. It's available from the MES for \$35 plus tax and shipping. You can order a copy by calling the MES Distribution Center at (612) 624-4900 or (800) 876-8636. Price and availability are subject to change. This item is available to disabled persons in alternate forms upon request.

You can find more Minnesota Extension Service information at <http://www.mes.umn.edu/> on the World Wide Web.

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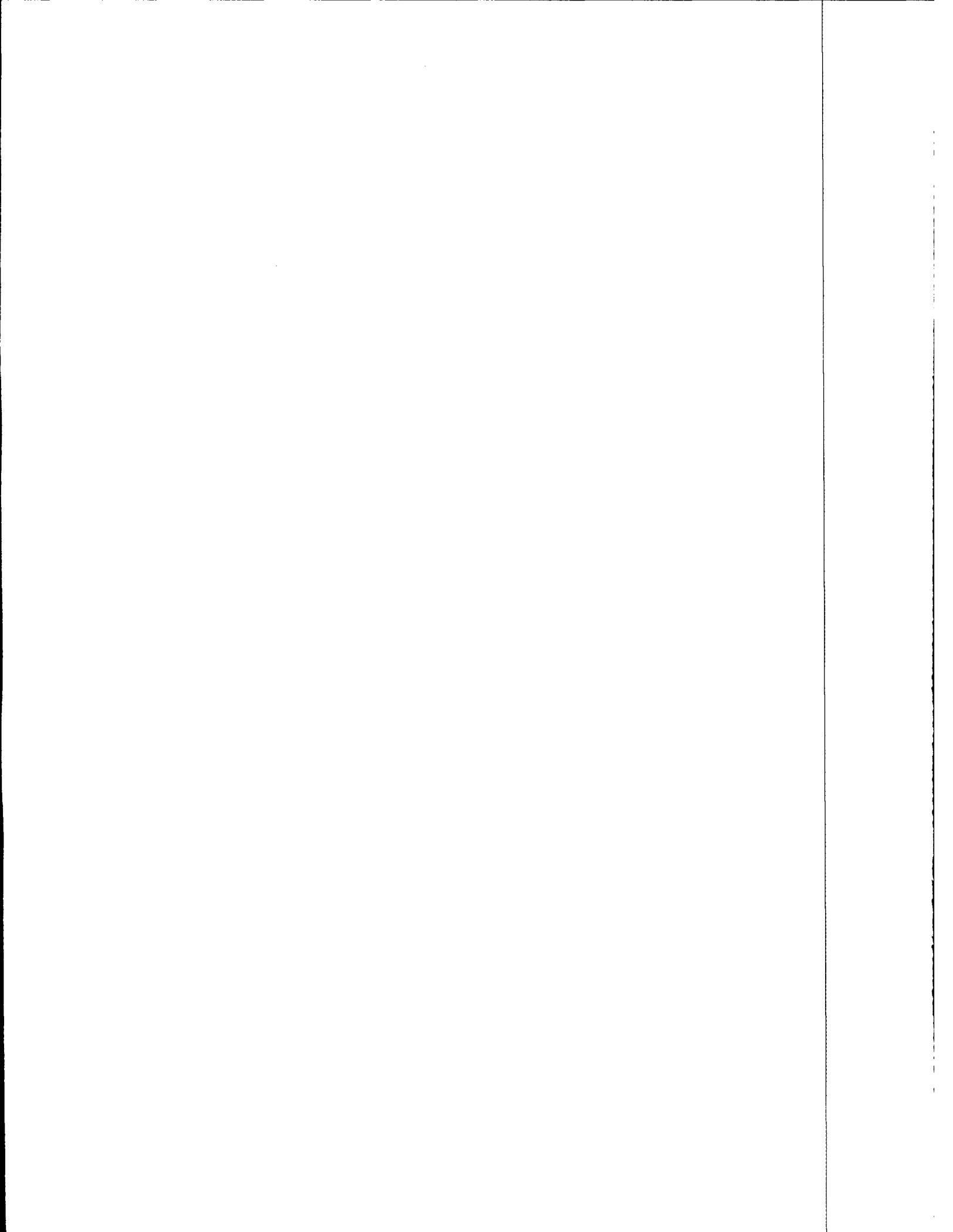
GOPH,DTN,V2,F4

NAGR5212

Source: Mark Seeley (612)625-4724
Writer: Jack Sperbeck (612) 625-1794; jsperbeck@mes.umn.edu

(Page 1 of 1)





MSC
9A27p

February 6, 1996

Several Factors Make Woolly Cupgrass Difficult to Control

You can't rely on herbicides alone to provide consistent and economical control of woolly cupgrass in corn and soybeans. That's been shown by university research throughout the Midwest, says Jeff Gunsolus, weed scientist with the University of Minnesota's Extension Service.

"Woolly cupgrass now appears to be spreading rapidly throughout southern Minnesota," says Gunsolus. "This is due to several factors. Woolly cupgrass has a higher level of tolerance to most of the soil and postemergence grass herbicides than other grass species such as the foxtails. Woolly cupgrass also germinates over a wider range of soil temperatures and depths than other grassy weeds, resulting in numerous emergence flushes throughout the growing season. Woolly cupgrass escapes can produce large numbers of seeds, and seed dormancy insures that once woolly cupgrass becomes established in a field it has the potential to be a problem for years to come. It's easy to see how current weed management strategies have led to an increase in the presence of this weed."

Because of these biological characteristics, no single weed management tactic will provide effective full-season control, says Gunsolus. Individual management tactics may effectively control a single weed flush, but, under even moderate woolly cupgrass populations,

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later flushes will not be controlled. "Integrating cultural, mechanical, and herbicidal strategies is the only way to improve woolly cupgrass management and keep costs at a reasonable level," Gunsolus concludes.

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GOPH,DTN,V2,F4

NAGR5209

Source: Jeff Gunsolus (612) 625-8700
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

February 6, 1996

1996 University of Minnesota Swine Day Proceedings Booklet Available

Pork producers can gain access to an extensive listing of publications on networking and segregated early weaning by obtaining a copy of the 1996 University of Minnesota Swine Day Proceedings booklet. The booklet is available by mail from the university's Department of Animal Science.

The booklet also contains information presented at the university's Swine Day programs earlier this winter. The 57-page main section has articles on networking strategies, production contracting, odor reduction, packer's contracts, packer cut-out sheets, carcass disposal, and the effect of nutrition on swine waste management and odor control.

The listing of 144 publications on networking and segregated early weaning is in a 28-page appendix. University of Minnesota faculty members compiled the list and wrote a brief description of each publication's potential value to swine producers. Information on ordering the publications is also included.

The price for the 1996 University of Minnesota Swine Day Proceedings is \$6.24 per copy, which includes postage. To order, send a check payable to the University of Minnesota to Charles Christians, Department of Animal Science, University of Minnesota, 101 Peters Hall, 1404 Gortner Ave. St. Paul, MN 55108-1098.

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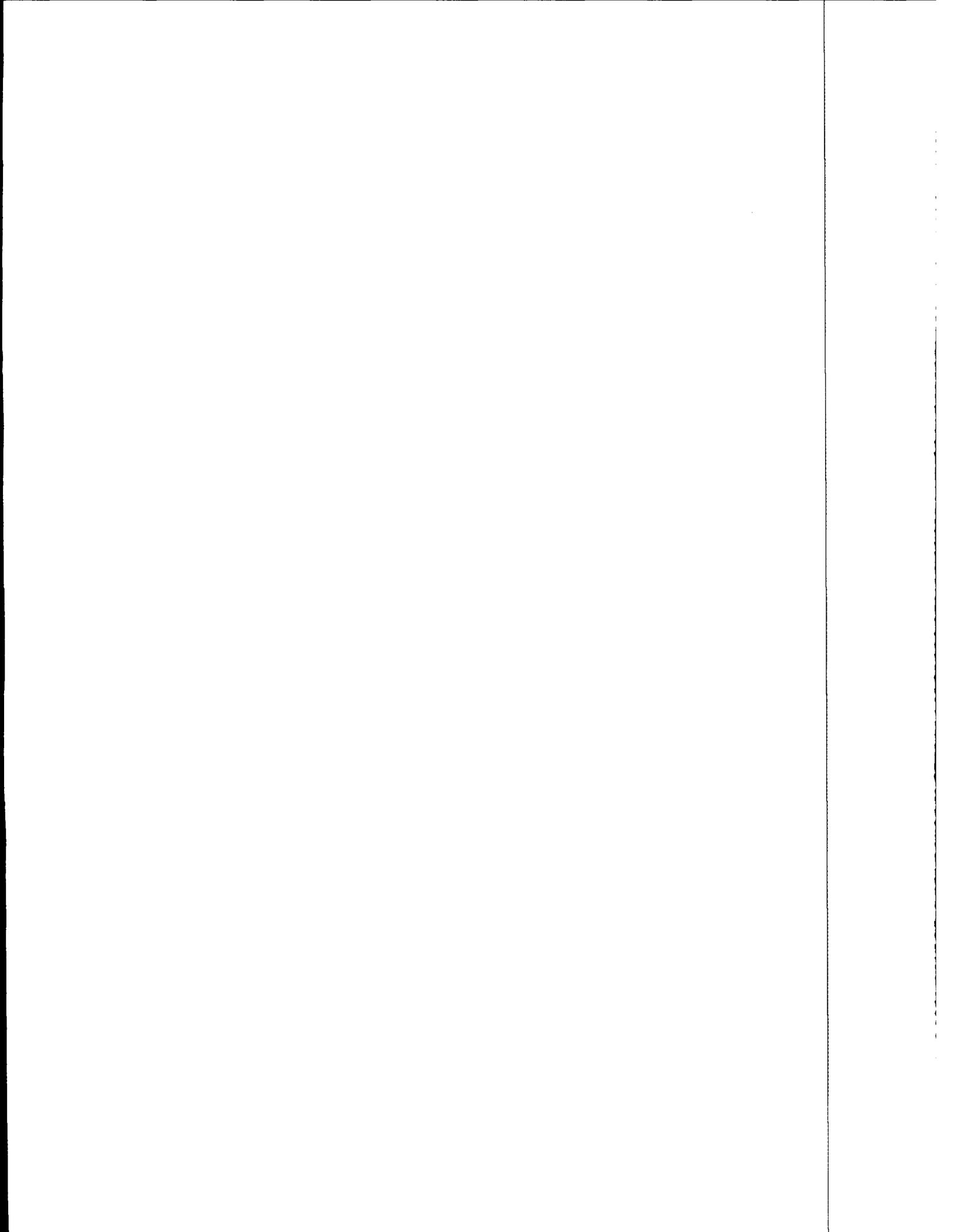
GOPH,DTN,V2,S2,X5

NAGR5211

Source: Charles Christians (612) 624-0766
Writer: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)





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9A27P

February 6, 1996

Risk Management Approach for Weeds in Corn, Soybeans Advocated

Using the same practices year after year for managing weeds in your crops is likely to provide an advantage for the weeds. The key to consistently effective weed management is to use a diversity of weed management practices, says Jeff Gunsolus, weed scientist with the University of Minnesota's Extension Service.

"Current trends in corn and soybeans are less inter-row cultivation and more single-pass postemergence weed management," he says. "This is a fairly risky approach because it can give a particular weed species an opportunity to flourish under the right conditions."

Gunsolus advocates a risk management approach to weed control. The main objectives of this approach are (1) to anticipate unfavorable events and act to reduce their occurrence and (2) to act to reduce the adverse consequences of unfavorable events if they do occur.

He cites as an example of the first objective a situation where you know the critical size for effective postemergence weed control is in the 2-4-inch range. Also, the window of opportunity for total postemergence applications may be as short as 7-10 days. Using total postemergence weed control for the entire acreage won't work because of the large number of acres and the short time the weeds are susceptible to the herbicide.

"Such a situation places a lot of stress on the herbicide applicator," notes Gunsolus. "One technique to prevent this would be to treat some or all of the acres with a soil-applied herbicide and re-treat with a postemergence herbicide only the areas with weed escapes."

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An example of the second objective would be a situation where a preemergence herbicide failed to perform due to lack of a timely, activating rainfall. "Knowing how full-season weed pressure affects crop yields, the next step would be to either rotary hoe or cultivate the field, depending on the weed and crop growth stage," says Gunsolus.

Economics and time and labor constraints may make producers reluctant to adopt the risk management weed control approach, notes Gunsolus. But he cites 1994 and 1995 soybean weed management and profitability trials at Waseca. "In 1994, despite the extra cost of applying the Treflan, a Treflan/Pursuit sequential application was as profitable as total postemergence Pursuit and Pursuit + Pinnacle treatments," he says. "In 1995, the sequence of Treflan preplant incorporated followed by Pursuit postemergence followed by inter-row cultivation was one of the most profitable sequences despite the extra costs."

Gunsolus concludes that both corn and soybean trials at Waseca indicate that properly designed sequential weed management treatments are economically feasible. They also address the risks associated with failing to align the timing of a one-pass weed control strategy with favorable environmental events and the time of weed emergence.

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GOPH,DTN,V2,F4

NAGR5208

Source: Jeff Gunsolus (612) 625-8700
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

MSC
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February 9, 1996

To Pay, Yield Monitors Must Improve Management of Crop Inputs

Improving the management of the controllable factors affecting crop yields is the primary benefit of on-the-go yield monitoring. That's the analysis of Gyles Randall, soil scientist at the University of Minnesota's Southern Experiment Station at Waseca.

"Accurately knowing the yield variability within a field can become the cornerstone of a crop management plan," says Randall. "But first, it's important to know if the yield variability within the field is stable from year to year. Do some areas consistently yield higher from year to year while other areas consistently yield lower, or does the yield variability pattern change within the field each year? If an area yields high one year compared with the rest of the field and low or medium another year, it's important to determine the cause of this yield instability. Perhaps weather is the cause. It's wise to have several years of yield data before putting too much stock in the yield maps or before making costly management changes."

If the purpose of monitoring yield variability is to compare corn hybrids, soybean varieties, herbicide rates or types, starter fertilizer, or crop injury from a pesticide, one year of data may be helpful as a starting point, says Randall. However, data from several years will be much more helpful.

"If the purpose of monitoring is to improve overall management of the field and perhaps modify some of the soil factors, then it seems wise to have three to six years of data," says

(over)



Randall. This is the minimum needed to separate out climate-induced variability within a field, he adds.

It's also necessary to look at why yields are variable, considering controllable and uncontrollable factors. Randall says factors that are usually controllable are soil fertility and acidity, pests, plant population, hybrid or variety selection, and tillage. Factors such as drainage, water holding capacity, deep compaction history, soil organic matter, nitrogen loss, and nematodes are usually uncontrollable.

"The goal is to increase profit by improving management of controllable factors, or inputs," says Randall. "But there is an up-front cost for yield monitors, so understanding them thoroughly and using them wisely is necessary for them to pay. They can be cost-effective management tools or costly gadgets."

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GOPH,DTN,V2,E4,F4

NEXP5215

Source: Gyles Randall (507) 835-3620
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

February 9, 1996

Yield Maps Won't Automatically Benefit Crop Producers

On-the-go yield monitors are generating a lot of hype and enthusiasm among crop producers. Data from the monitors are often expressed in color-coded yield maps for whole fields or farms. But such maps aren't automatically beneficial to producers, says University of Minnesota soil scientist Gyles Randall.

"There's much more to collecting, understanding, and managing collected yield data than developing colorful maps," says Randall. "For the data to be reliable, you need to know that the yield monitor is performing well. Proper installation is critical for dependable performance. Also, matching the yield monitor with the combine is essential--a new, costly sensor on a slightly older style combine may not perform well. Indications are that factors such as constant travel speed of the combine and slope of the field influence the accuracy of the data. In summary, purchase a trustworthy monitor, match it to the combine, install it properly, and calibrate it carefully with weighed yield checks before putting too much emphasis on a yield map."

Randall says continuous improvements are occurring with yield monitors, so models only one or two years old may be obsolete already. "There's a state-of-the-art cost in staying current with the best, most adaptable systems available," he points out.

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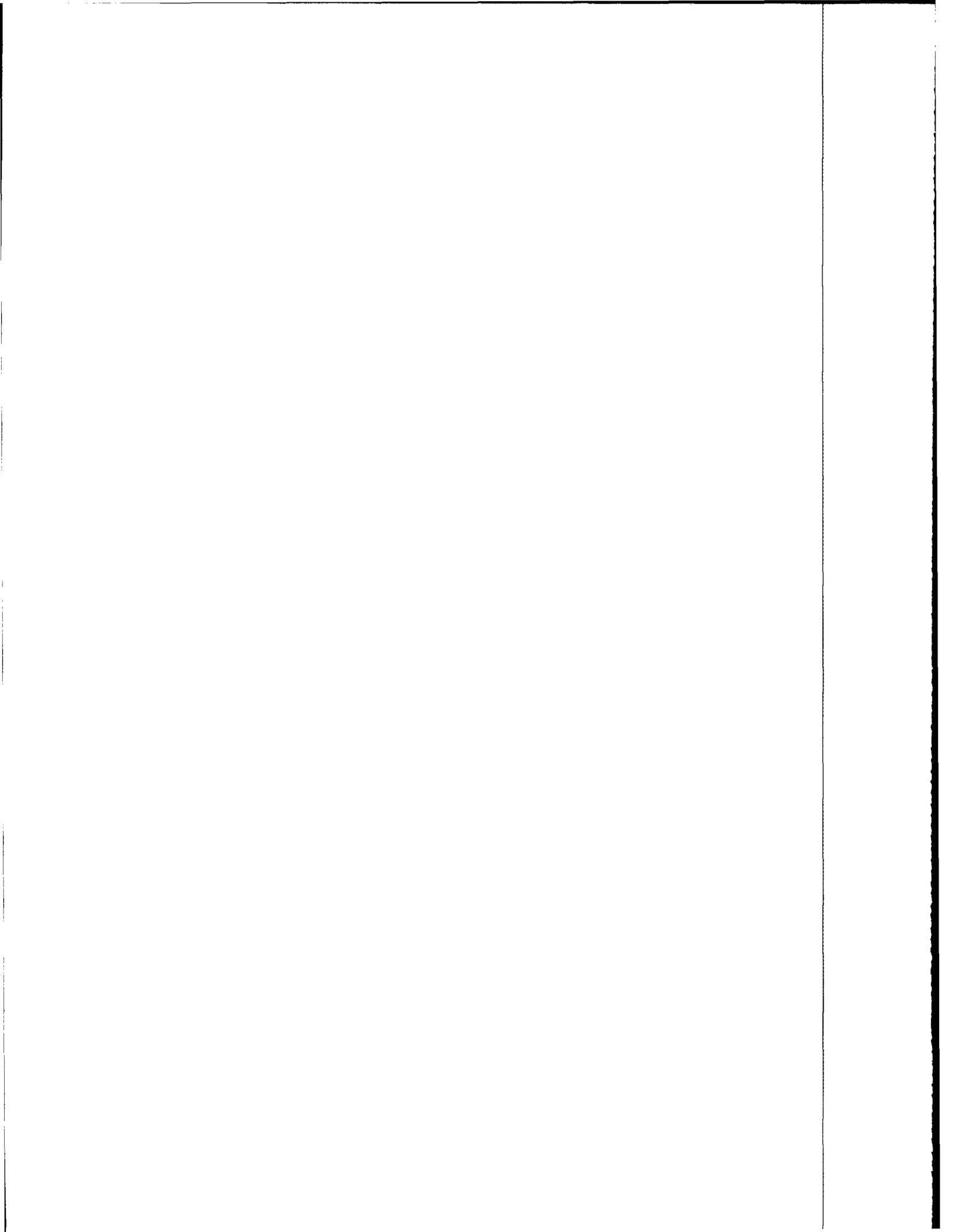
GOPH,DTN,V2,E4,F4

NEXP5214

Source: Gyles Randall (507) 835-3620
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)





February 9, 1996

In Future, Remote Sensing Will Show Nitrogen-Deficient Corn

It appears that in the future, remote sensing will be an excellent way to identify nitrogen-deficient areas in corn fields, according to a University of Minnesota soil scientist. Remote sensing usually involves some type of reflectance measurement, says Gyles Randall of the university's Southern Experiment Station at Waseca.

"Sensors mounted on a high-clearance vehicle driven through the corn field have been used by Nebraska researchers to determine leaf and canopy reflectance," says Randall. "The researchers also compared this technique with canopy reflectance measured by aerial photography, and with light transmission through the leaf by a chlorophyll meter. Their studies on irrigated Nebraska corn fields showed that all three reflectance methods identified portions of a field that were deficient in nitrogen, as long as a proper in-field reference strip was used."

Randall says the research concluded that remote sensing techniques using aerial photography or photometric sensors require less labor to collect data and can represent more areas of a field than methods that require sampling of individual plants.

"As sensor technology is improved and more field data are collected, farmers in the future may be using these techniques on a regular basis," says Randall. "At this time, using remote

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sensing to identify nitrogen-deficient fields appears to have the most promise for improving nitrogen management on irrigated sandy soils."

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GOPH,DTN,V2,E4,F4

NEXP5216

Source: Gyles Randall (507) 835-3620

Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

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February 12, 1996

Reporters, editors: Please EMBARGO this story until Feb. 12.

Slow Decline in Sales Prices of Minnesota's Ag Land Continued in 1995

The average sales price of a typical acre of Minnesota agricultural land decreased by 4 percent in 1995 from \$830 to \$796 per acre. In 1993 the statewide average was \$839 an acre, which is a 5 percent drop in two years. The figures are reported in the latest edition of the "Minnesota Agricultural Economist" published by the University of Minnesota's Extension Service.

"While the statewide average has declined, I would call Minnesota's agricultural land market stagnant," says Steve Taff, an economist in the university's Department of Applied Economics. "A 5 percent decline over two years is hardly worth worrying about. The question is, will it continue?"

"Many people think, as I do, that the present land price level is too high to be supported by current returns on agricultural production," Taff continues. "It's possible the currently higher grain prices are encouraging buyers to pay more for agricultural land, but our numbers won't show this yet because our study ended on Sept. 30, 1995."

Taff says the stagnation in sales prices reflects an underlying uncertainty about the future. "Both buyers and sellers are concerned about future crop prices, crop subsidies and government regulations." Taff says this concern counters the location-driven aspects of the land market which drive prices upward.

Location, Location, Location

While statewide average sales prices change slowly, Taff points out that local land markets can be much more volatile. "Neighboring farmers who want to pick up a 40 or an 80 to

(over)



'round out' their operation are often willing to pay a premium--far above what the parcel would sell for as a 'stand-alone unit.'" For example, recorded sales prices in the region immediately northwest of the Twin Cities metro area display a price range of roughly \$200 per acre to \$5,700 per acre.

Compared to its raw earning potential from farming (without public subsidies), Taff says much Minnesota farmland is now overpriced. But compared to its value to neighboring operators or, in some parts of the state, to buyers seeking recreational opportunities, much of that land may actually be underpriced.

"Each land transaction is unique," Taff says. "Outsiders may judge the final sales price of a parcel as being far too high or a real steal. Annual variations in sales prices for a particular area are totally dependent on which parcels come on the market. Therefore, a long-term view of the market is much more reliable."

Changes in average sales prices for agricultural land in Northwest Minnesota further illustrate the influence of location and land availability. In 1993 the average sales price of an acre of agricultural land in that area was \$581. It dropped to \$462 an acre in 1994 and then rebounded to \$487 an acre in 1995. Did the typical acre in that region really bounce around so much in average sale price?

"Of course not," Taff says. "What really happened was a change in the composition of sales that lead to the calculation of those average prices." In 1994 much more land was sold in the less valuable areas outside the Red River Valley. In 1995 the distribution of sales within the northwest region was more balanced.

Tillable Land Dropping More Sharply

One of the more interesting figures included in the report is a 10 percent decline in the average statewide sales price of tillable land since 1993. Taff says tillable land is more likely to reflect the productive component of land prices and not the location component. He says, "Tillable land prices are less likely to be driven by a buyer's desire to put a vacation cottage at the edge of a field. Therefore, it sells for less."

(more)

The drop in tillable land prices and overall agricultural land prices conflict with survey estimates prepared by USDA. Taff explains that USDA figures are based on surveys of what people think land might sell for, while his figures are based on the average sales prices of land that actually sold.

The annual land value study is supported by the Minnesota Department of Revenue, and the university's Agricultural Experiment Station and Department of Applied Economics. Free copies of the study can be obtained by contacting the Waite Memorial Library, University of Minnesota, 1994 Buford Ave., St. Paul, MN 55108-6040; tel. (612) 625-1705. Request the "Minnesota Agricultural Economist," No. 683, Winter 1996.

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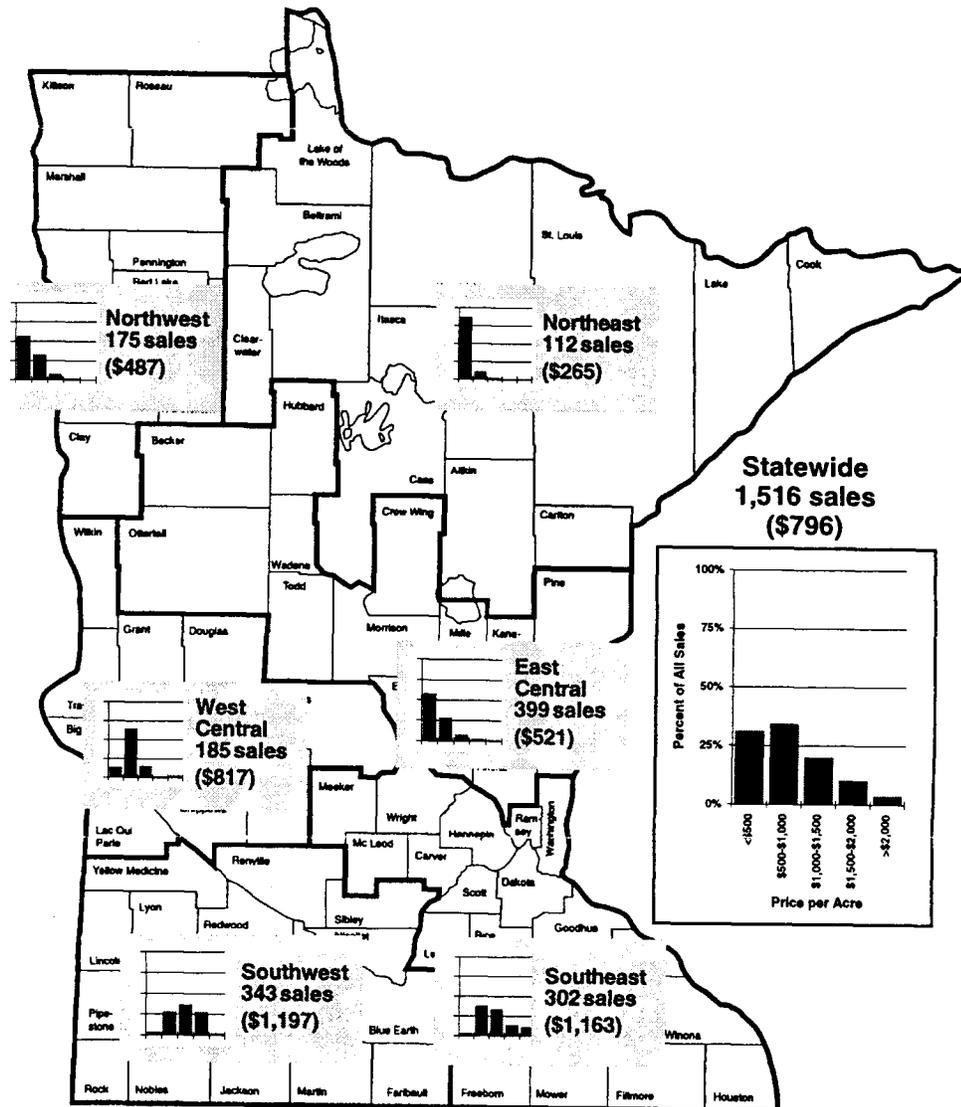
GOPH,V4MN,V8MN,V9MN,A2, A4

NEXP5213

Source: Steve Taff (612) 625-3103

Writer: Martin Moen (612) 625-6243; mmoen@mes.umn.edu

Recorded 1994 Farmland Sales Prices by Reporting District



February 16, 1996

Overmilking Cows Often Leads to New Mastitis Infections

If you install an automatic takeoff (ATO) system in your milking parlor, train milkers to avoid routine use of the manual override. That's the recommendation of Jeff Reneau, dairy scientist with the University of Minnesota's Extension Service.

"Many milkers who have become accustomed to a lot of machine stripping have a hard time discontinuing this very risky and unproductive practice," says Reneau. "Most machine-induced new mastitis infections are the result of air slips that occur during overmilking. Since there is virtually no milk or very little milk flow to flush the teat ends during overmilking, 'impacts' that occur have a good chance of carrying mastitis pathogens into or through the teat canal. Experience has shown that routine use of the manual override in an ATO will result in high herd somatic cell count (SCC)."

Reneau says it's important to convince milkers that there's no such thing as "getting the last drop." "Ten to 15 percent residual milk will always be present even after a normal and complete milkout," he points out. "Research studies show it would be normal to be able to strip 1-1.5 pounds of milk from a cow considered milked out. From the standpoint of total lactational performance and milking efficiency, there is no merit in trying to get that 1-1.5 pounds of milk through machine stripping. This is particularly true when you consider the risk of increasing herd SCC or causing mastitis. The studies show that 1-1.5 pounds of milk left in the udder will not decrease lactational performance."

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Reneau says ATO units are usually triggered to detach at a flow rate of around a half pound per minute. "When cows are prepared properly and receive adequate stimulation--a minimum of 10-20 seconds--and when the machine is hung squarely within 1-1.5 minutes after the beginning of cow prep, a normal and complete milkout will occur without any need to machine strip," says Reneau. "There will be some cows, such as those with a slow quarter or unbalanced udder, that may need special attention requiring use of the manual override. It may also be required for a rambunctious heifer. However, manual use should be the exception, not the rule."

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GOPH,DTN,V2,D1

NAGR5222

Source: Jeff Reneau (612) 624-4995
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

February 16, 1996

Every New Free Stall Dairy Barn Needs Permanent Footbath

Every new free stall dairy barn needs a permanent footbath conveniently located in a return alley. That's the recommendation of Jeff Reneau, dairy scientist with the University of Minnesota's Extension Service.

"Use of a footbath is essential for preventing cow lameness in a new free stall facility," says Reneau. "The cow's entire hoof should be submerged as the cow walks through when the footbath is filled with solution. The footbath should be long enough that all four feet are simultaneously treated. It has been suggested that a 30-ft. bath is ideal, but this is impractical. A footbath 8-12 feet long is adequate."

Reneau says most producers use liquid solutions containing 5-10 percent copper sulfate. Zinc sulfate also can be used. There are products available commercially that are made for footbath use.

"Cows should be treated a minimum of once per day and preferably at each milking when a copper sulfate solution is used," says Reneau. "The footbath solution acts as an astringent in addition to cleaning hooves. This prevents excessively abraded hooves from becoming infected and cows from subsequently becoming lame."

Where liquid footbaths aren't possible because of extreme cold, dry baths made by mixing together one part copper sulfate and nine parts barn lime have worked adequately, says Reneau.

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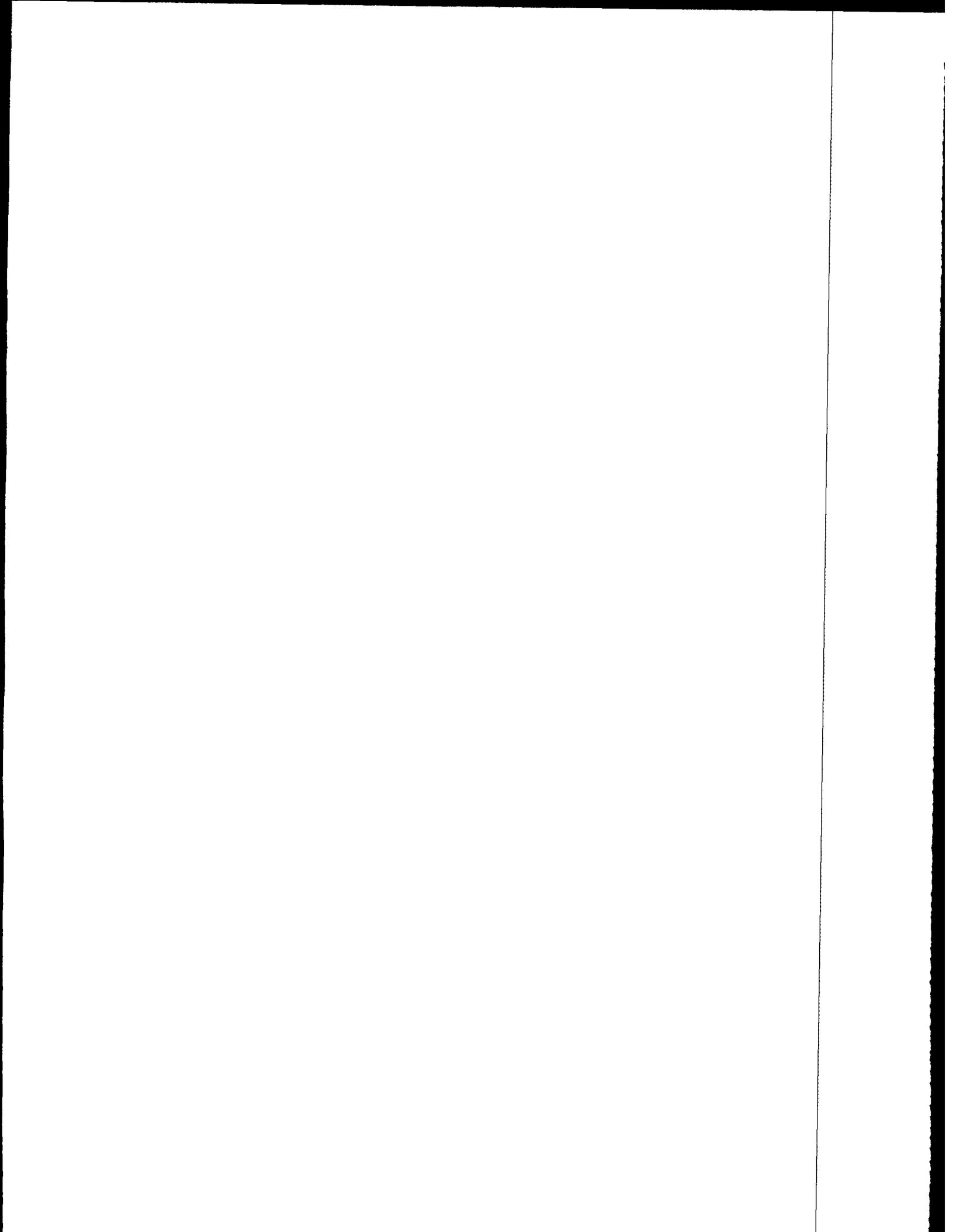
GOPH,DTN,V2,D1

NAGR5221

Source: Jeff Reneau (612) 624-4995
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)





NEWS INFORMATION

February 16, 1996

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UNIVERSITY OF MINNESOTA

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There Is Difference Between Odor, Gases from Swine Operations

The odor and gases that come from swine operations are by-products of the microbial decomposition of manure and other organic matter. And there is a difference between the odor and the gases, notes Larry Jacobson, agricultural engineer with the University of Minnesota's Extension Service.

"Gases are individual compounds, such as ammonia and hydrogen sulfide, that may or may not have an odor," says Jacobson. "These compounds are measurable and their concentration in the air is usually expressed as parts per million, or ppm. Odor is the result of many gases that have an offensive smell. Odor is not directly measurable. However, methods are being used to determine odor 'intensity,' or the dilution to a threshold value, using a device called a direct olfactometer in combination with an odor panel of people. Odor intensity units may be expressed as the amount of dilution air needed to be mixed with odorous air to reach the threshold level."

Jacobson says the amounts and types of emissions coming from a swine operation depend on the amounts and types of microbial activity during manure decomposition. "Microbes are sensitive to moisture content, temperature, pH, oxygen concentration, and other environmental factors," he says. "Any changes in these factors will alter odor and gas emissions. For example, as temperature drops, microbial activity slows down. That's why there is less odor during the winter."

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GOPH,DTN,V2,S2

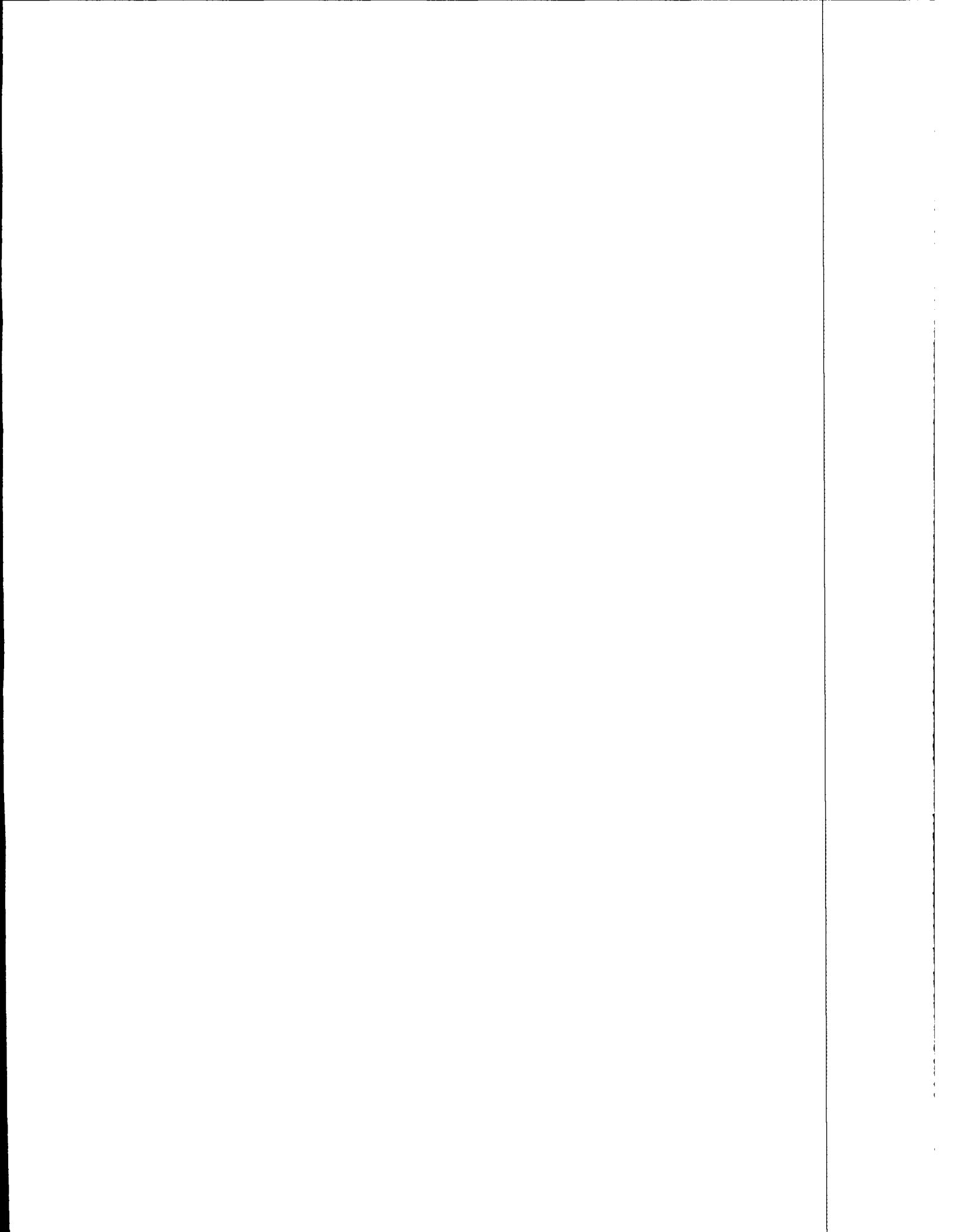
NAGR5223

Source: Larry Jacobson (612) 625-9733

Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)





*MSC
gA27*

February 23, 1996

Soybeans in Southern Minnesota Don't Need Nitrogen Fertilizer

Nitrogen fertilization should not be part of soybean production in southern Minnesota. It's expensive and doesn't increase yields, say Fritz Breitenbach and George Rehm, soil scientists with the University of Minnesota's Extension Service.

"Soybeans grown in the Red River Valley have responded to nitrogen in some situations," say Breitenbach and Rehm. "At times, it is difficult to achieve good inoculation and subsequent nodule development when growing soybeans on the soils there. However, in southern Minnesota there is no problem in getting nodule development."

The Minnesota scientists cite results from a 1995 study in Olmsted County. In the study, nitrogen at 0, 50, and 100 pounds per acre was supplied as urea. Inoculated and non-inoculated soybeans were planted at each rate of N application. Neither N fertilization nor seed inoculation had a significant effect on yield. Also, the number of nodules on each plant decreased as the rate of nitrogen fertilization increased.

"These results are consistent with the results of several previous research projects on nitrogen fertilization for soybeans," say Breitenbach and Rehm.

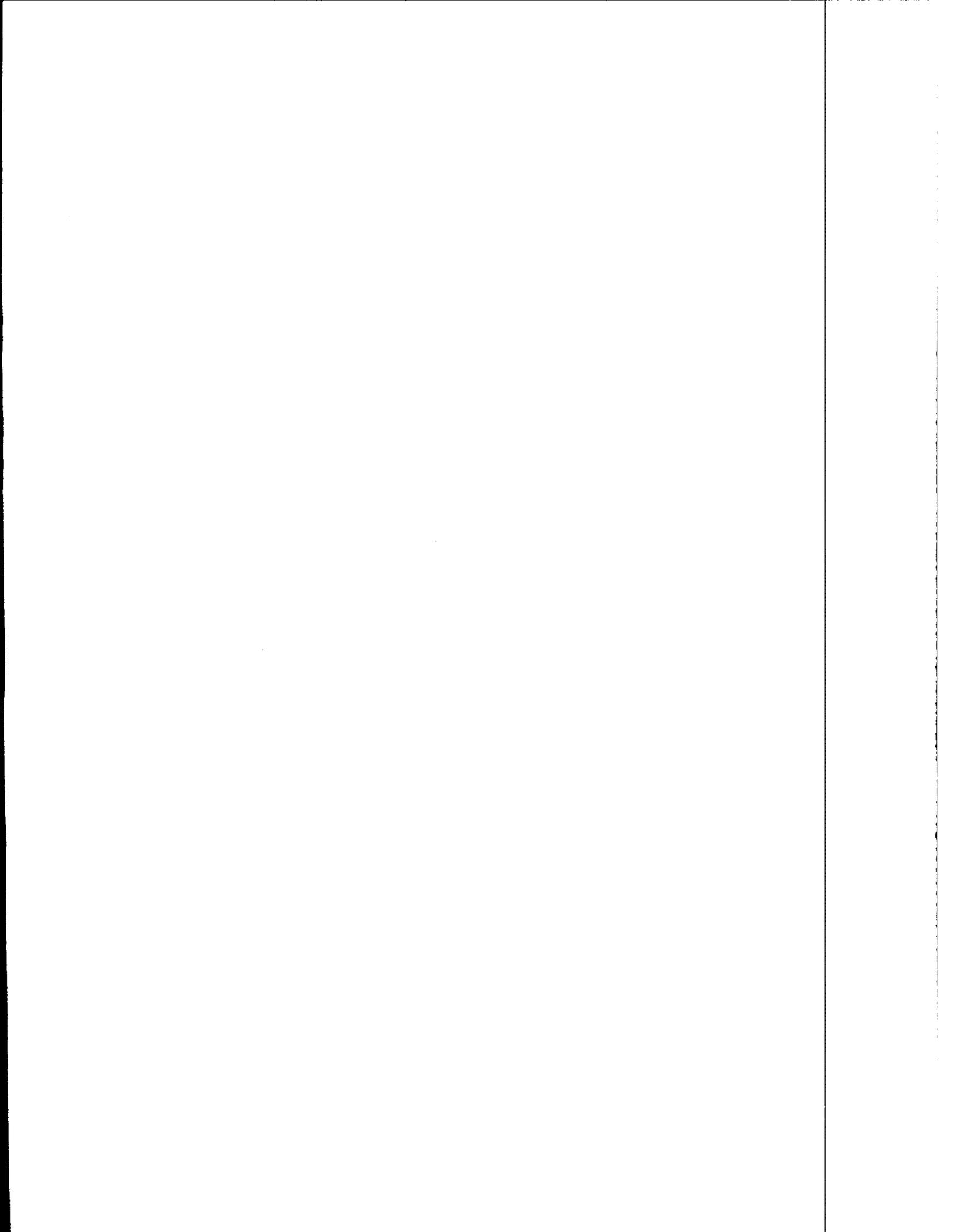
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GOPH,DTN,V2,F4,55

NEXP5229

Sources: George Rehm (612) 625-6210; Fritz Breitenbach (507) 280-2870
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)



February 23, 1996

MN Forest Products Directory Means Business for You

If you need to know who the primary wood processors and wood product manufacturers are in Minnesota, then the 1995-97 edition of the "Minnesota Forest Products Directory" is for you. The 316-page directory lists over 1,300 businesses and retails for \$20.

"This directory is an ideal reference for anyone who buys or sells lumber, panel products, manufactured wood products, supplies or equipment," says Tom Milton, forest products specialist with the University of Minnesota's Extension Service (MES). Milton says the directory "makes it easy to keep the world of Minnesota forest products at your fingertips."

The directory is designed to help you market wood products, encourage the use of native tree species, promote Minnesota wood products nationally and internationally, and aid in the development of new products. It offers alphabetical and product indexes; a list of sawmills by county; a list of wood products manufacturers by county; pulp, paper and panel board companies; dry kilns facilities; and wholesale lumber dealers. The 1995-97 edition also offers several new features.

"We've added a list of residues available from wood product manufacturers and a product index categorized by Standard Industrial Classification codes," Milton

(over)



explains. He also says the listing of trade associations is more thorough in the new edition.

The 1995-97 edition of the "Minnesota Forest Products Directory," item BU-1390-NR1, costs \$20 plus tax and shipping. Call (800) 876-8636 for details. Price and availability are subject to change. This item is available to disabled persons in alternate forms upon request.

The directory is published by the MES and the Minnesota Department of Natural Resources.

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GOPH,E1,F8,F9,X9

NNRD5526

Source: Tom Milton (612) 624-5307
Editor: Martin Moen (612) 625-6243; mmoen@mes.umn.edu

February 23, 1996

Awakening Houseplants Need Cleaning, Fertilizer

Late February's sunny skies and stronger sunlight serve as an alarm clock for houseplants throughout Minnesota's winter climate. This period of renewal is an ideal time to perform some houseplant chores says Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

"Gardeners tend to be anxious people in early March," Brown says. "The snow is melting and we start to see work that needs doing out in the yard." Brown says gardeners should redirect some of that energy toward their houseplants.

Probably the most important task, according to Brown, is to keep houseplants clean. "When you wash the leaves of your houseplants, you get rid of insects or insect eggs that might be on the leaf." Since insects also are attracted to dirty, dusty leaves, a clean houseplant stands a better chance of avoiding insects.

Brown recommends lukewarm water that has a few drops of mild dishwashing soap in it, not enough to produce bubbles, but enough to make the water feel slippery. If you're washing leaves by hand, Brown reminds you to support each leaf with one hand and wipe with the other hand. Clean both the top and underside of the leaf, and don't forget the plant's stems and branches!

If your plant has a lot of small leaves, you might consider putting it in the sink and using a spray attachment. Larger plants can be cleaned in the shower. Remember to use lukewarm

(over)



water. "Be sure to pull tinfoil or plastic over the pot and over the soil itself and crimp it around the plant," Brown says. "You don't want to splash soil out of the pot."

Fertilizing houseplants is something most gardeners do routinely. But Brown warns about overdoing it. "I prefer to think of houseplant fertilizer as a supplement, remembering that the plant is capable of producing its own food through photosynthesis."

Brown adds that fertilizer should be mixed at half-strength. "If the label says use one teaspoon per quart, use only one-half teaspoon per quart. You're less likely to burn the plants and you can always come back in a couple of weeks and fertilize again." She points out that damage from overfertilization cannot be undone.

Brown also cautions against using fertilizer to wake up a slow-growing plant. "There may be other factors, but usually a plant grows slowly because it isn't getting enough light. Jolting the plant with a burst of fertilizer will produce growth that is sort of soft and floppy, not very healthy, and not very attractive."

When should you fertilize a houseplant? Only when it is growing actively, Brown says. "As days grow longer and we get stronger sunlight, our houseplants start to put on new growth. That's the time to help them out with a little fertilizer."

For more information, contact the university's Dial-U Insect and Plant Information Clinic. Call 1-900-988-0500 between 9 a.m. and 1 p.m. on Mondays, Wednesdays and Fridays for assistance. A \$2.99 fee will be charged to the telephone you use.

#

GOPH,V3,V5,V7,G1

NAGR5230

Source: Deborah Brown (612) 624-7491

Writer: Martin Moen (612) 625-6243; mmoen@mes.umn.edu

MSC
JAP

February 23, 1996

Studies Show Extent of Corn Yield Loss Due to Mid-Season Damage

Mid-season corn damage from high winds and hail can cut into yields significantly. However, the yield loss is probably less than most producers would expect, says Gregg Johnson, agronomist at the University of Minnesota's Southern Experiment Station at Waseca.

Johnson cites studies at the Waseca station in 1994 and 1995 on the effect of stalk breakage, or "green snap." The studies involved two damage times (before or after tasseling), two stalk breakage locations (above or below the uppermost ear), and damage levels of 0, 25, 50, 75, and 100 percent. Stalks were manually broken on corn plants in each plot.

With no breakage, corn averaged 141 bushels per acre over the two years. The two-year average yield was 127 with 25 percent damage, 116 with 50 percent damage, 95 with 75 percent damage, and 82 with 100 percent damage. When averaged over the two-year period, there was a 16 percent reduction in yield when plants were snapped below, compared with above, the uppermost ear.

"The interaction between percent damage and location of stalk breakage was especially interesting," says Johnson. "For example, when 50 percent of the corn plants were broken below the uppermost ear there was a 24 percent reduction in grain yield in

(over)



1994 and a 33 percent reduction in 1995. However, when corn was broken above the uppermost ear, there was only an 8 percent and 12 percent reduction in grain yield for 1994 and 1995, respectively. Even when 100 percent of the plants were damaged, yield was reduced by only 51 percent in 1994 and 65 percent in 1995 when stalks were broken below the uppermost ear."

Johnson says yield compensation from the second ear and/or increased yield in adjoining undamaged corn plants may explain the difference between percent damage and actual yield reduction.

"There was no significant difference in 1994 corn grain yield if plants were broken before or after tasseling," says Johnson. "However, in 1995 corn grain yield was reduced if plants were broken before tasseling, compared with after tasseling. Since weather was favorable for pollination in 1994 and 1995, we would expect to see a minimal timing effect because non-damaged plants would pollinate those plants that were damaged. However, stress during the pollination period may significantly reduce yields if plants are damaged before tasseling."

#

GOPH,DTN,V2,F4

NEXP5227

Source: Gregg Johnson (507) 835-3620
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

February 23, 1996

Corn Stover Is Significant Source of Crop Nutrients

Corn stover left in the field and incorporated into the soil is a significant source of crop nutrients. Measuring stover yield and analyzing nutrient content shows this, says Carl Rosen, soil scientist with the University of Minnesota's Extension Service.

Rosen used data from studies over a six-year period to summarize stover nutrient content and estimated value on a dry ton basis. The summary shows 10.8 pounds of nitrogen per dry ton, worth \$1.08. It shows 2.3 pounds of phosphate per dry ton, worth \$.40. It shows 36.4 pounds of potash per dry ton, worth \$3.93. Other nutrients are valued at \$.50 per dry ton, and organic matter is valued at \$.30 per dry ton. This brings the total value of stover per dry ton to \$6.21.

"Determining moisture content is important for accurately estimating nutrient content," says Rosen. "Corn stover can range from less than 20 percent to more than 45 percent moisture."

When estimating nutrient value, Rosen assumed a value of \$.20 per pound for nitrogen, \$.25 per pound for phosphate, and \$.12 per pound for potash. He also assumed that 50 percent of the nitrogen, 70 percent of the phosphate, and 90 percent of the potash would be available.

(over)



As an example, a typical harvest might produce six tons of stover containing 30 percent moisture. This would provide 4.2 dry tons per acre. At \$6.21 per dry ton, the value of the stover would be \$26.08 per acre.

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GOPH,DTN,V2,F4

NAGR5228

Source: Carl Rosen (612) 625-8114
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

February 26, 1996

Cut Swine Carcass Discounts by Selling in Weight Range Packer Prefers

If you sell hogs on a carcass-merit system, it's important that the carcasses fall within the weight range the packer prefers. That's a key to getting the best possible price for the animals, notes Jerry Hawton, swine scientist with the University of Minnesota's Extension Service.

The discount packers apply to carcasses that fall out of the packer's preferred carcass weight range is called sort loss. "The sort loss deduction is money the producer could have received, regardless of the quality or type of hog produced, if carcass weight had been in the packer's preferred weight range," says Hawton.

On farms where marketing management receives little attention, sort loss can significantly affect the income from carcass-merit programs, says Hawton. "Data from Kansas and Nebraska have shown average sort loss per head to be from \$1.67 to over \$3," he says. "In some cases, sort loss penalties totaled more than carcass quality premiums, resulting in negative premiums for selling on a carcass merit system."

However, it's possible to nearly eliminate sort loss by buying and using a scale. "If you weigh several hogs at a time, the best you can expect is to reduce sort loss to approximately 30 cents per head," Hawton says. "However, weighing every hog individually can lower sort loss to close to zero. For a 100-sow farm that sells 1,800

(over)



market hogs per year and has an average sort loss of \$1.50 per head, \$2,700 in potential income is lost. One hour of extra labor per week to weigh pigs and reduce sort loss to zero would return \$51.90 per hour."

Hawton notes that producers need to keep up-to-date on the preferred carcass weight ranges of the packers to whom they sell. These ranges vary from one packer to another and can change over time.

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GOPH,DTN,V2,S2

NAGR5232

Source: Jerry Hawton (612) 624-2270
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

MSC
e A27p

February 29, 1996

Contract Pork Production Has Advantages, Disadvantages

Like most other pork production systems, contract production has both advantages and disadvantages. Robert Morrison, veterinarian with the University of Minnesota's Extension Service, cites the following advantages for the potential grower who provides the finishing facility:

--The opportunity to earn a reasonable return on investment with relatively low risk. Retained earnings can be used to supplement family living income or accelerate the facility loan payments.

--The grower may be able to get help with building design, construction costs, and a feeding program.

--There is an opportunity to grow healthy, productive hogs.

--The grower can be paid for labor.

--The grower can own a facility at the end of the financing term.

The disadvantages for the potential grower are:

--Many decisions traditionally made by the grower may be made by the contractor, leading to a feeling of lost independence.

--The grower might be in a cash-poor state late in the contract, depending on the depreciation rate and leverage.

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--The grower loses potential income from a market upturn.

--If there are neighbors near a new facility, they may object to the facility.

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GOPH,DTN,V2,S2

NAGR5231

Source: Robert Morrison (612) 625-9276

Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

NEWS INFORMATION

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February 29, 1996

Editor: Call Sam Brungardt (612) 625-6797 or Jennie Rominger (612) 625-6294 to obtain a b/w print or color slide of the cover. The price and availability information in this release is good until June 30, 1997. If you run this release after that date, please call (800) 876-8636 to confirm price and availability.

Report Can Help Gardeners Select, Grow Hardy, Disease-Resistant Roses

If you live in a severe winter climate and are wondering which roses to grow, consult "Roses for the North: Performance of Shrub and Old Garden Roses at the Minnesota Landscape Arboretum," a report by the Minnesota Agricultural Experiment Station.

Based on several years' observations by University of Minnesota researchers at the arboretum, the 96-page report rates 196 rose cultivars and species for floral traits (color, size, fragrance, form and number of flowers per cluster), bloom pattern (how heavily they bloom in June, July and late summer), plant size and habit, disease and insect tolerance, and extent of winter injury. Also included is information about cold hardiness and the cold injury suffered by specific cultivars.

Amateur rose growers and home gardeners, nursery and garden center personnel, landscape designers, park and public garden personnel, rose breeders, and extension educators can benefit from the information in "Roses for the North."

The arboretum, located west of Minneapolis, is in USDA Plant Hardiness Zone 4a. The minimum annual temperature in Zone 4a ranges from minus 25 to minus 30 degrees F (minus 32 to minus 34 degrees C). In the United States, Zone 4a stretches from Idaho to Maine. In Canada, it covers parts of British Columbia, Ontario, Quebec, Newfoundland and New Brunswick.

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Kathy Zuzek, the scientist who headed the evaluation, says, "When selecting roses for gardens in a climate as cold as ours, you should expect some winter injury. Only a few cultivars, including the Hybrid Rugosas, Canadian Explorer roses, and one-time bloomers, suffer little or no cane injury. However, we did find that a number of cultivars have the ability to put out new growth in the spring and bloom on the current season's growth, making them attractive flowering plants in the landscape."

Zuzek and the other authors discuss and make recommendations for site selection, buying plants, planting, watering, mulching, fertilizing, pruning, winter protection and pest control.

"Roses for the North" includes 50 color photos, 14 drawings, 6 graphs, 9 tables, a color USDA Hardiness Zone map of the United States and Canada, a Minnesota Extension Service fact sheet on rose diseases, and a reprint of a 1975 Minnesota Landscape Arboretum report which contains hardiness observations on many roses not included in the recent study.

The report is for sale at county offices of the Minnesota Extension Service or you can place a credit card order by calling (800) 876-8636 or (612) 624-4900 and asking for item MR-6594-NR. The cost is \$11.95 per copy plus shipping and sales tax (where applicable). The report is available to disabled persons in alternate formats upon request.

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Source: Kathy Zuzek (612) 474-6886; zuzek001@maroon.tc.umn.edu
Writer: Sam Brungardt (612) 625-6797; sbrungardt@mes.umn.edu

GOPH,MNF,G1,V4,SelMedia

NEXP5233

March 4, 1996

Spring Sheep Production Workshop Will Be March 16 at Prior Lake

Making sheep production more profitable and enjoyable is the objective of a spring lambing workshop on Saturday, March 16, at Prior Lake. The event is sponsored by the Scott County office of the University of Minnesota's Extension Service and the Minnesota Lamb and Wool Producers.

The workshop will be at the Marquette Bank at 16817 Duluth Ave. S.E. in Prior Lake. Registration begins at 9:30 a.m. and the program begins at 10 a.m.

Topics include flock health practices for lambing and spring sheep care, lambing management, establishment of forages and their use in sheep diets, recordkeeping methods, and 4-H and FFA lamb selection and showing techniques.

Speakers include Richard Lorang, Jordan veterinarian; Dan Durham, University of Minnesota shepherd; Don Ryan, New Prague producer; Christine Panning, Belle Plaine producer; Steve Carlson, professor of agronomy at the University of Wisconsin--River Falls; and Dave Resch, Scott County extension educator.

The workshop fee for those registering in advance is \$10 per flock for the first person and \$5 for each additional person. Registration at the door is \$12 per flock for the first person and \$7 for each additional person. To register, send a check to Scott

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County Extension, 123 First St. E., Jordan, MN 55352. Make checks payable to Scott
County Extension. For further information or to obtain a workshop brochure, call Dave
Resch at (612) 492-2370.

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GOPH,DTN,V2MN,S1MN,25,75

NAGR5235

Source: Dave Resch (612) 492-2370
Writer: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

March 4, 1996

Dairy Barn Lighting, Ventilation Will Be Focus of On-Farm Meetings

Upgrading lighting and ventilation in dairy barns can improve herd health and increase milk production and energy efficiency. Improved lighting and ventilation will be the focus of barn meetings on three Minnesota dairy farms March 12, 13 and 14.

The barn meetings are open to all dairy producers. The first will be March 12 at the Jeff Mueller farm west of Little Falls. The second will be March 13 at the Terry Greenwaldt farm near Ottertail. The third will be March 14 at the Allen Schroeder farm near Fergus Falls. There are no fees for the programs, which will be similar at each location. All three programs will begin at 10 a.m. On March 12 adjournment will be at 2 p.m. and on March 13 and 14 it will be at 3 p.m.

The farms are participants in an agricultural energy-efficient electric technology demonstration project. At each of the farms there has been an evaluation and redesign of the lighting and mechanical ventilation systems by agricultural engineers, and upgraded systems have been installed.

Discussing lighting at the meetings will be John Chastain, former extension agricultural engineer at the University of Minnesota who is now at Clemson University in South Carolina. Chastain says lighting that increases day length to 16 hours stimulates cows to eat more and can increase milk production 5 percent to 6 percent.

(over)



Larry Jacobson, U of M extension agricultural engineer will discuss mechanical ventilation. Jacobson says improved ventilation reduces ammonia and carbon dioxide levels in barns, improving animal health and production.

For additional information on the March 12 barn meeting call Jim Carlson at (612) 632-0161 or LeRoy Williams at (612) 732-4435. For additional information on the March 13 and March 14 meetings, call Denzil Cooper at (218) 385-3000, Harold Stanislawski at (218) 739-2271, or Vicki Severson at (218) 739-8389.

The Jeff Mueller farm is 12 miles west of Little Falls on Highway 27 near the junction with Highway 28. The family name is on a sign near the road. To reach the Terry Greenwaldt farm from Ottertail, at the Highway 78 junction take County Road 55 east 1.5 miles to County Road 61. Turn south 2.3 miles, then east a half mile on Sandy Point Road. Turn north one mile. The farm is on the east side of the road. To reach the Allen Schroeder farm, from the northeast side of Fergus Falls take County Road 1 to County Road 111 and go north four miles. The farm is on the west side of the road.

Sponsors of the project are Otter Tail Power Co., Minnesota Power, the Electric Power Research Institute--Agricultural Technology Alliance, the Minnesota Extension Service, Clemson University and several other businesses and organizations.

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GOPH,DTN,V2MN,D1,03,05,21,26,49,56,78,82,85,89

NAGR5234

Source: Larry Jacobson (612) 625-9733
Writer: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

March 12, 1996

Editor: Please consult the attached table of 1995-96 small grant awards, listed by county, for programs which were funded in your area during the previous funding cycle. For more information about these programs, contact Deb Noll (612) 624-7457.

MN 4-H FOUNDATION ACCEPTING GRANT APPLICATIONS

Remember being frustrated when you were a kid and no one would listen to your opinions about "adult" issues? The Minnesota 4-H Foundation is awarding grant money in two funding cycles, spring and fall, to worthy youth development programs or projects that young people want and adults will support.

"Kids have to experiment with speaking their minds and taking responsibility for community issues that matter," says Deb Noll, a development associate with the 4-H Foundation. "Young people who want to get involved need to be nurtured by adults." She says it is important for young people to participate in discussing and implementing community programs. From such experiences, young people gain self-confidence and experience that help them handle new situations.

The 4-H Foundation is making about \$40,000 available to help fund youth development programs. Grants can range from \$400 to \$2,000, but any size application will be accepted, Noll says. Preference will be given to projects that bring adults and youth together and focus on developing lifelong skills in the young people. Other important criteria include:

(over)



--Efforts to reach out to new audiences of adults and youth, including representation by community members of diverse ages, ethnicities, income levels and abilities.

--Emphasis on the learning process (such as the "learning by doing" model) rather than just on the end results.

--Evidence of working with others and contributions of time, money and supplies from local supporters.

--Uniqueness and innovation in programming.

Other funding guidelines encourage programs that will have a long-term impact and programs that involve a variety of community groups.

The first deadline for submitting a grant application is April 30 for programs beginning July 1. The fall application deadline is October 31 for programs beginning January 1, 1997. For help with the grant application process, contact Joyce Walker, Lucia Orcutt or Brad Rugg at (612) 625-9700 or (800) 444-4238. Forms are available from county offices of the University of Minnesota's Extension Service or by calling the Minnesota 4-H Foundation at (800) 444-4238. For more information about the grants program, contact the 4-H Foundation at (612) 624-7457.

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GOPH,V4MN,V5,F1,Y1

N4-H5236

Source: Debra Noll (612) 624-7457

Editor: Jennie Y. Rominger (612) 625-6294; jrominger@mes.umn.edu

4-H Foundation 1995-1996 Small Grant Award Recipients

| County, City or Town | Project | Award |
|-------------------------|--|---------|
| Aitkin | 4-H, Alternatives for Youth--provide you who have come into contact with the juvenile justice system with an opportunity to make decisions about their future through involvement in 4-H projects, teaming up with community mentors | \$1,500 |
| Benton | Teen Talk--guides for youth group leaders for discussing life issues | \$1,000 |
| Big Stone | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Blue Earth | Peer Education Conference | \$1,900 |
| Brown | One-of-a-Kind Kid Camp--camp that provides a safe environment, supplies educational opportunities, mentoring relationships and violence prevention strategies | \$2,000 |
| | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Carver | Community Service Box Books for Children | \$ 400 |
| Chippewa | Operation Turtle--to raise public awareness of the need to protect soft-shelled turtle, having youth work first-hand with government process to provide awareness of the issue | \$ 250 |
| | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Chisago | Leadership Extravaganza--identify and practice leadership skills at the 7th and 8th grade levels | \$1,000 |
| | Building an Inclusive Community--help existing youth groups know how to invite all people to be part of group to experience programming with people having disabilities | \$ 950 |

(Page 2 of 8)

| | | |
|------------|--|---------|
| Cottonwood | One-of-a-Kind Kid Camp--camp that provides a safe environment, supplies educational opportunities, mentoring relationships and violence prevention strategies | \$2,000 |
| Cook | Artists' Point--provide positive interaction between youth, youth leaders, adult mentors in addressing an environmental problem at Artists' Point by active citizenship and education | \$1,200 |
| Cottonwood | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Crow Wing | 4-H Media Blitz--youth and adults work together to pilot additional public educational methods about the diversity of 4-H | \$ 300 |
| Douglas | Cultural Diversity Camp--teaches youth greater skills to find opportunities for community service while increasing knowledge of cultural diversity and creating greater understanding of self and others | \$ 600 |
| Faribault | Peer Education Conference | |
| Freeborn | Organizing with Youth--learn how youth think about youth organizations, identify attitudes and perceived needs of youth in relation to organized youth groups | \$1,000 |
| Goodhue | Generation to Generation Exploration--for youth clowns to provide nursing home residents with skills to cope with everyday life | \$1,500 |
| Grant | Cultural Diversity Camp--teaches youth greater skills to find opportunities for community service while increasing knowledge of cultural diversity and creating greater understanding of self and others | \$ 600 |
| | Mistinka Winter Water Watch--educational retreat and planning session for youth and adults | \$1,000 |
| Hennepin | Osseo Senior High Internship Program--leadership development conference and training | \$1,000 |
| | Kwanzaa Play Project--provide youth an opportunity to research and write a play as they learn about their African American heritage and culture | \$1,500 |

| | | |
|---------------|--|---------|
| Hermantown | Teens on Boards--help teens understand themselves better to feel in control of their own lives | \$1,000 |
| Isanti | Leadership Extravaganza--identify and practice leadership skills at the 7th and 8th grade levels | \$1,000 |
| Itasca | Focus on Food Youth Series--provide educational learning opportunities for 4-H members on nutritional needs and health through performing arts, video photography and leadership | \$ 500 |
| Jackson | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Kanabec | Leadership Extravaganza--identify and practice leadership skills at the 7th and 8th grade levels | \$1,000 |
| Kandiyohi | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| | One-of-a-Kind Kid Camp--camp that provides a safe environment, supplies educational opportunities, mentoring relationships and violence prevention strategies | \$1,000 |
| Kittson | Substance abuse, poison, and nutrition training for children | \$ 670 |
| | Moose Park Recreational Foot Bridges--provide a useful service to the community by making a park open to all abilities and have project involve cooperation of adults and youth | \$ 750 |
| Lac Qui Parle | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Lake | Finland 4-H Family Community Benefit Garden--each 4-H3 grows 3 varieties of vegetables with the help of adult volunteers; 1 of 3 vegetables donated to benefit community; educational components include pest control, composting, seed selection and storage of crops | \$ 600 |
| LeSueur | Peer Education Conference | \$1,900 |

(Page 4 of 8)

| | | |
|-----------------------|---|-------------------|
| Lincoln | Youth Photography Mini-Marathon--a two-week project type meeting where youth work with adult volunteers to compose creative photos for a traveling display | \$ 650 |
| | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Lyon | Youth Photography Mini-Marathon--a two-week project type meeting where youth work with adult volunteers to compose creative photos for a traveling display | \$ 650 |
| | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Martin | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| McLeod | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| | One-of-a-Kind Kid Camp--camp that provides a safe environment, supplies educational opportunities, mentoring relationships and violence prevention strategies | \$1,000 |
| | Tin Can Alley--develop life-long habits of recycling to benefit club members, their families and the community | \$ 600 |
| Meeker | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| | One-of-a-Kind Kid Camp--camp that provides a safe environment, supplies educational opportunities, mentoring relationships and violence prevention strategies | \$1,000 |
| Mille Laes | Depot Garden Project--organizing, landscaping with wildlife in mind, transferring learning experience from community garden on an historic landmark to their own homes | \$ 500 |

(Page 5 of 8)

| | | |
|----------------------|--|---------|
| (Mille Lacs--con't.) | Sooline Bike Trail--youth and adults work together to make a bike trail educational and to develop learning opportunities in the process of marking the trail | \$1,000 |
| | Leadership Extravaganza--identify and practice leadership skills at the 7th and 8th grade levels | \$1,000 |
| | Jelly Making--youth and adults work together to collect berries and can them for the community food shelf | \$ 150 |
| Mower | Organizing with Youth--learn how youth think about youth organizations, identify attitudes and perceived needs of youth in relation to organized youth groups | \$1,000 |
| Murray | Youth Photography Mini-Marathon--a two-week project type meeting where youth work with adult volunteers to compose creative photos for a traveling display | \$ 650 |
| | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Nicollet | Peer Education Conference | \$1,900 |
| Nobles | Youth Photography Mini-Marathon--a two-week project type meeting where youth work with adult volunteers to compose creative photos for a traveling display | \$ 650 |
| | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Norman | Youth: New Horizons--a video production focusing on changes in 4-H, emphasizing youth issues and 4-H recruitment during Norman County Centennial Fair | \$ 400 |
| Olmsted | Growing Youth and Gardens--a program to promote cross-cultural understanding and increase feeling of global community through family interaction while gardening | \$1,000 |
| Pine | Leadership Extravaganza--identify and practice leadership skills at the 7th and 8th grade levels | \$1,000 |

(Page 6 of 8)

| | | |
|-----------|--|---------|
| Pipestone | Youth Photography Mini-Marathon--a two-week project type meeting where youth work with adult volunteers to compose creative photos for a traveling display | \$ 650 |
| | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Polk | University On-Line Youth Connecting--build knowledge and understanding of rural/urban culture around a common interest in computers and computer technology | \$2,550 |
| Pope | Cultural Diversity Camp--teaches youth greater skills to find opportunities for community service while increasing knowledge of cultural diversity and creating greater understanding of self and others | \$ 600 |
| Ramsey | University On-Line Youth Connecting--build knowledge and understanding of rural/urban culture around a common interest in computers and computer technology | \$2,550 |
| | Pathway to the Future--provide ethnic minority youth with a solid base as a way to explore career interests | \$1,500 |
| | Project Express--4-H members learn conflict resolution and implement these skills during 4-H meetings | \$1,500 |
| Redwood | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| Renville | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| | One-of-a-Kind Kid Camp--camp that provides a safe environment, supplies educational opportunities, mentoring relationships and violence prevention strategies | \$1,000 |
| Rice | Organizing with Youth--learn how youth think about youth organizations, identify attitudes and perceived needs of youth in relation to organized youth groups | \$1,000 |

| | | |
|-----------|--|---------|
| Rock | Youth Photography Mini-Marathon--a two-week project type meeting where youth work with adult volunteers to compose creative photos for a traveling display | \$ 650 |
| | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| St. Louis | Youth Board Leadership Development for Life House Youth Center | |
| Scott | Summer Fun--informal learning activities that encourage active participation and allow for self-discovery in a multi-family housing project | \$ 950 |
| Sherburne | Teen Talk--guides for youth group leaders for discussing life issues | \$1,000 |
| Sibley | Peer Education Conference | \$1,900 |
| Sherburne | Teen Talk--guides for youth group leaders for discussing life issues | \$1,000 |
| Steele | Organizing with Youth--learn how youth think about youth organizations, identify attitudes and perceived needs of youth in relation to organized youth groups | \$1,000 |
| Stevens | Cultural Diversity Camp--teaches youth greater skills to find opportunities for community service while increasing knowledge of cultural diversity and creating greater understanding of self and others | \$ 600 |
| Swift | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| | To Plant a Garden Is to Believe in Tomorrow--workshop on preservation of garden crops, as well as educational expansion of the West Central Experiment Station's Horticulture Night | \$ 650 |
| Traverse | Cultural Diversity Camp--teaches youth greater skills to find opportunities for community service while increasing knowledge of cultural diversity and creating greater understanding of self and others | \$ 600 |

(Page 8 of 8)

| | | |
|-----------------|---|---------|
| Waseca | Peer Education Conference | \$1,900 |
| Washington | Car Care Saturday--help member participation and assist families in need of car maintenance | \$ 500 |
| Watonwan | One-of-a-Kind Kid Camp--camp that provides a safe environment, supplies educational opportunities, mentoring relationships and violence prevention strategies | \$2,000 |
| | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |
| | Adventure Club--provide educational recreational and cultural activities for youth in grades 1-8 | \$1,900 |
| Wright | Teen Talk--guides for youth group leaders for discussing life issues | \$1,000 |
| Yellow Medicine | Hey, Gang, It's All I Have--youth crime and violence prevention project using a community mobilization model for prevention | \$1,250 |

*MSC
9/12/96*

March 14, 1996

Minnesota's Irrigated Acreage Grows

Over 100 new irrigated land parcels with center pivots were put into production in the spring of 1995, according to a survey of Minnesota irrigation suppliers conducted last fall.

The Minnesota Department of Natural Resources irrigation water appropriation permit database for this same period shows that about 9,000 acres were issued new irrigation water permits. This new growth brings the total irrigated acres for summer of 1995 up to around 515,000 acres.

The counties that contain the largest MDNR permitted acres are listed below:

| COUNTY | ACRES | COUNTY | ACRES | COUNTY | ACRES |
|------------|--------|----------|--------|------------|--------|
| Otter Tail | 56,173 | Wadena | 19,496 | Benton | 11,790 |
| Dakota | 49,426 | Hubbard | 17,393 | Kandiyohi | 9,787 |
| Stearns | 40,749 | Todd | 17,131 | Clearwater | 9,266 |
| Sherburne | 38,726 | Morrison | 15,034 | Becker | 8,160 |
| Pope | 38,484 | Polk | 14,467 | Clay | 7,083 |
| Swift | 29,176 | Stevens | 12,102 | Grant | 7,027 |

According to MDNR's 1994 irrigation water users' pumping reports, approximately 352,000 acres were irrigated in the summer of 1994. The following table shows the 1994 irrigated acres breakout for specific crops.

(over)

| CROP | 1994 ACRES | CROP | 1994 ACRES |
|-----------|------------|-------------|------------|
| Corn | 190,000 | Alfalfa | 22,000 |
| Soybeans | 56,000 | Vegetables | 13,000 |
| Dry Beans | 46,000 | Wild Rice | 12,000 |
| Potatoes | 39,000 | Sugar Beets | 3,000 |

For a complete summary of permitted acres by county, write or call Jerry Wright,
c/o West Central Experiment Station, University of Minnesota, PO Box 471, Morris,
MN 56267, phone (612) 589-1711.

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GOPH,DTN,F4MN,X8,03,05,14,15,19,26,29,34,49,56,61,63,76,78,80,81,82,85 NAGR5238

Writer: Jerry Wright (612) 589-1711
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

MSC
7-427p

March 15, 1996

Look Closely at Performance Data on Bt Corn

Look closely at performance data if you're considering Bt corn for 1996. Bt hybrids offer unprecedented resistance to European corn borer. But it's a good idea to keep three cautionary notes in mind when looking at performance data on Bt corn, says Ken Ostlie, entomologist with the University of Minnesota's Extension Service.

"First, every year is not an outbreak year," Ostlie points out. "Second, investigate the level of corn borer pressure at the test site. Third, ask for data documenting how well the hybrids perform under low corn borer pressure."

Ostlie says preliminary calculations suggest that Bt corn can be worth a \$7.50 per acre premium. "However, be cautious about package deals that piggyback other conventional hybrids," he says. "Look closely into the performance characteristics and yield performance compared to your current hybrids."

While Bt hybrids are a popular topic of discussion, they are not an option for many Minnesota producers this year because of limited availability of seed, Ostlie points out.

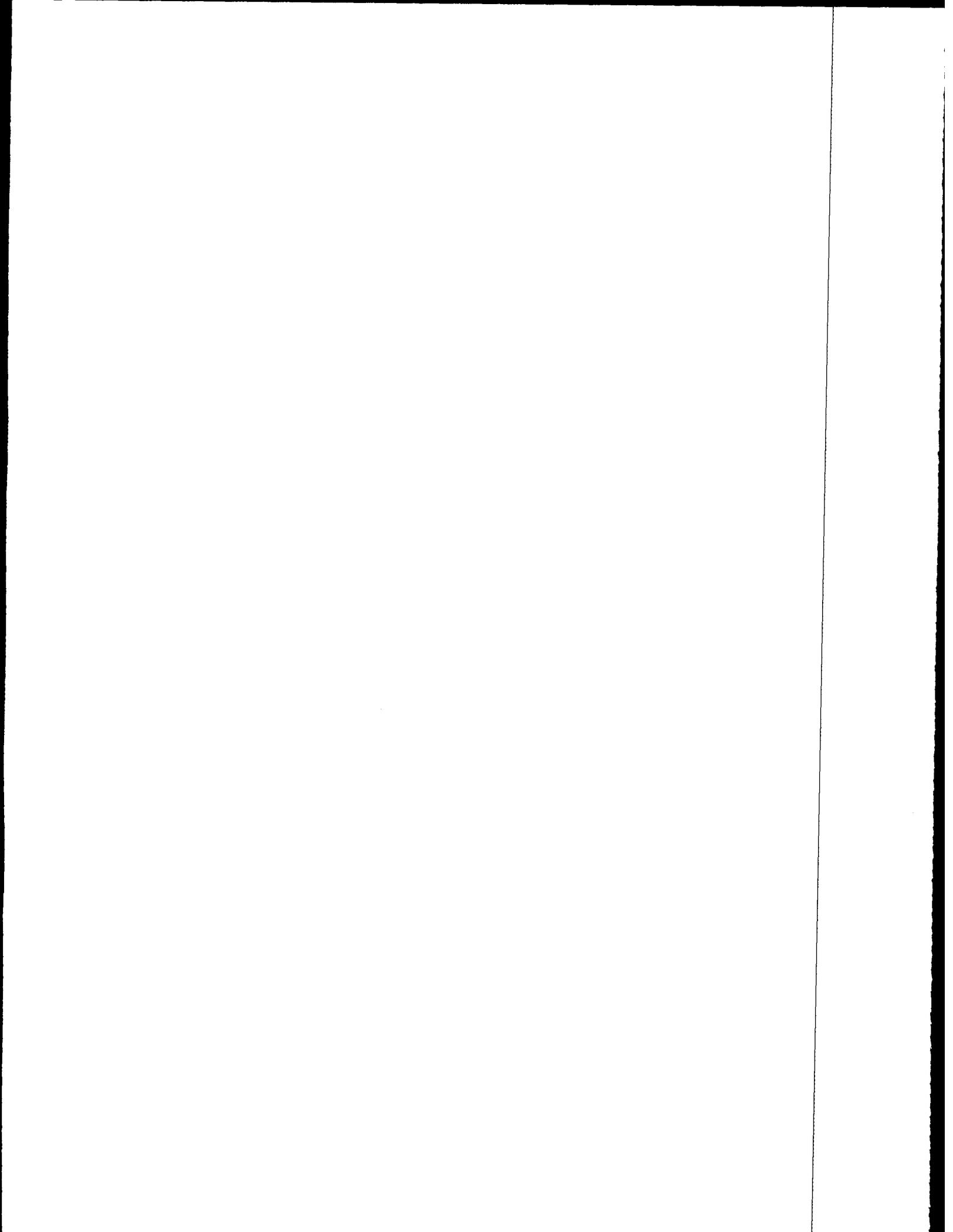
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GOPH,DTN,V2,F4

NAGR5240

Source: Ken Ostlie (612) 624-9272
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)



MSC
9/12/7p

March 15, 1996

Row Cleaners Boost Yield when No-Till Corn Follows Soybeans

Using row cleaners increased corn yields 6.4 bushels per acre when the corn followed soybeans and was planted without primary tillage in a University of Minnesota study. The 1995 study took place at the university's Southern Experiment Station at Waseca.

The corn was planted April 28 at 32,200 seeds per acre. Dawn row cleaners were used on a John Deere 7100 planter.

"For improved no-till corn production, row cleaners should be set shallow to just barely skim the residue from the soil surface," says Gyles Randall, U of M soil scientist. "Setting them deeper may remove more residue, but the seeds are then placed in a trench of wetter and colder soil that can cause planting problems."

The same study compared broadcast and point-injected urea-ammonium nitrate (UAN, 28% N) with anhydrous ammonia. In one treatment, preplant broadcast UAN was applied four days prior to planting. In another, UAN was injected about three inches from the row to a depth of four inches with a point-injector applicator when the corn was two inches high. In a third treatment, anhydrous ammonia was injected midway between the rows when the corn was two inches high. The rate was 120 pounds of nitrogen per acre for all treatments.

(over)



Yields were 4.1 bushels per acre higher for the anhydrous ammonia compared to the injected UAN. The injected UAN increased yield 10 bushels per acre compared to the preplant broadcast application of UAN.

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GOPH,DTN,V2,F4

NEXP5242

Source: Gyles Randall (507) 835-3620
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

MSC
9A27P

March 15, 1996

Planting Corn after May 5 Cut Yields in Waseca Study

Corn planted through May 5 did not show any yield reduction in a three-year study at the University of Minnesota's Southern Experiment Station at Waseca. The study involved an evaluation of 80- to 115-day corn hybrids over a range of planting dates beginning as early as April 20 and continuing through June 10. The study took place in 1993, 1994 and 1995.

Tom Hoverstad, scientist at the Southern Experiment Station, summarizes conclusions from the study. "Data at Waseca indicate that delaying corn planting beyond May 5 until May 15 results in a one bushel per acre per day reduction in corn yield," says Hoverstad. "Between May 15 and June 1 the reduction is closer to two bushels per acre per day. Delaying planting past June 1 results in a yield penalty of about three bushels per acre per day."

Although there was no yield advantage to planting corn before May 1, there was no yield reduction associated with planting dates as early as April 20, says Hoverstad.

"Full season hybrids provided the highest grain yields at all planting dates," says Hoverstad. "However, high grain moisture at harvest and poor test weight of the late planted, full season hybrids make the early season hybrids a much better alternative for

(over)



late planting. Early season hybrids suffered less yield reduction associated with late planting. However, the yield potential of the early season hybrids is less than the full season hybrids."

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GOPH,DTN,V2,F4

NEXP5241

Source: Tom Hoverstad (507) 835-3620
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

March 18, 1996

Alternatives to Physical Punishment Is Discussion Topic

If you're a parent or you work with children and families, you've had to face the issue of how to effectively discipline children. Dr. Stephen Bavolek, author and parent educator, will address the issue at two presentations on Tuesday, March 26, in Red Wing, MN.

Bavolek, nationally recognized leader in treatment and prevention of child abuse and neglect, is president of Family Development Resources, Inc., of Utah. Bavolek's video production, "Shaking, Hitting, Spanking--What To Do Instead," is used by many parent educators.

"Red, White and Bruises: Spanking in the U.S.A.--What To Do Instead," a conference for professionals who work with families, is scheduled for 9:30 a.m. to 3 p.m. at the St. James Hotel in Red Wing. For parents and child care providers, Bavolek will present on the topic "Parenting in the U.S.A." from 7 to 9 p.m. at the same location.

Preregistration for the "Red, White and Bruises" professionals' conference is required. The \$50 registration fee covers conference materials, lunch and refreshments. Social work credits have been awarded by the Board of Social Work; clock-hour certificates will be available at no additional fee.

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The conference is sponsored by the Minnesota Extension Service--Goodhue County and K.I.D.S.: Handle With Care, a coalition of Goodhue County citizens and agencies. The coalition's mission for the four- to five-year project is to reverse acceptance of physical punishment by teaching alternative discipline styles through parent education and community awareness.

Bavolek will offer a variety of nurturing discipline techniques to use instead of physical punishment at the "Parenting in the U.S.A." evening session, which is open to the public at no charge. Certificates of attendance will be available for participants. The session is sponsored by the Goodhue County extension service, K.I.D.S.: Handle With Care, and Red Wing Community Education. Funding is provided in part by a Prevention and Intervention for Minnesota Communities grant.

For more information, call the Goodhue County extension office at (612) 385-3100.

#

GOPH,V7,Z4,C1MN

NHEC5239

Source: Kathleen A. Olson (612) 385-3100
Writer: Jennie Y. Rominger (612) 625-6294; jrominger@mes.umn.edu

*MISC
2 AD 7p*

March 20, 1996

Economist Sees Parallels Between Current Grain Markets, Those of '70s

There's a lot of similarity between current grain market patterns and those just ahead of the spring 1973 price explosion. That's the view of Stan Stevens, University of Minnesota extension economist.

"The burdensome supplies of the '50s and early '60s were brought down to moderate levels through land idling programs by the late 1960s," says Stevens.

"Weather trouble in 1966, the corn leaf blight in 1970, and anxiety about a repeat blight episode in 1971 generated classic bull markets that peaked near \$1.60 for corn, the 'glass ceiling' of that period. The Russians shocked the markets in the summer of 1972, pushing corn prices quickly to the glass ceiling. After a moderate setback, prices again raced to the \$1.60 level in the spring of 1973. Anxiety about the 1973 world coarse grain crop was the event that finally pushed prices through the glass ceiling to a new frame of reference."

Stevens says the 1995 Chinese demand is reminiscent of the Russian influence in 1972-73. "Currently, world weather patterns suggest a higher-than-normal probability of a drought in 1996," he says. "December corn futures have been in a steady up-trend, reflecting these weather concerns. A test of the 1990s glass ceiling is occurring now. If

(over)



penetrated, the '70s experience suggests a new price frame of reference would emerge at roughly twice the 1990s glass ceiling. Since most major bull markets since 1973 have peaked in the vicinity of \$3.50 to \$4, this suggests a new market frame of reference of \$7 to \$8."

Stevens says, however, that before corn prices reach those levels some type of political interference is likely. This would probably not be an export embargo, but something having an equivalent effect, such as an export tax. The European Union is currently using this tax, Stevens notes.

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GOPH,DTN,V2,A2,F4,X2

NAGR5245

Source: Stan Stevens (612) 625-8770

Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

MSC
g A 2 7 p

March 20, 1996

Study Shows Sulfur Increases Spring Wheat Yields on Sandy Soil

Sulfur fertilization increased spring wheat yields about 10 bushels per acre on sandy soil in a 1995 University of Minnesota study. The study took place in east Polk County, according to George Rehm, soil scientist with the University of Minnesota's Extension Service.

The soil had a loamy sand texture with an organic matter content of 1.7 percent. Two sources of sulfur, sulphate and an elemental sulfur and clay mixture, were broadcast and incorporated before planting in late April. There also was a no-sulphur control area. All treatments received adequate nitrogen, phosphate, and potash fertilization.

"The use of sulfate-sulphur produced the highest yields," says Rehm. "It increased yields about 10 bushels per acre compared with the no-sulphur control. The elemental sulphur and clay mixture increased yields about seven bushels per acre in this study."

The study also looked at the effect of sulfur fertilization on the protein content of the grain. The results showed there was no effect.

"When growing small grains on sandy soils with a low organic matter content, producers can expect a yield response from sulfur fertilization," Rehm concludes.

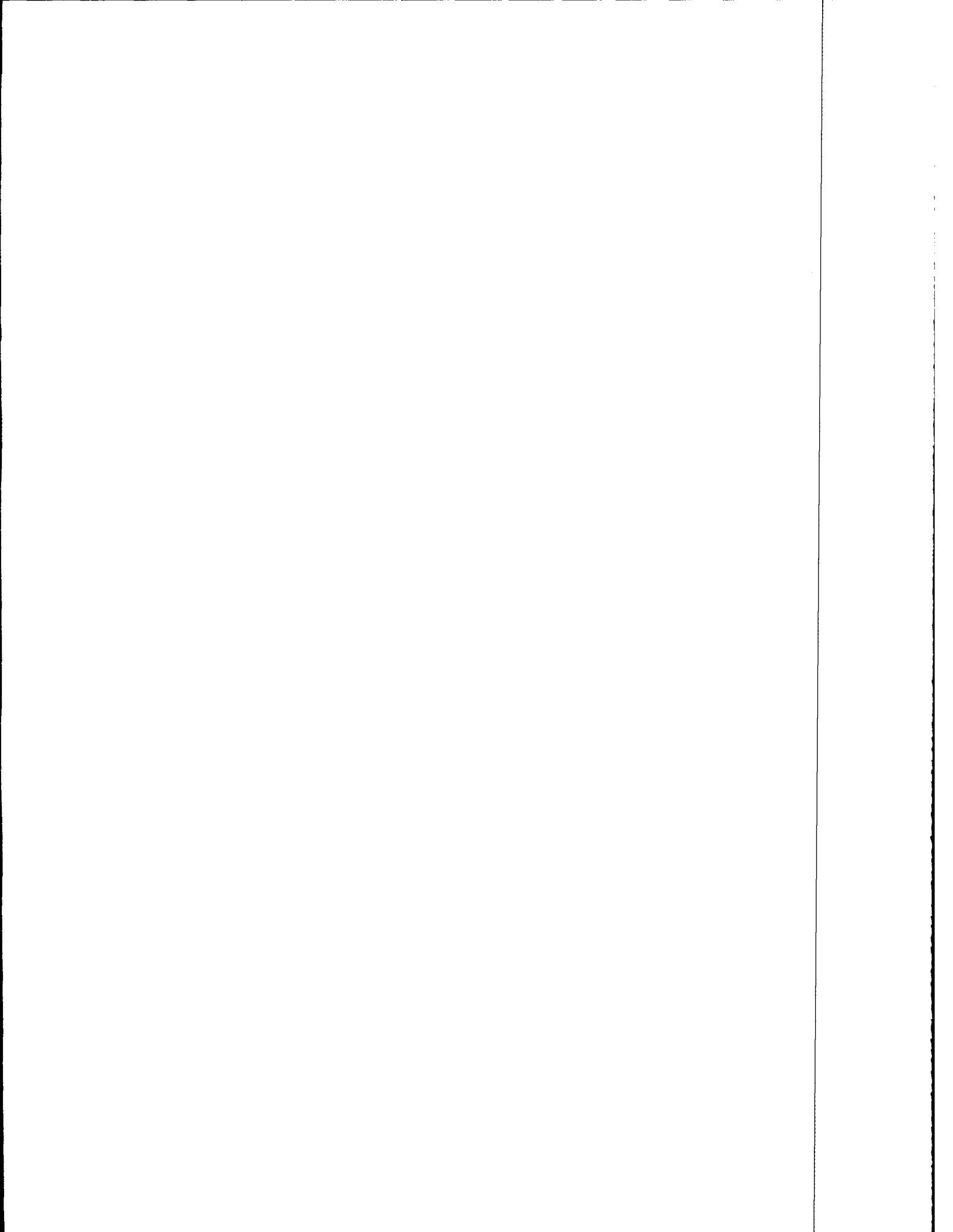
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GOPH,DTN,V2MN,F4,X7

NAGR5244

Source: George Rehm (612) 625-6210
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)



NEWS INFORMATION

March 20, 1996

MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA

405 Coffey Hall

1420 Eckles Avenue

St. Paul, MN 55108-6068

FAX: (612) 625-2207

E-Mail: news@mes.umn.edu

MSC
e AD 7 p

International Trade Conference Scheduled April 4

The possibility of a world food shortage will be discussed at an international trade conference scheduled April 4 at the Earle Brown Center on the University of Minnesota's St. Paul campus.

"The Future of U.S. Agricultural Exports" conference will include a global outlook, trade prospects in Russia and China, meat exports, Latin America after NAFTA, transportation, weather, and the U.S. Farm Bill.

Speakers include Carol Brookins, World Perspectives, Inc.; Mark Rosegrant from the International Food Policy Research Institute; Gregory Page, Cargill, Inc.; Ed Schuh, dean of the Humphrey Institute; John Schnittker of Schnittker Associates; and Caroline Gabel, senior policy advisor to Congressman Oberstar.

The conference will be hosted by Humphrey Institute Fellow and former Congressman Tim Penny. It's sponsored by the University of Minnesota Center for International Food and Agricultural Policy and the Minnesota Agri-Growth Foundation, Inc. For more information, contact the Agri-Growth Foundation at (612) 854-1665.

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GOPH,A2,V2

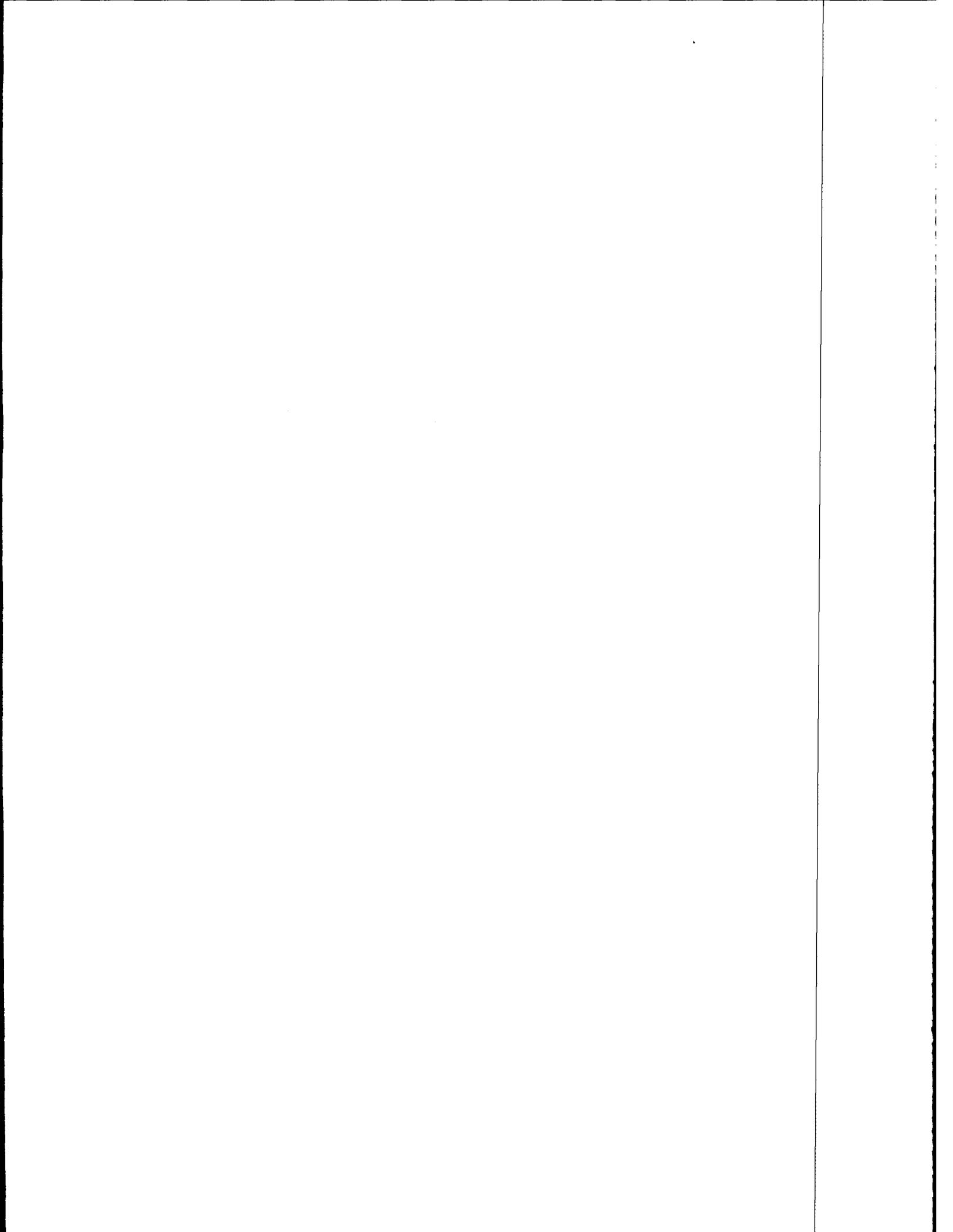
NAGR5243

Source: Ben Senauer (612) 625-5724

Writer: Jack Sperbeck (612) 625-1794; jsperbeck@mes.umn.edu

(Page 1 of 1)





MSC
EAPP

March 20, 1996

Seminar on 'Farming with a Neighbor' Will Be March 29 in Cosmos

Joint farming ventures will be the topic of a program entitled "Transition 2000: Farming with a Neighbor" March 29 in Cosmos, Minn.

The seminar is sponsored by the University of Minnesota's Extension Service in Meeker, McLeod, Kandiyohi and Renville counties. It will be from 10 a.m. to 2:30 p.m. at the American Legion in Cosmos. A fee of \$7 per person will cover morning refreshments, lunch, and program costs.

Phil Hanfred, Iowa State University extension farm management specialist, will discuss the positives and pitfalls of farming with a neighbor. Bill Lazarus, University of Minnesota extension economist, will share examples and provide handouts on agreements and joint arrangements between neighbors. A panel of three local farmers and two agribusiness representatives will share their experiences with joint ventures.

Preregistration by March 27 is encouraged. Make checks payable to Mid-MN Cluster 13 and send to the McLeod County Extension Office, 840 Century Ave. Suite B, Hutchinson, MN 55350. For further information call (612) 587-0770 or (800) 587-0770.

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GOPH,DTN,V2MN,V4MN,A2.Z3,Z7,07,08,37,67,92

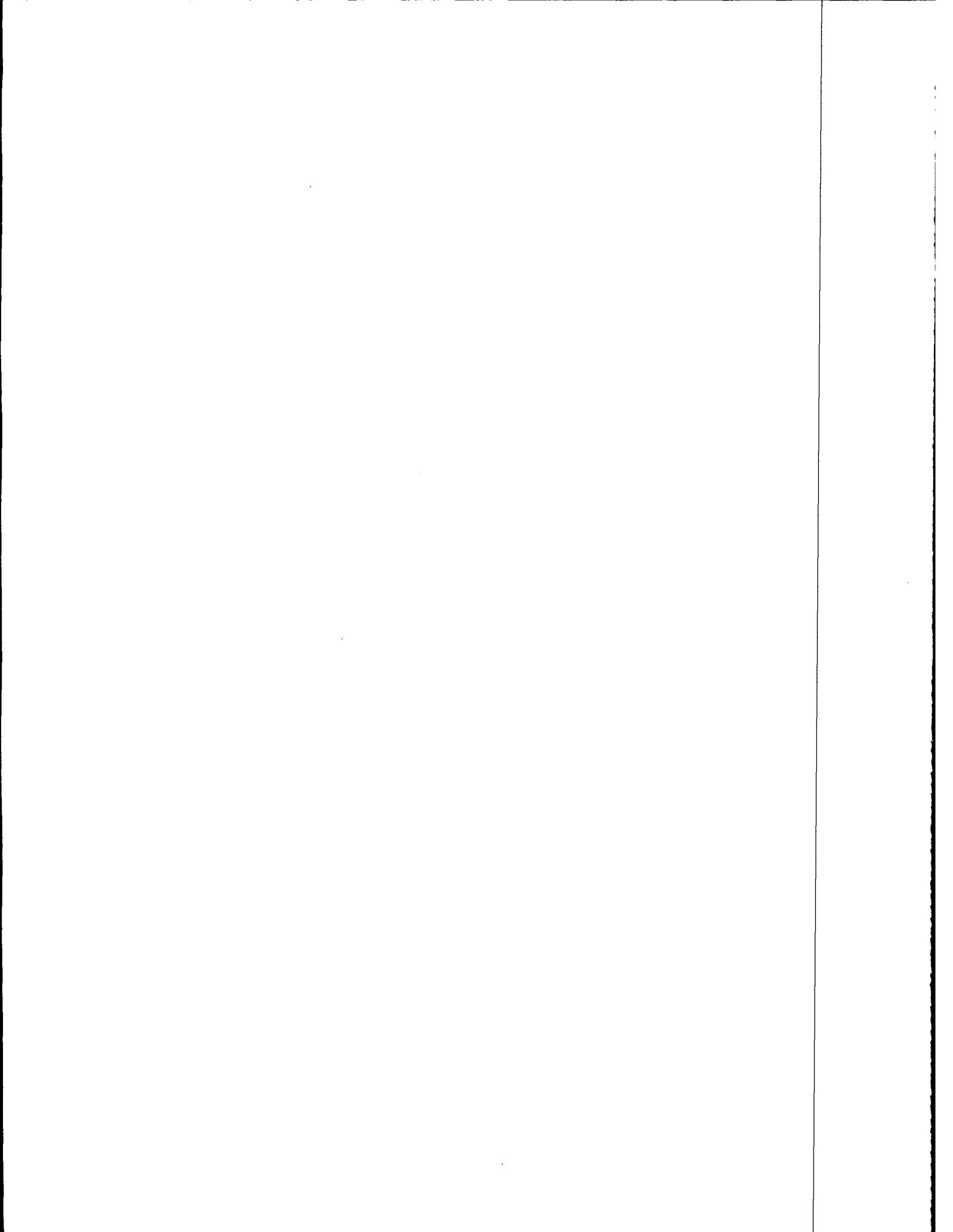
NAGR5246

Source: Dave Schwartz (612) 625-2207

Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)





March 25, 1996

Book on 'Recent Advances in Swine Production and Health' Available

A 161-page book on "Recent Advances in Swine Production and Health," volume 5, is available through the University of Minnesota's Swine Center. Volume 5 was published in 1995 and includes 16 research articles. Nutrition, production, reproduction, disease, waste management and economics are among topics covered.

The price for this volume is \$15. To order, contact Kay Longtine at the University of Minnesota Swine Center, 385 Animal Science/Veterinary Med. Bldg., 1988 Fitch Ave., St. Paul, MN 55108; phone (612) 625-8781.

#

GOPH,DTN,V2,S2

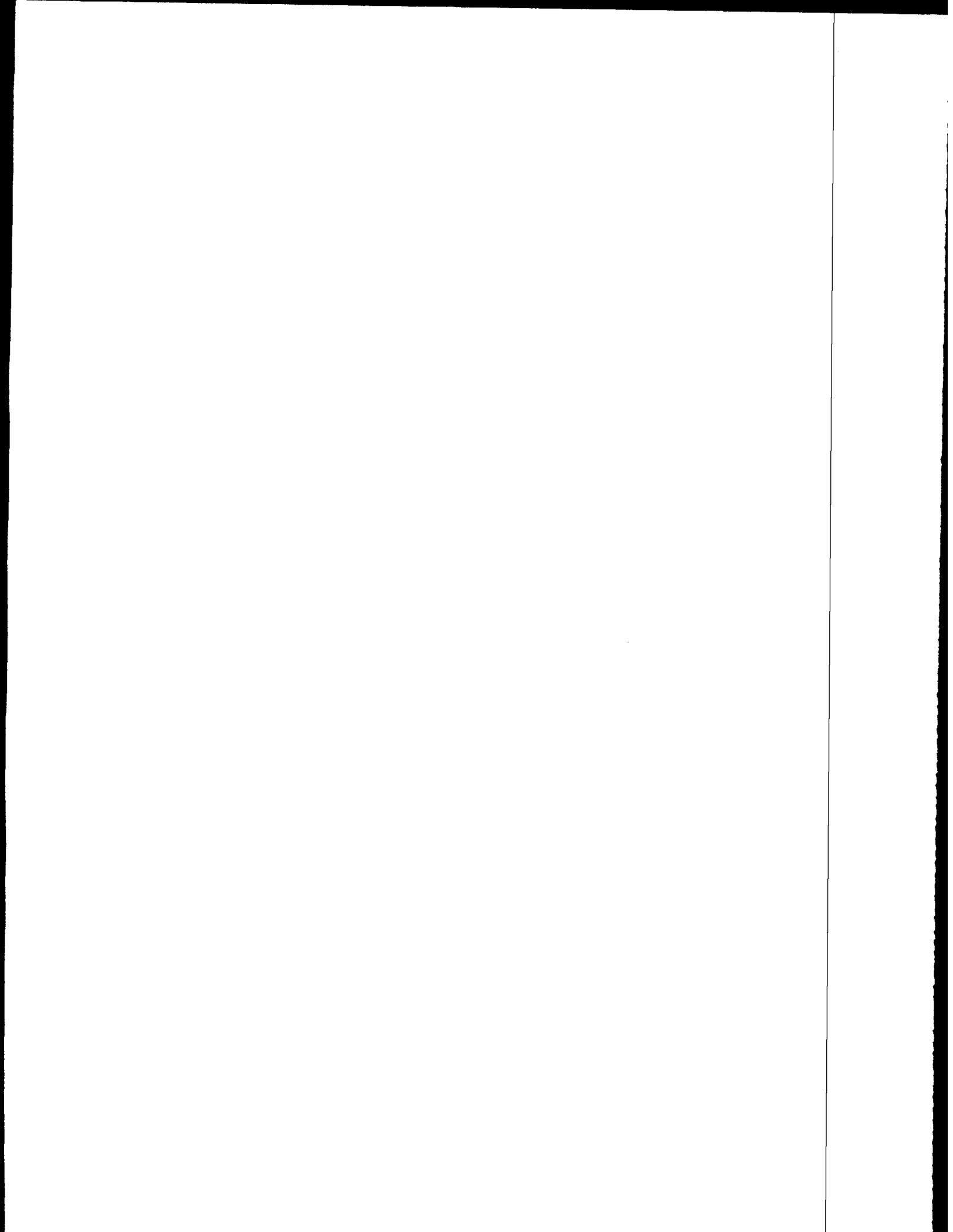
NAGR5248

Source: Kay Longtine (612) 625-8781

Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)





MSE
e Adp

March 25, 1996

Calcium-to-Magnesium Ratios in Soil Don't Affect Crop Production

Liming materials that contain magnesium are just as beneficial to your crops as liming materials that contain only calcium. You don't have to worry about an "imbalance" of calcium and magnesium in the soil, says George Rehm, soil scientist with the University of Minnesota's Extension Service.

When it's needed, lime is a key factor for producing high-yielding forage legumes, notes Rehm. In Minnesota, the traditional ag lime has been used for many years to raise soil pH values above 6.5. This dolomitic material also contains magnesium, an essential nutrient for crop production.

"There are some who believe that adding magnesium has a negative effect on crop yields, and thus attempt to promote liming materials that contain only calcium," says Rehm. "These sales promotions are based on a belief that there are ideal calcium-to-magnesium ratios in soils. If you believe in these ideal ratios, adding magnesium in lime would create an 'imbalance' of calcium and magnesium in the soil."

Rehm says claims regarding harmful effects of magnesium have been evaluated with recent research projects involving irrigated alfalfa in Wadena County. Dolomitic and calcitic liming materials were compared. "Applied at equivalent rates, both materials had an equal effect on alfalfa production," says Rehm.

(over)



The results of the research confirm the results of other research projects, according to the Minnesota scientist. "The ratios of calcium to magnesium and potassium to magnesium in soils have no effect on crop production," he concludes. "Some soil testing laboratories provide this information. It isn't needed and is frequently confusing to crop producers. Fertilizer recommendations based on the 'ratio' concept are expensive and do not lead to improved crop production."

#

GOPH,DTN,V2,F4

NAGR5247

Source: George Rehm (612) 625-6210
Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

MSC
EADTP

April 1, 1996

Building Non-Violent Communities Is Conference Theme

Community leaders, volunteers, government officials and everyone interested in the goal of non-violent communities may participate in a free satellite conference May 1 at most offices of the Minnesota Extension Service (MES) across the state. Scheduled for 2:30 to 5:30 p.m., the conference at each site will include two hours of satellite teleconference and an hour of local discussion on violence and possible action plans to create non-violent communities.

"Building Non-Violent Communities" is sponsored by the Minnesota Partnership for Non-Violent Communities, which includes MES and 16 other organizations concerned with families, communities and public policy. Originating from the Twin Cities, the two-hour satellite presentation, will include segments on community and individual responses to violence and on action plans, currently in place in six Minnesota communities, for creating peaceful communities.

The conference will combine education and entertainment, organizers stress. It is an outgrowth of a statewide "Day of Learning" last fall, which brought together nearly 500 people with shared concerns about violence and an interest in working toward non-violent communities.

(over)



The Twin Cities area site for the conference is the Earle Brown Center on the St. Paul campus of the University of Minnesota. For more information about sites, phone (612) 430-6805 or contact your local Minnesota Extension Service office.

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GOPH,V5,Y1,F1,F2

NHEC5249

Sources: Kathleen Olson (612) 385-3092, Diana Martenson (612) 625-1205, Joan Sprain (612) 439-0101, Ann Henly (612) 625-7760
Writer: Deedee Nagy, EDS, (612) 625-0288; dnagy@mes.umn.edu

MSC
9-12-96

April 2, 1996

Steer and Heifer Jackpot Show Futurity Will Be May 11 at Zumbrota

A beef steer and heifer show, the first annual Steer and Heifer Jackpot Show Futurity, will take place May 11 at Zumbrota, Minn. The show at the Goodhue County Fairgrounds is sponsored by the University of Minnesota's Block and Bridle Club. It will begin at 1:30 p.m.

The steer show will be divided into two divisions, a British breeds and an other breeds division. The heifer show will be divided into breed divisions, with a minimum of five head required to establish a separate breed division.

The champion steer and heifer will each win a \$200 jackpot. There will also be recognition of division and breed champions and a Reserve Champion overall.

Entry fee for the show is \$25 per head. For entry forms, contact Tom Bryan or Brian Schafer by April 20 at (612) 647-5730.

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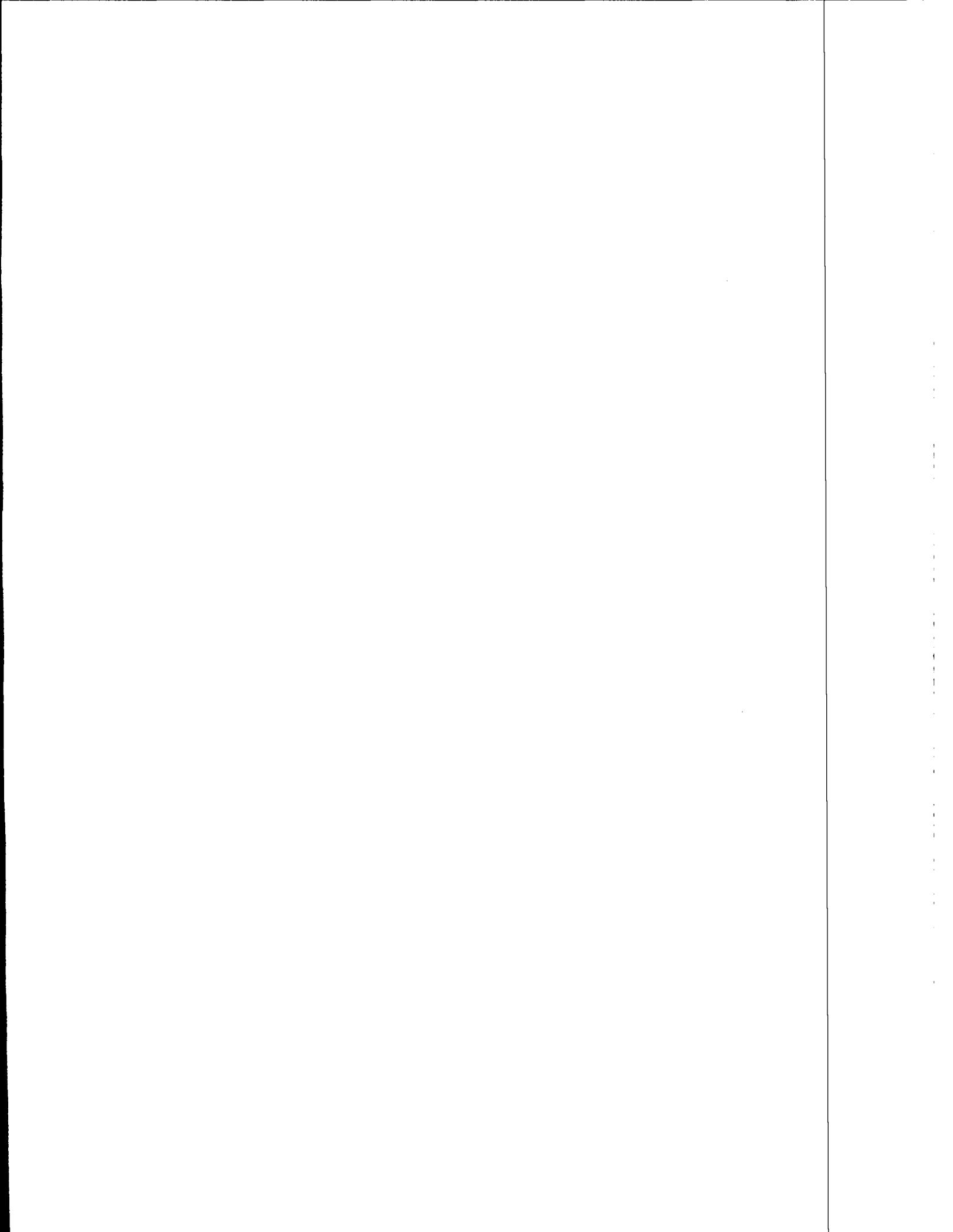
GOPH,V2MN,B1,19,20,25,55,69,84

NAGR5251

Source: Jerry Shurson (612) 624-2764
Editor: Joseph Kurtz, EDS, (612) 625-3168; pkurtz@mes.umn.edu

(Page 1 of 1)





MSC
g A 2 1 p

April 2, 1996

Spring Brings Sales Pitches for Questionable Crop Products

Sales pitches promising great things for crops seem to arrive in rural Minnesota in the spring as regularly as robins and wildflowers. Don't be taken in, says George Rehm, soil scientist with the University of Minnesota's Extension Service.

"Each spring there are several sales promotions for non-conventional or non-traditional crop products," says Rehm. "Activity increases when fertilizer prices are high. There are various claims for these products. Some are supposed to affect water movement in soils. Others are supposed to stimulate the microbial life in soils. This stimulation, according to the sales claims, nearly eliminates the need for fertilizer for crop production."

Rehm says most of these products have little or no value and, if used, can result in reduced yields and substantially lower farm profits.

Usually sales literature for the products consists of testimonials, notes Rehm. There is little, if any, data from an unbiased evaluation. Pitches may claim that a product is so new no one has heard about it.

"Most of the non-conventional/non-traditional products have been evaluated under field conditions by land grant university faculty," says Rehm. "Farmers confused by the advertising claims are urged to seek help. 'Ask before you buy' is a good rule.

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Information from the evaluation of several questionable products is available from county offices of the Minnesota Extension Service, and from consultants and fertilizer dealers."

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GOPH,DTN,V2,V4MN,V5MN,F4

NAGR5250

Source: George Rehm (612) 625-6210

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April 5, 1996

Reporters, editors: This is the second installment of a five-part series on logging techniques about which private forest landowners need to know.

Using Proper Logging Techniques Can Promote Forest Health

Whether you own forest land for recreation or as an investment in timber, maintaining forest health is a priority. By managing your forest correctly, you can eliminate many of the threats to the health of your forest.

Forests are dynamic systems that change naturally over time. "Protecting forest health," says Charlie Blinn, a forest resources specialist with the University of Minnesota's Extension Service, "is important and should be considered when developing a management strategy." The term "forest health" has been used to describe all aspects of forest interaction, including biodiversity, nutrient availability, and insect and disease problems.

The three factors that influence forest health the most are the presence of organisms that cause injury or disease, environmental conditions, and tree vigor and genetics.

Fungi, insects and other organisms are all part of a healthy forest. Insects and fungi are often involved in tree injury and disease. Insects feed on and injure leaves, branches and roots. Disease-causing organisms can infect and then grow and reproduce within a tree. The tree responds to these attacks by producing defensive chemicals or sacrificing infected plant tissue. The symptoms we observe are a combination of the infection and the tree's response to it.

(over)



Environmental factors include weather, soil compaction, pollution, and logging damage to trees and soil. These ever-changing conditions can affect not only a tree's vigor, but also the presence of insects or disease-causing organisms that might attack the tree.

A tree's vigor, or hardiness, often decreases as it ages and faces new competition from younger trees nearby. If it's a goal to increase the overall vigor of a forest, harvesting old or mature trees and thinning can accomplish this objective.

"It's important to make harvesting choices based in part on tree health," Blinn says. This will maintain the forest's genetic resource; ensuring that the forest's inherited ability to tolerate and resist environmental stress, insects and disease is passed on to future generations of trees. "Simply cutting the best trees and leaving the rest," Blinn warns, "will leave the forest more vulnerable to attack by insects and disease, diminish the quality of the wildlife habitat and reduce the forest's future economic value."

Harvesting only the tallest, most dominant trees causes dramatic changes in lighting, temperature and moisture conditions, which may harm remaining trees. If any of the trees left behind are injured during the logging process, they will be more susceptible to attack by insects and diseases. Equipment used during the harvest may compact the soil, which can slow tree growth and create root injuries which may be exploited by soil-based fungi.

"A properly designed and implemented timber harvest will benefit forest health," Blinn says. "It's also important to recognize that tree mortality is expected and natural; it does not necessarily indicate a decline in forest health."

When a tree dies it provides habitat for birds, mammals, and decaying organisms while returning nutrients to the environment for use by other plants. The space that was used by the tree may be utilized by a nearby tree or seedling.

Blinn says, "The point is, since forests contain many unique values, making harvesting decisions on only one of these factors--such as tree vigor or economic value--

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does not consider all the issues involved. This is especially true with old-growth stands."

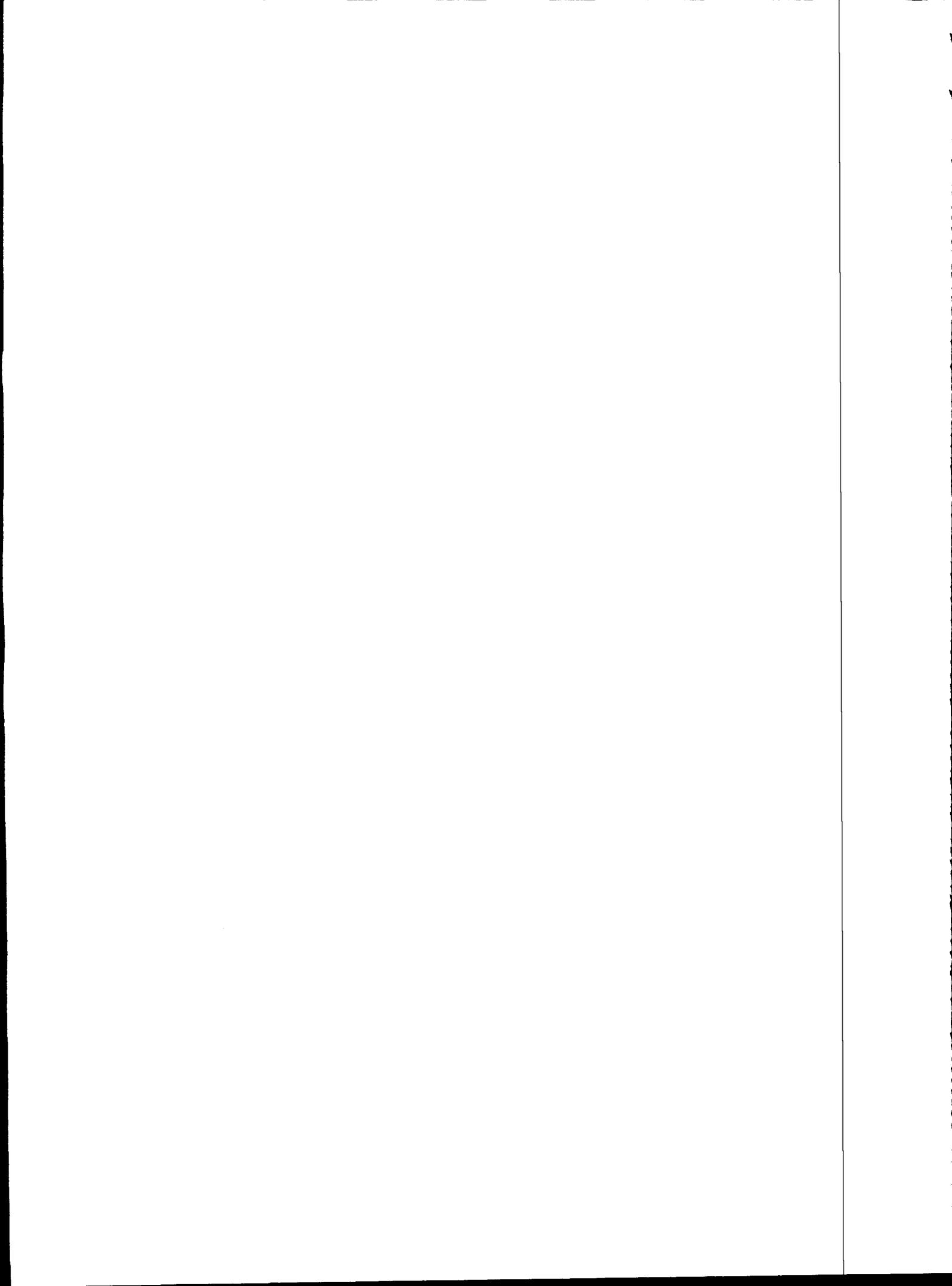
If you'd like to learn more about logging techniques and forest ecology, order "Logging for the 21st Century: Forest Ecology and Regeneration," item FO-6517-NR2, from the University of Minnesota's Extension Service. The 14-page publication costs \$3 plus shipping. Call (800) 876-8636 or (612) 624-4900 for details. Price and availability are subject to change. This item is available to disabled persons in alternate formats upon request.

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GOPH,F8,F9,X9

NNRD5253

Source: Charlie Blinn (612) 624-3788; cblinn@forestry.umn.edu
Writer: Martin Moen (612) 624-0793; mmoen@forestry.umn.edu



MDC
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April 5, 1996

Reporters, editors: This is the third installment of a five-part series on logging practices about which private forest landowners need to know.

What Happens After the Timber Harvest Is Finished?

It used to be that getting trees--any trees--to grow on the site of a timber harvest was good enough. Today, though, we want much more. The diversity of tree species growing on the site, the wildlife habitat that is provided, and how the site looks now are equally important goals.

Achieving all these goals is a complex task according to Charlie Blinn, a forest resources specialist with the University of Minnesota's Extension Service. Tree species differ widely in their ability to regenerate--that is, to sprout from a stump, root or seed; to become established after planting; produce an adequate seed crop; and grow following emergence. These differences are caused by a number of factors.

Physical features such as light, temperature and moisture affect a tree's reproductive capacity. Fungi, bacteria and animals can reduce regeneration by destroying seeds and young trees. Grass, herbs and shrubs compete with young trees for scarce nutrients, water and sunlight. Meanwhile, other plants, animals and fungi can help trees regenerate by spreading seed, shading seedlings or providing nutrients.

"By understanding the conditions each tree species needs to regenerate," Blinn says, "forest landowners can create the kind of forest environment they want. Careful harvesting is usually the first step in directing a forest's evolution."

Harvesting alters the environment found beneath the tree canopy in three principal ways: it changes the lighting, wind dynamics and climate; it varies the kind of

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vegetation growing there; and it disturbs the humus and soil found on the forest floor. The methods used to select and harvest trees play a big role in determining the conditions for regeneration.

Clearcutting (cutting all the trees in an area) and seed-tree harvesting (a few mature trees are left to provide seed) are two harvesting methods that allow nearly all of the sunlight to reach the forest floor. Increasing the sunlight will favor the growth of some species more than others.

Shelterwood cutting (about half of the trees are removed in a random pattern) exposes some areas to nearly full sunlight while nearby areas remain very shaded.

Group selection (small pockets of trees are removed in a Swiss cheese-like pattern) combines the effects of clearcutting and shelterwood cutting. Group selection provides openings where direct sunlight is available to relatively small areas on the forest floor. Because the gaps created with this method are smaller than with clearcutting, forest floor vegetation is protected from the drying effects of wind.

Single-tree cutting creates small openings that are the size of the individual tree's canopy. This allows direct sunlight to reach small areas, but more diffuse light beneath most of the remaining tree canopy.

The effect of sunlight intensity on growth rates varies among tree species. Shade-intolerant species such as aspen and red pine can become established and grow very rapidly in full sunlight and less quickly as sunlight decreases. Intermediate species such as white pine and white oak can become established and grow fairly well in both sunny and shady areas, but can't match the growth rates of shade-intolerant species growing in full sunlight. Shade-tolerant trees such as balsam fir and most maples can become established and grow more quickly in very shaded environments than intermediate and intolerant species.

"Understanding how the tree species you desire reacts to sunlight intensity is only the beginning," Blinn says. "You also need to know things such as whether the tree

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is hardy enough to survive in your climate or if the soil conditions on your land are appropriate for the species. Fortunately, there's quite a bit of information available."

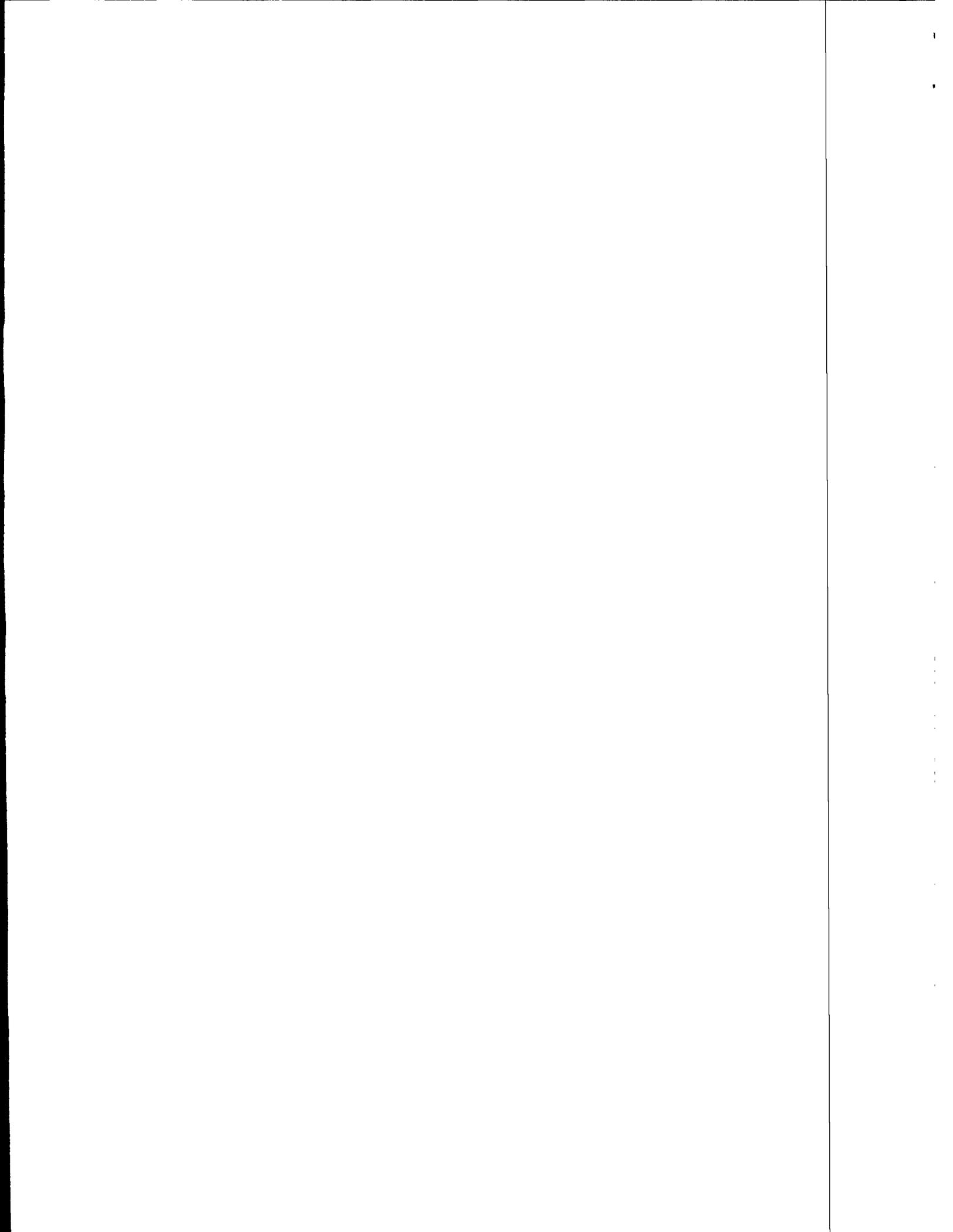
If you'd like to learn more about logging techniques and forest ecology, order "Logging for the 21st Century: Forest Ecology and Regeneration," item FO-6517-NR3, from the University of Minnesota's Extension Service. The 14-page publication costs \$3 plus shipping. Call (800) 876-8636 or (612) 624-4900 for details. Price and availability are subject to change. This item is available to disabled persons in alternate formats upon request.

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GOPH,F8,F9,X9

NNRD5254

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MSC
EATP

April 5, 1996

Reporters, editors: This is the final installment of a five-part series on logging techniques about which private forest landowners need to know.

Understand Your Timber Harvesting Options

There is no single "right way" to harvest every forested area. Because each forest is different and each landowner has a unique set of management objectives, it's impossible to make recommendations that fit every situation says Charlie Blinn, a forest resources specialist with the University of Minnesota's Extension Service.

"Before making forest management and timber harvesting recommendations," Blinn says, "you need an inventory of the forest, a clear understanding of the landowner's short- and long-term ownership objectives, and an understanding of local tree species and the conditions they need for healthy growth."

Blinn says landowners should develop and implement a forest management plan before they harvest. "The harvest can then include practices that maintain the productivity and ensure the regeneration, or regrowth, of your forest. You should contact a forester who can write a management plan and help you implement it."

If the management plan includes timber harvesting activities, the harvests will be designed to help achieve the landowner's goals. Based upon those goals and the current status of the forest, the forester would then consider the strategies to protect residual

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trees, protect the advance regeneration (or re-growth that's already underway prior to the harvest), prepare the seedbed and minimize soil compaction.

Methods that protect residual trees

When trees are left within a harvested area:

--Minimize the number of turns and curves in skidding trails through the harvest site. Locate skid trails to accommodate future as well as current harvests.

--Consider the dimensions of logging equipment when planning trails. Large skidders are often more than nine feet wide and may need several feet on either side to operate without difficulty.

--Designate bumper or rub trees next to trails to protect trees that aren't being harvested, especially at curves and turns in the skid trail. Remove bumper trees at the end of the harvest.

--Use forwarders rather than skidders where possible. Forwarders are shorter when loaded and can maneuver more easily through trees that won't be removed.

Methods that protect advance regeneration

In some cases, seedlings may be present at the time of harvest. To protect this advance regeneration:

--Designate turning areas on skid trails so skidders and forwarders can maneuver on the trail rather than in the stand where regeneration is in progress.

--Don't operate when it's so wet that skid trails become impassable. Loggers can avoid this problem by using high-flotation skidders or by using forwarders and padding the trail with small branches and other material to distribute the load and decrease rutting.

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–Use cable skidders rather than grapple skidders to reduce maneuvering in the logged area. A cable skidder can remain on the trail and reach felled trees with little maneuvering.

–Reduce damage from skidding by felling and piling trees into bunches that are close and at a 45-degree angle to the trail.

Methods that prepare a seedbed

If the harvesting activities need to preserve the soil to facilitate seed regeneration:

–Use skidders instead of forwarders to disturb a wider area of ground. Grapple skidders will travel over more of the area to gather felled trees.

–Use a random pattern of skidding trees through the site, but only if soils are dry or sandy and not sensitive to compaction. Avoid turning random skidding into a network of unplanned main skid trails as this will result in greater soil compaction with only a small increase in soil surface disturbance.

Methods that minimize soil compaction

It is important to minimize soil compaction. To accomplish this:

–Identify specific skid trails to reduce the number of trails through the harvest site. This is especially important when soil is moist and easily compacted.

–Use high-flotation equipment on moist soils. This will limit compaction where equipment travels only a few times and prevent main trails from becoming impassable.

–When harvesting trees on poorly-drained soils, harvest only when the ground is frozen.

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If you'd like to learn more about logging techniques and forest ecology, order "Logging for the 21st Century: Forest Ecology and Regeneration," item FO-6517-NR5, from the University of Minnesota's Extension Service. The 14-page publication costs \$3 plus shipping. Call (800) 876-8636 or (612) 624-4900 for details. Price and availability are subject to change. This item is available to disabled persons in alternate formats upon request.

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GOPH,F8,F9,X9

NNRD5256

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MSC
9A27p

April 5, 1996

Reporters, editors: This is the fourth installment of a five-part series on logging techniques about which private forest landowners need to know.

You Can Help Trees Sprout Naturally Following Harvest

The regeneration, or regrowth, of trees following a timber harvest can happen naturally or through the use of artificial techniques. While some tree species can be easily regenerated naturally, others need to be artificially regenerated. Understanding how trees sprout and the conditions which favor healthy regeneration is key to applying these techniques successfully.

"Natural regeneration can be accomplished in three basic ways," explains Charlie Blinn, forest resources specialist with the University of Minnesota's Extension Service. "Stumps and roots are the best sources of tree sprouts." Seeds are the third source of regrowth, but Blinn says "regeneration from seed is more complicated, and with some species, a less successful method."

By using the correct harvesting techniques, landowners can create conditions that favor one or more of these natural regeneration methods. Blinn says, "Landowners need to determine their objectives for their land and work with a forester to evaluate the site conditions, consider the unique characteristics of the species they want to encourage, and select harvesting techniques accordingly."

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Regeneration from stumps

Stump sprouts are a particularly important source of natural regeneration for hardwood tree species such as maples, birches, ashes, basswood and oaks. Regeneration from stumps produces clumps of several stems that gradually thin with age through natural mortality. Sprouts can grow more rapidly than seedlings because they use food reserves, water and nutrients provided by the roots of the parent tree.

The condition of the stump is important. Flat, short stumps produce the best sprouts. The method of felling the parent tree is not important since sprouts will grow equally well from stumps that are either sawn or sheared.

The production of stump sprouts often decreases with increasing stump diameter and tree age. Also, more energy is available to produce sprouts if trees are harvested when they are dormant rather than during the spring or summer.

To encourage stump sprouts following a harvest:

- Cut stumps flat and close to the ground.
- Avoid excessive damage to stumps from skidding logs or other activities.
- Harvest during the dormant stage if possible.

Regeneration from roots

Root sprouts or suckers are new growth that originates from the roots of trees. Energy stored in the roots enables the sprouts to grow more quickly than other vegetation following a harvest. Root sprouts can occupy more area than stump sprouts because roots are more widely dispersed. Species that produce many root sprouts include beech, aspen, sweetgum, black locust and balsam poplar.

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These species often produce great quantities of root sprouts. For example, healthy aspen forests often produce more than 20,000 root sprouts per acre the year following clearcutting. Research has found that as few as 55 healthy, mature aspen, if they are widely distributed, can provide adequate regeneration for an entire acre of land.

To encourage regeneration through root sprouts following a harvest:

--Minimize the amount of land rutted by logging machine traffic. Rutting damages the tree roots which greatly reduces the number of root sprouts produced.

--Avoid harvesting when the soil is very moist because rutting is more frequent and severe on moist soils. Harvesting during the winter months may be necessary on poorly drained soils.

--Do not harvest trees during that portion of the spring and early summer when leaves are expanding and the tree is actively growing.

--Begin harvesting at the back of the area to be logged and use designated skid trails to avoid skidding over previously logged areas.

Regeneration from seed

Mature trees produce and release seeds at various times during the growing season. For example, silver maple seeds mature in early spring while pine seeds are not released until late summer and early fall. Also, seed production is not consistent from one year to the next for many species. Red oak, for instance, produces a good seed crop only once every three to five years. As a result, the timing of a harvest may help or hinder regeneration of a particular species.

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The size and weight of a species' seed influences how large an area one tree can regenerate its species. Small, lightweight seeds can be scattered up to 300 feet by prevailing winds. Their distribution may also be enhanced by animals. Openings of less than five acres can easily be supplied with wind-disseminated seed from the surrounding forest. Much larger areas can receive wind-blown seed if they are narrow or irregularly shaped, or if some trees are left in the area to produce seed.

Seeds too heavy to be carried by wind, such as acorns or nuts, will not travel far from the parent tree without assistance. Animals often will transport these seeds long distances, but the seed supply is greatest near the tree. If regeneration from these heavier seeds is important in your plan, you need to leave parent trees throughout the harvested area to reproduce the species.

Most tree seeds lose their viability if they don't germinate within a year after they fall. So, it's important that seeds find a suitable seedbed which provides stable moisture and temperature conditions. Since seedbed requirements vary among tree species, you should learn what is needed by the tree species you want to encourage. State extension services and state forestry agencies are sources for this information.

To encourage tree regeneration from seeds following a harvest:

--Control competition from herbs, grasses and shrubs by exposing mineral soil, the layer just beneath the decomposing organic matter located within the forest floor.

--Use harvesting techniques that produce the type of seedbed needed by the tree species you want to encourage. Or, you should plan to prepare the seedbed following harvest.

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-Time your harvesting activities to coincide with years in which there are adequate seed crops.

Regardless of whether you plan to use stumps, roots or seeds as a part of a natural regeneration plan, contact a forester for advice. Your state extension service or forestry agency can provide you with a list of qualified foresters in your area.

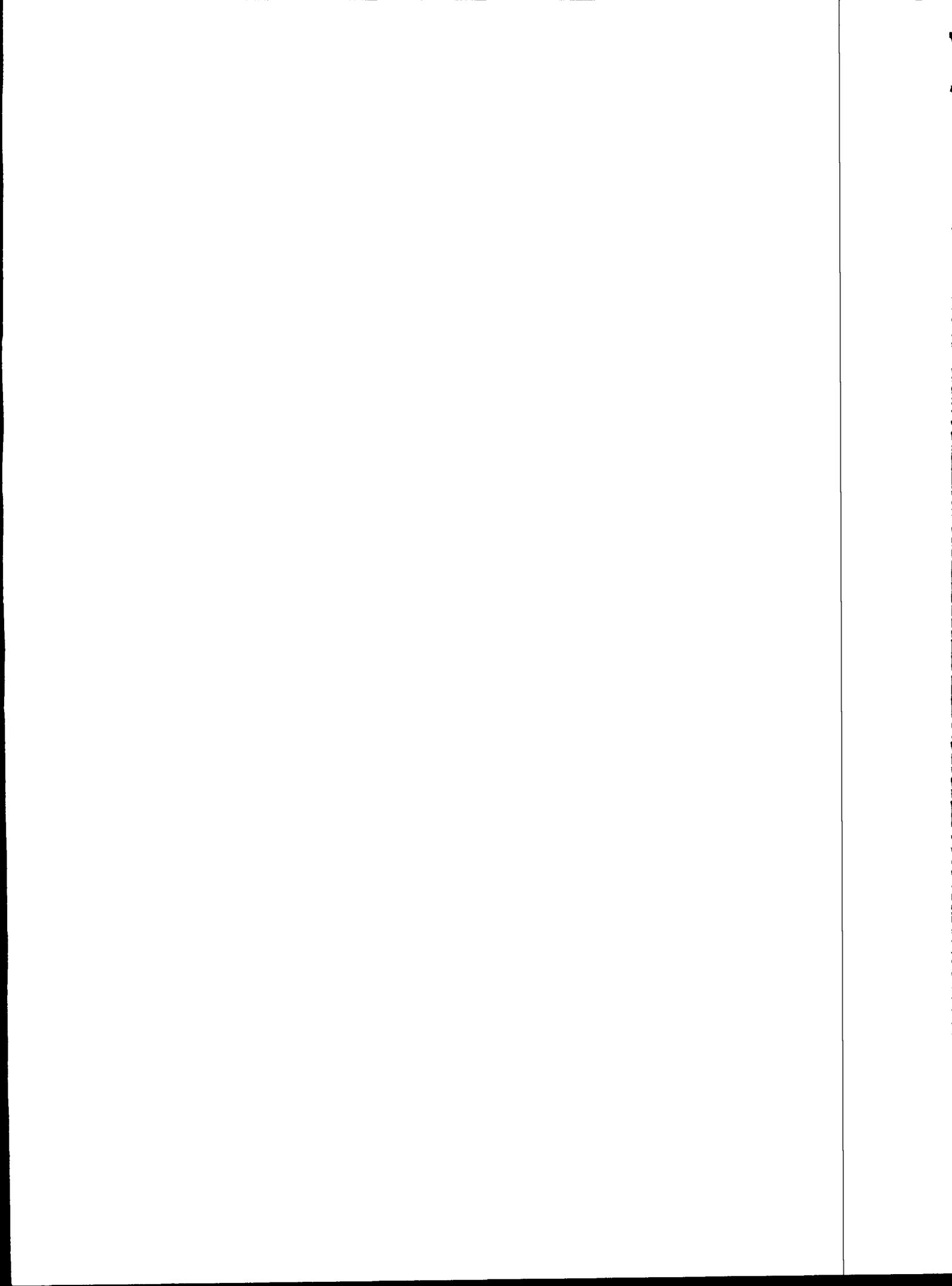
If you'd like to learn more about logging techniques and forest ecology, order "Logging for the 21st Century: Forest Ecology and Regeneration," item FO-6517-NR4, from the University of Minnesota's Extension Service. The 14-page publication costs \$3 plus shipping. Call (800) 876-8636 or (612) 624-4900 for details. Price and availability are subject to change. This item is available to disabled persons in alternate formats upon request.

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GOPH,F8,F9,X9

NNRD5255

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April 5, 1996

Reporters, editors: This is the first installment of a five-part series on logging techniques about which private forest landowners need to know.

What Is Biodiversity in a Forest?

Biodiversity, simply stated, is the variety of living organisms. Many of us think of rare and endangered species when we think of biodiversity, but it can also mean distinct populations or unique combinations of more common plant and animal species.

"Changes in forest habitat can cause a loss in biodiversity," says Charlie Blinn, a forest resources specialist with the University of Minnesota's Extension Service. A forest ecosystem is a complex web of relationships between the living and nonliving components of an environment. Blinn says that when biodiversity is decreased and too many of the links in that web are altered or removed, the ecosystem falters and becomes more vulnerable. "Therefore, a loss in biodiversity can harm the ability of the forest to remain healthy over the long term."

The degree to which a particular piece of forest land is biologically diverse is not static Blinn says. "Forest habitats change naturally over time. Humans can affect this process of change quite dramatically through a variety of activities that disturb the site."

For example, some logging techniques can "fragment" a forest, leaving behind small "islands" of plant species that are unable to re-populate the area. More aggressive species may move in and eventually crowd out the original species. This is the case in northern Minnesota where turn-of-the-century logging practices fragmented the extensive pine forest into areas separated by large blocks of aspen forest.

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But in some cases, the original species are only temporarily driven away. They return when the habitat they need returns. For example, plants or animals that depend on micro-habitats such as shaded, moss-covered logs can return to a disturbed site once the tree canopy thickens enough to create dense shade and high humidity.

"Deciding how much biodiversity is appropriate for a forest is a value-laden process," Blinn says. "It is difficult to support a claim that one level of biodiversity in a particular forest is better or worse than another because there are few authoritative records of plant and animal life before humans arrived. In fact, we lack adequate measures of biodiversity in many areas today." Blinn recommends landowners gather as much information as possible before making decisions that affect biodiversity.

"Landowners should understand how logging can affect biodiversity," Blinn says. "There are several things you can do to maintain biodiversity on your land through a timber harvest. But, implementation of any of these strategies needs to be compatible with the landowner's objectives."

--First, minimize the degree to which soil is disturbed during the harvesting process. Blinn says landowners need to have a clear understanding of what typically occurs during a timber harvest and be prepared to negotiate with the logger to alter that typical process. A professional forester can provide management advice and assistance. Also, it is recommended that the landowner develop a signed, legal contract with the logger which clearly specifies all terms.

--Second, try to keep at least one edge of the harvested area adjacent to mature forest. This will provide a source of seed for new growth in the harvested area. If a farm woodlot is being harvested, do not remove all of the woodlot within one year.

--Third, retain corridors of mature forest between harvested areas to avoid isolating small parcels of mature forest. Make the corridors at least as wide as the height of the trees. If you want to maintain preharvest light conditions in the mature areas, make the corridors even wider.

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--Fourth, use selection cutting or thinning to help preserve many of the qualities and microhabitats of mature forest while providing income from timber harvesting.

"Maintaining the biodiversity of the area will help to sustain the quality of the forest habitat and make it easier for the forest to recover from harvesting or other types of disturbances," Blinn concludes.

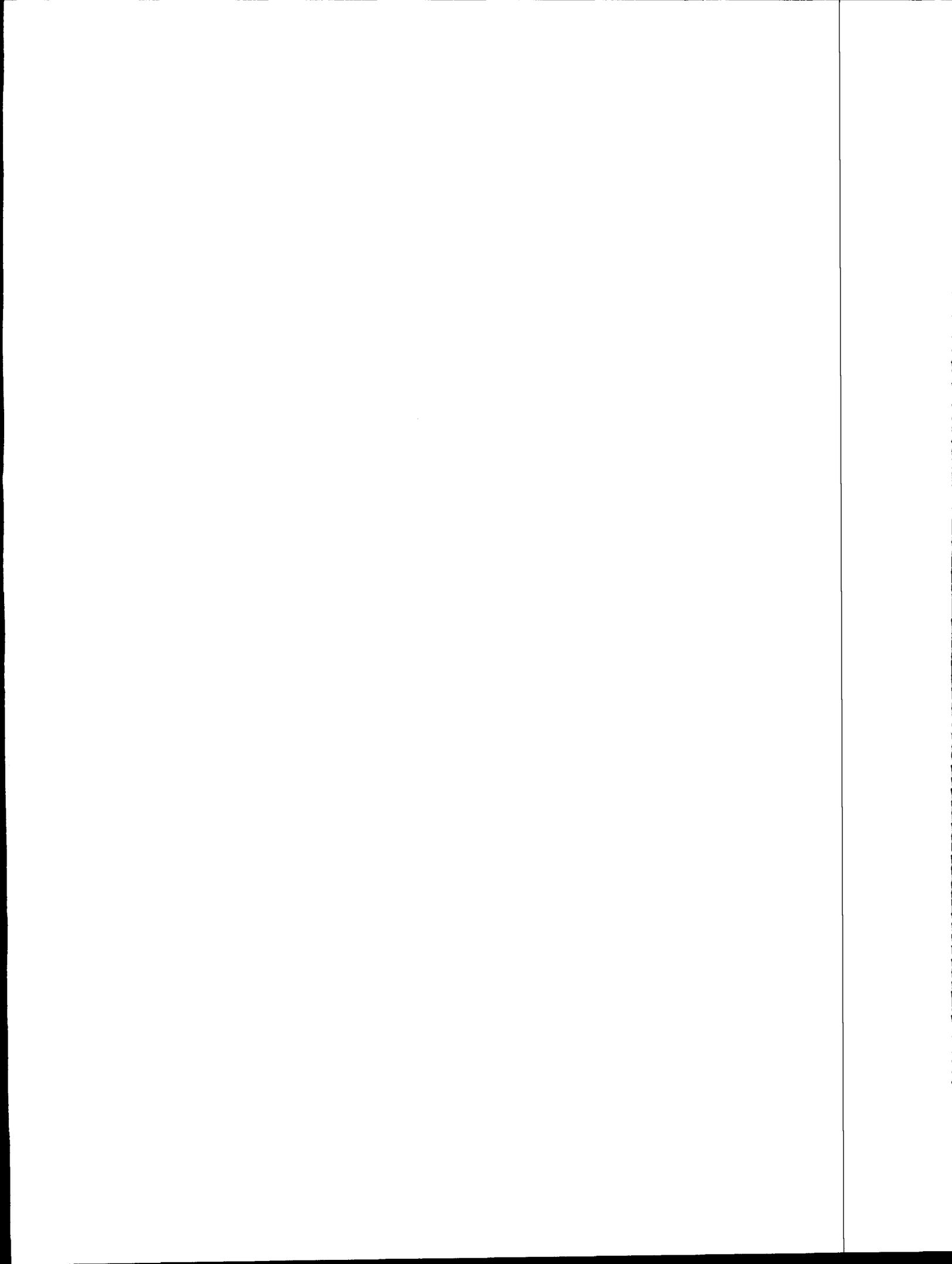
If you'd like to learn more about logging techniques and forest ecology, order "Logging for the 21st Century: Forest Ecology and Regeneration," item FO-6517-NR1, from the University of Minnesota's Extension Service. The 14-page publication costs \$3 plus shipping. Call (800) 876-8636 or (612) 624-4900 for details. Price and availability are subject to change. This item is available to disabled persons in alternate formats upon request.

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GOPH,F8,F9,X9

NNRD5252

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April 17, 1996

Look at Returns When Deciding on Nitrogen Rates

Do this year's higher prices for nitrogen fertilizer mean it's time to cut back on nitrogen applications? It depends on what you can expect to get back from your nitrogen investment, says George Rehm, soil scientist with the University of Minnesota's Extension Service.

"Corn producers usually receive more return for their investment in nitrogen fertilizer than for their investment in all other nutrients," says Rehm. "And even with this year's higher nitrogen prices, that's not likely to change."

Rehm emphasizes the importance of looking at your individual situation.

"Nitrogen fertilizer recommendations are based on the expected yield or yield goals of individual growers," he says. "For those concerned about fertilizer costs, a serious evaluation of individual yield goals may lead to lower recommendations. A highly optimistic yield goal that has never been achieved is not a good strategy when nitrogen fertilizer prices are high. If a yield goal is realistic and you have reached it in the past, there is no economic justification for reducing nitrogen recommendations.

"On the other hand, the excellent return on use of nitrogen fertilizer is no justification for excessive applications. A high percentage of farmers have adopted best

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management practices for nitrogen use, and there is no reason to move away from these practices today."

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GOPH,DTN,V2MN,F4

NAGR5258

Source: George Rehm (612) 625-6210
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

April 17, 1996

Manage Nitrogen Fertilizer Application To Prevent Loss

If you're applying nitrogen before planting corn this spring, it's important to manage the application so that nitrogen isn't lost. Current nitrogen fertilizer prices make this even more important, says George Rehm, soil scientist with the University of Minnesota's Extension Service.

"To prevent the loss of anhydrous ammonia, an adequate seal is necessary," says Rehm. "If urea is used as a nitrogen source, there should be some form of incorporation following application. This incorporation is especially important if soil pH is above 7.4."

With no-till and ridge-till planting, nitrogen fertilizer should not be applied so that it remains in contact with crop residue, says Rehm. For these planting systems, the nitrogen fertilizer needs to go below the soil surface.

When wet weather delays field work, planting should receive top priority, Rehm points out. "Nitrogen fertilizer can be applied as an early sidedress treatment," he says. "All sources of nitrogen can be used for this. In recent years, many corn growers have successfully broadcast urea after corn emergence and incorporated with a cultivator."

Rehm says the broadcast application of 28-0-0 will burn tissue of emerged corn. Nitrogen applied in this way can reduce yields. The probability for yield reduction

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increases when (1) the nitrogen is applied late rather than early, (2) rates higher than 40-50 pounds N/acre are applied, and (3) the nitrogen is applied with a postemergence herbicide.

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GOPH,DTN,V2MN,F4

NAGR5259

Source: George Rehm (612) 625-6210
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

April 17, 1996

Plant Corn Early for Highest Yields

The optimum corn planting period in all areas of Minnesota occurs between April 20 and May 1. Corn planted during this time yields higher, says Dale Hicks, agronomist with the University of Minnesota's Extension Service. It also matures earlier in the fall, allowing more time for field drying and harvesting. The grain usually has better quality and normal test weights, Hicks adds.

"On the average, only six of the 10 days between April 20 and May 1 are satisfactory for field work," says Hicks. "Therefore, to get maximum yields, it's necessary to be able to plant the corn acreage in six or fewer days."

"Corn planted during late April needs more time for germination and emergence," he points out. "However, soil temperature isn't a reliable guide and should not be used to determine when to plant corn."

Hicks says when corn is planted early, emergence may be more variable, and early stands may appear to be more "ragged" compared with later planted corn. Thus, early planted fields may not be as pleasing to look at. However, on the average, they will yield higher and produce higher profits, Hicks points out.

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Regarding frost, Hicks says a major portion of leaves can be killed on young corn plants without affecting grain yield. "Rarely does a spring frost completely kill plants such that a significant stand reduction occurs," he adds.

Hicks says the average planting date for Minnesota's 6.5 million corn acres is May 8. "Corn growers can substantially increase profits from corn by planting earlier," he concludes.

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GOPH,DTN,V2MN,F4

NAGR5257

Source: Dale Hicks (612) 625-8700

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

April 19, 1996

Can You Identify Minnesota Trees?

There's the Red Pine, the White Oak, the Wahoo, and the Silver Maple. The Wahoo? Is that a tree or what you say when backing into a gooseberry bush?

"We call it a tree," says David Rathke, an assistant forest resources specialist with the University of Minnesota's Extension Service (MES). Rathke's definition of a tree is "a woody plant usually having a single, upright stem growing to a height of at least 15 feet with a defined crown developing at least two or more feet above the ground."

"The Wahoo isn't a big, majestic tree like the others, but it is a native species and can be found in southern Minnesota," Rathke says. Sometimes called eastern burningbush, the Wahoo can grow to 20 feet in height, is shade-tolerant, a fast grower and prefers rich, moist soils that are well drained.

"Arbor Day is a perfect opportunity to test your knowledge of Minnesota's trees," Rathke says. "There are a lot of trees to identify in Minnesota forests and backyards. Parents might consider involving their kids in a contest to see who can correctly identify the most species in a week."

If you're looking for field guides to help you identify tree species, the MES has two versions available. There's a 16-page beginner's guide and a 94-page comprehensive manual.

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"A Beginner's Guide to Minnesota Trees," item BU-6593-NR1, is available for \$1 plus tax and shipping. It will help you identify 35 tree species commonly found in Minnesota by using easy-to-follow keying symbols. Rathke says, "the beginner's guide is perfect for casual nature observers and elementary and secondary school-age youth."

"Minnesota Trees," item BU-0486-NR1, is THE identification guide to more than 100 trees in the Gopher State. It's available for \$9.50 plus tax and shipping. The book will help you identify trees in summer or winter, provide interesting facts about each species, and a species index and diary. Rathke says, "This is an invaluable reference for teachers, outdoor enthusiasts and nature lovers."

The field guides are small and durable, making it easy to take them into the forest. They are also the only Minnesota-specific field guides available that are written for a general audience.

You can order the field guides by calling the MES Distribution Center at (800) 876-8636 or (612) 624-4900. Quantity discounts are available. Be sure to mention the title and item number of the publication you want. Price and availability are subject to change. These items are available to disabled persons in alternate forms upon request.

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GOPH,V4MN,V7MN,V9MN,F8MN,X9

NNRD5264

Source: David Rathke (612) 625-0298

Writer: Martin Moen (612) 624-0793; mmoen@forestry.umn.edu

MSC
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April 19, 1996

Use Soil Nitrate Test To Check for Residual Nitrogen

A soil nitrate test can help corn producers in southern and eastern Minnesota determine how much nitrogen is left over from last year's fertilizer or manure. It can help cut nitrogen costs, says Mike Schmitt, soil scientist with the University of Minnesota's Extension Service.

"Our research that went into developing this test showed three categories of fields most likely to have significant leftover, or residual, N," says Schmitt. "The first is fields that were in corn last year. Well-fertilized corn on corn generally has potential for residual N.

"The second is fields to which manure was applied in the past couple of years-- even if the fields were in soybeans. Manure provides residual N, although the soil nitrate test won't adequately estimate nitrogen from manure applied late last fall or during the winter.

"The third is fields in which the soil has been predominately dry. But even though most Minnesota soils have been wet, it would still be a good idea to test fields that are in continuous corn or have been manured."

Schmitt says now through the middle of May is a good time to take soil samples for the soil nitrate test. "The earlier you take the sample, the more N application options

(over)



you will have," he says. "Remember, this test is a preplant test, taken to a depth of two feet."

Schmitt says it's important to keep in mind that the test isn't designed to evaluate fertilizer applied last fall.

Complete details on the test are contained in Minnesota Extension Service publication FO-6514, "A Soil Nitrogen Test Option for N Recommendations with Corn." The publication is available from local extension offices or by calling (800) 876-8636 or (612) 624-4900.

#

GOPH,DTN,V2MN,F4

NAGR5263

Source: Mike Schmitt (612) 625-7017

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
GA 27p

April 19, 1996

Wheat Producers Have Several Spring Nitrogen Application Options

Many spring wheat producers in northwestern Minnesota weren't able to apply nitrogen fertilizer last fall. Weather and soil moisture are the main factors affecting nitrogen application this spring, notes George Rehm, soil scientist with the University of Minnesota's Extension Service.

"If wet soil conditions delay planting, urea can be broadcast to supply the needed nitrogen, either after planting or after emergence," says Rehm. "Recent research in northwestern Minnesota has shown that substantial amounts of nitrogen can be broadcast to emerged wheat up to tillering without hurting yields. The nitrogen in the studies was supplied as urea (46-0-0) or ammonium nitrate (33-0-0). Liquid fertilizer at a rate supplying more than 40 pounds N per acre can cause some leaf burn that might reduce yields."

Rehm says producers can also apply anhydrous ammonia (82-0-0) before planting if soil moisture conditions permit. "It may be difficult to seal the soil after anhydrous application if soils are very wet," he says. "If a poor seal leads to anhydrous loss, it's a good idea to switch to either 46-0-0 or 33-0-0."

(over)



The loss of nitrogen from 46-0-0 broadcast on the soil surface is a concern. Rehm recommends incorporation to prevent volatilization losses. He says light tillage or a quarter inch of rainfall will provide adequate incorporation.

"All nitrogen sources have an equal effect on small grain yields if managed properly," Rehm concludes.

#

GOPH,DTN,V2MN,F4

NAGR5262

Source: George Rehm (612) 625-6210

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

April 22, 1996

Editors: A limited number of b/w photos are available for use with this news release. If you would like a photo, contact Jennie Y. Rominger at (612) 625-6294.

Minnesota Livestock Hall of Fame Gains 3 New Members

Three Minnesotans who have made numerous longtime contributions to the state's livestock industry have been inducted into the Minnesota Livestock Hall of Fame.

Those honored are Harlin Hecht of Paynesville, J. William Mudge of Roseville, and Lester Schafer of Buffalo Lake. Their induction took place during the recent 100th annual meeting of the Minnesota Livestock Breeders' Association in St. Paul.

Hecht grew up on a dairy farm near Pequot Lakes and became interested in the Charolais beef breed when his parents purchased three percentage Charolais cows in 1960. He received a B.S. degree from the University of Minnesota and taught vocational agriculture at Evansville High School for three years. He then joined Land O' Lakes as a field service manager at Atwater, Minn. He and his wife, Sue, purchased their farm near Paynesville and a registered Charolais herd in 1970.

The Hechts have provided performance information on all their cattle to the American International Charolais Association (AICA) since 1968. Harlin has been active in the Minnesota State Charolais Association, serving four terms as president of the

(over)



organization since 1968. He served on the AICA board of directors for nine years. He was named AICA Seedstock Producer of the Year in 1982.

The Hechts have won many show honors with their cattle at numerous county fairs as well as the Minnesota State Fair and many national shows. At the Minnesota State Fair they have had the Grand Champion bull four out of the past seven years and the Grand Champion female five out of the past seven years.

The Hechts held judging contests for 4-H and FFA members for several years. They would host 100-150 young people and advisors and provide lunch and trophies.

Harlin served on the Minnesota Beef Council from 1988-94. He also served two terms as chair of trustees at Paynesville Lutheran Church. He continues to work for Land O' Lakes as a district sales manager in the seed division.

J. William Mudge grew up in Kansas and earned a degree in dairy management from Kansas State University in 1942. He served in World War II with the Navy in the Pacific, and later operated a 240-acre dairy farm with registered Holsteins and registered Duroc hogs. He entered graduate school at Kansas State in 1956 and received his Ph. D. in 1960 with a major in dairy genetics and dairy cattle management.

In 1960 he was appointed extension dairy scientist at the University of Minnesota. For 14 years he served as extension dairyman in charge of Minnesota DHIA. He gave many seminars and meetings, as well as three DHI supervisor schools per year for 25 years and 10 district DHI meetings per year for 14 years. He served 12 years on the national DHI Milk Meter Committee and four years on the National DHI Handbook Committee. He served two years on the National DHI Policy Board and two years as

(more)

chair of the North Central District NDHIA Extension Dairymen. While at the university he was co-advisor of the Gopher Dairy Club.

Mudge judged 4-H and open classes in dairy at over 100 county fairs and shows. He also set up and conducted many area 4-H judging schools. He served 10 years as secretary-treasurer of the Minnesota Purebred Dairy Cattle Association. He retired from the University of Minnesota in 1986.

Schafer grew up near Buffalo Lake and developed an interest in Hereford cattle at an early age. After serving in the Army, he enrolled at the University of Minnesota. He completed his degree in animal husbandry in 1951 and then began farming with his uncle.

Lester and his wife, Kathleen, currently have about 100 purebred and registered Hereford cows. They have sold cattle and semen to buyers in 19 states and Mexico. They have exhibited cattle at the Minnesota State Fair for over 10 years, earning many awards.

The Schafers have emphasized performance in their operation, and have recorded weaning weights on all their calves since 1961.

Lester has been a member of the Minnesota Hereford Association since 1951. He has been a director of the Minnesota State Cattlemen's Association and served on the association's legislative committee for nine years. He helped organize the local Buffalo Creek Cattlemen's Association, serving as its president for three years.

Since 1985, well over 100 University of Minnesota veterinary students have been welcomed by the Schafers for on-the-farm training sessions. The Schafers have also hosted livestock judging contests for 4-H and FFA members.

(more)

Lester served on the Sibley County Fair Board for 16 years and is the current chair of the farm advisory board to the Sibley County Economic Development Council. He has served as Sunday school superintendent and teacher, chair of the administrative council and state conference delegate for the Buffalo Lake United Methodist Church. He received the WCCO Radio Good Neighbor Award in 1985.

#

GOPH,V2MN,B1,D1,34,46,47,68,77,78,SelMedia

NAGR5260

Source: Judy Sunvold (612) 625-3775

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

April 22, 1996

Workshop Will Focus on Local Government Cooperation

With the increasing pressure on local governments to provide services as cost-effectively and efficiently as possible, options for local government units to work together are drawing increased attention. A May 21 workshop in St. Paul offers citizens and local leaders a look at those options. "Choices for Change II" will be held at the Sheraton Midway from 8:30 a.m. to 4 p.m.

The workshop, sponsored by the University of Minnesota's Extension Service, will answer questions such as: What role does the state play in interlocal governmental cooperation and municipal boundary changes and consolidations? How can local communities develop open processes and reach a consensus about their governmental arrangements? What are joint service districts and what role do they play in interlocal cooperation? What are the practical issues involved in having them? What can we expect to happen if we do decide to consolidate governmental units?

Some of the presenters will be Jim Gelbmann, executive director of Minnesota's Board of Government Innovation and Cooperation; Ellis Johnson, first mayor of the consolidated North Branch, Minn.; and Christine Scotillo of the Minnesota Municipal Board.

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According to workshop planner Beth Honadle, University of Minnesota extension economist, "Choices for Change II" builds on last year's workshop and will be valuable for those who attended that sold-out presentation as well as new participants. "Those who participated last year will get an update on state policies and programs and a fresh perspective on dealing with some of the challenging issues surrounding boundary adjustments and interlocal cooperation," she says. "For new participants, it will be an opportunity to interact with local officials, community leaders, and private citizens who are searching for ways that their local governments can be more effective, accountable, and efficient in service delivery and performing governmental functions."

The fee for the workshop is \$40. To register, send a check payable to the University of Minnesota to Diane McAfee, Department of Applied Economics, University of Minnesota, 217 C.O.B., 1994 Buford Avenue, St. Paul, MN 55108-6040.

#

GOPH,V4,V7,E1

NEXT5261

Source: Beth Honadle (612) 625-3772
Writer: Jennifer Obst, EDS, (612) 625-2741. jobst@mes.umn.edu

MSC
Z. J. P.

April 26, 1996

Using Starter Fertilizer for Corn Can Mean Lower Rates, Lower Costs

Using starter fertilizer for corn is a good way to save money on the overall fertilizer bill. It also has environmental benefits, says George Rehm, soil scientist with the University of Minnesota's Extension Service.

"You can reduce rates of phosphate and potash fertilizers by one-half the broadcast recommendations if you apply these nutrients in a starter at planting," says Rehm.

He says there is a high probability that using a starter fertilizer will increase corn yields when soil test values for P and/or K are in the low or very low ranges. The probability of a yield increase diminishes as the soil test values increase into the high and very high categories.

If phosphorus is placed in a band below the soil surface at planting, it will not move and will not be subject to loss through soil erosion, says Rehm. This means there is a potential positive impact on environmental quality.

"Dry and liquid forms of starter fertilizer provide equal benefit if equal amounts of nutrients are applied," says Rehm. "Orthophosphate and polyphosphate are equally beneficial if rates are the same. Availability of phosphate is nearly equal in most

(over)



fertilizers sold today. Factors such as soil pH and percentage of free calcium carbonate control availability of phosphorus for crops.

"Regarding placement, a one-inch distance between fertilizer and seed is usually enough to avoid potential seed damage. The starter effect diminishes somewhat if this distance exceeds 3-4 inches."

#

GOPH,DTN,V2,F4

NAGR5266

Source: George Rehm (612) 625-6210
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

May 3, 1996

Planting Barley Is Option for Livestock Producers Short on Corn

Livestock producers who face the prospect of running short on corn for feeding this summer may want to consider barley as a substitute. Barley is normally ready to harvest as much as two months earlier than corn, says Bob Byrnes, extension educator in Lyon County with the University of Minnesota's Extension Service.

"Barley works well in livestock rations, with 85 percent relative feed value as compared with corn," says Byrnes. "Grain yields of around 90 bushels per acre are typical. Of course, environmental conditions can dramatically influence yields. Disease and inadequate kernel development can cut yields. Hot weather during grain fill can reduce yields. Prolonged wet weather during gain fill can lead to scab, although scab won't reduce yields in barley as much as in wheat."

Byrnes says barley should not be planted in high fertility fields due to increased lodging risk. And since corn residue is a host for scab, fields previously planted to corn should not be planted to barley.

Barley with a yield goal of 90 bushels per acre on land previously in soybeans would require 75 pounds of nitrogen and 25 pounds of phosphate per acre, says Byrnes. "It is unlikely that potassium would be necessary on most southwestern Minnesota soils," he points out.

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Planting early is a significant factor in producing high yields of barley, according to Byrnes. For additional information on barley production, contact your local office of the Minnesota Extension Service.

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GOPH,DTN,V2,F4

NAGR5267

Source: Bob Byrnes (507) 537-6702

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

*MSC
EATP*

May 3, 1996

Twin Cities Will Host International Precision Agriculture Conference

Farm producers and managers can join scientists from across the U.S. and around the world at a conference on precision agriculture this summer in the Twin Cities. The event is the 3rd International Conference on Precision Agriculture June 23-26 at the Radisson South Hotel in Bloomington.

The purpose of the conference is to highlight significant research and its application in precision agriculture. The conference will include oral and poster presentations and exhibits, as well as an opportunity for discussion and exchange of information. It's designed for farm producers and managers, agri-consultants, agri-industry and business personnel, extension educators and specialists, government personnel and researchers.

In addition to three research tracks, the conference will include a track focusing on key topics for producers and agribusiness. Topics in this track include getting ready for precision, field positioning, soil sampling, yield monitors and mapping, variable rate fertilization, software and hardware needs, managing and using the information, on-farm research and Internet applications.

The conference fee for registrations postmarked by June 12 is \$200 per person. The fee includes several meals and a proceedings booklet with papers from speakers

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and poster presenters. After June 12, the fee is \$300. To obtain a registration brochure or further information, contact Tracy Svec at (800) 367-5363 or (612) 625-8215.

#

GOPH,DTN,V2,E4,F4,R1

NESP5268

Source: Pierre Robert (612) 625-3125

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

May 10, 1996

Use Yield Percentage To Convert Lean Hog Futures Price to Live Price

A hog price quote of \$75 per hundredweight is enough to get pork producers pretty excited. But that figure needs a closer look, says Brian Buhr, economist with the University of Minnesota's Extension Service.

"To be precise, 'lean hog futures' on the Chicago Mercantile Exchange have been trading at \$75 per carcass hundredweight for June 1997," says Buhr. "Beginning with February 1997, the Live Hog Futures Contract will become the Lean Hog Futures Contract at the Chicago Mercantile Exchange. The identifying symbol LH will still be the same."

Buhr says the new contract is meant to represent the lean value of the hog carcass as determined by percent lean, backfat measurement and carcass weight. This is similar to most packers' carcass merit pricing systems already in place. However, the lean hog futures price reflects only the carcass base price, not the carcass merit premium price. This is because packer premium schedules differ, so the only real point of comparison is the carcass value.

"This concept is similar to the standard yield a packer employs to quote a base carcass price from the live price," says Buhr. "For example, assume the live hog price

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quoted by IBP is \$45/cwt. If IBP has a standard yield expectation of 73 percent for a 240-pound live hog, this implicitly means IBP expects that hog to weigh $240 \times .73$, or 175.2 pounds on a carcass basis. The total value of the live hog is $\$45/\text{cwt.} \times 2.4 \text{ cwt.}$, or \$108.

To determine the equivalent value using the carcass weight, the price the packer offers must be higher, Buhr points out. In fact, it must be higher by exactly the same percentage that the live weight is converted to carcass weight. The carcass price the packer offers would be $\$45/\text{cwt.}$ divided by .73, or $\$61.64/\text{carcass cwt.}$ If you multiply the carcass weight by the carcass price, you should get the same carcass value as the live value: $\$61.64/\text{cwt.} \times 1.752 \text{ cwt.} = \108 . So the carcass base price is \$61.64 in this case.

"This is the same change that is being made in the February 1997 Lean Hog Futures Contract," says Buhr. "If you want to compare the February Lean Hog Futures Contract value to a live hog value, simply multiply the February 1997 lean hog contract price by a standard yield assumption of 74 percent. For example, on May 1, 1996, the June 1997 Lean Hog Futures Contract closed at $\$76.85/\text{cwt.}$ The equivalent live price quote would be $\$76.85/\text{cwt.} \times 0.74$, or $\$56.87/\text{cwt.}$, which is still a pretty good price for hogs in June of 1997."

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GOPH,DTN,V2,A2,S2

NAGR5272

Source: Brian Buhr (612) 625-1273

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

May 10, 1996

Alfalfa Needs Adequate Potassium To Produce Top Yields

Alfalfa needs an adequate supply of potassium to produce top yields. Soil testing is the best way to check for potassium needs, says George Rehm, soil scientist with the University of Minnesota's Extension Service.

"Potassium is usually needed where alfalfa is a major crop in the rotation in southeastern, central, and east central Minnesota," says Rehm.

He lists benefits of potassium for alfalfa as: (1) improved concentration of chlorophyll, leading to more leaf growth and carbohydrate production; (2) enhanced nodulation, ensuring that the alfalfa crop can obtain adequate nitrogen from the atmosphere; (3) added resistance to some root diseases, especially phytophthora root rot; (4) improved winter hardiness.

"Topdressing is a good way to supply potassium to established stands of alfalfa," says Rehm. "Research shows a large percentage of potassium applied on the soil surface is recovered by the alfalfa crop. When results of a soil test show a need, use of topdressed potassium this spring would be a good management practice."

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GOPH,DTN,V2,F4

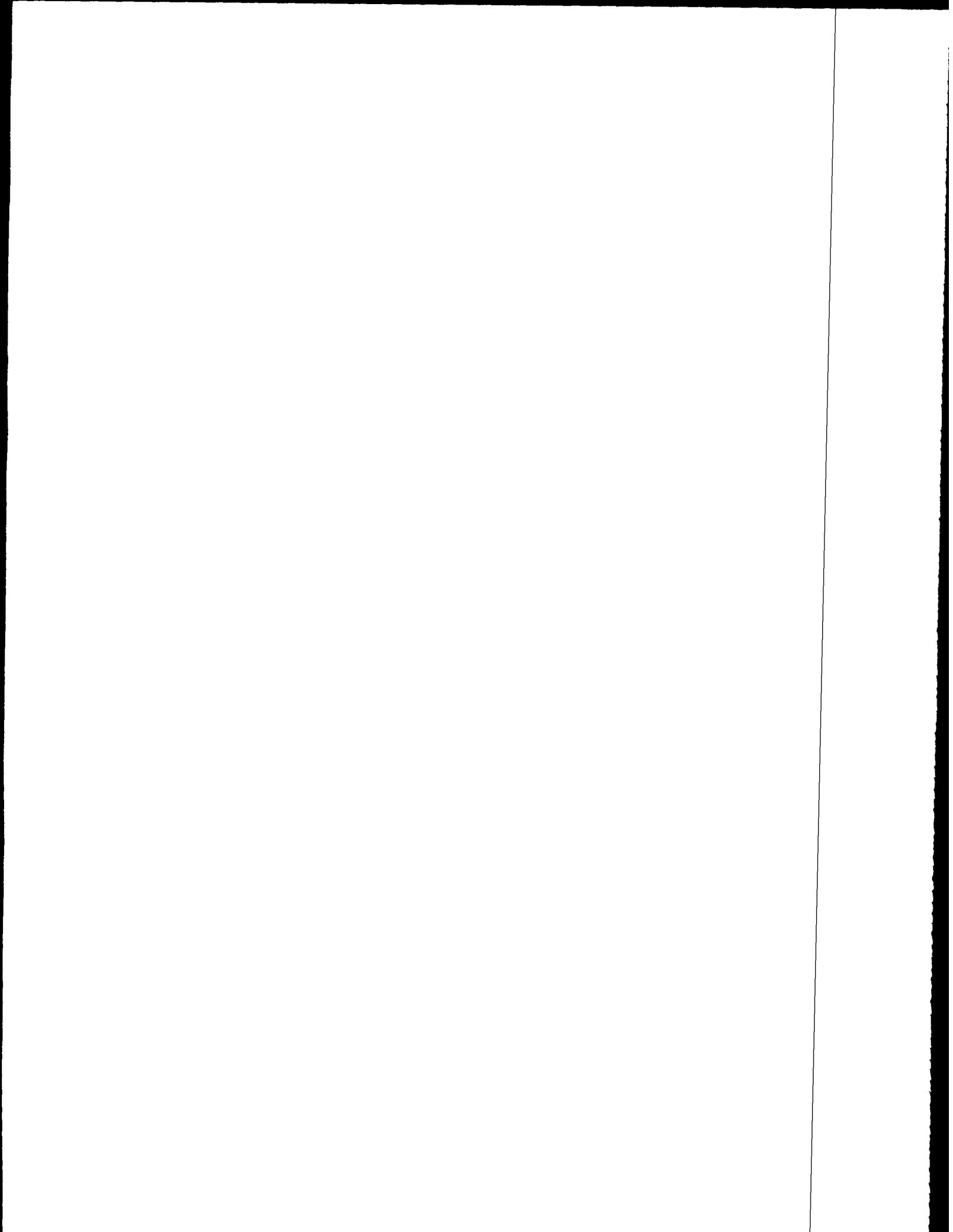
NAGR5274

Source: George Rehm (612) 625-6210

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

(Page 1 of 1)





*MSC
GAP*

May 10, 1996

Select Corn Hybrids for Yield if Maximum Starch Production Is Goal

Farmers interested in growing corn for maximum starch production must first select corn hybrids for highest yield. Selecting for yield is more important than selecting for starch content, says recently retired agronomist Dennis Warnes of the University of Minnesota's West Central Experiment Station at Morris.

Warnes headed a recently completed research project to evaluate corn hybrids for starch content. Corn samples from three years at Morris, two years at Lamberton, and one year at Staples were collected. Samples from two years of Minnesota Corn Growers Association hybrid strip trials in western Minnesota were also used.

Using near infrared reflectance (NIR) analysis, the samples were evaluated for total starch, protein, oil and fiber .

"Data indicate that starch content varied depending on corn hybrid, maturity at harvest, year, date of planting, amount of nitrogen application, location, and NIR machine setting," says Warnes. "Starch content increased as protein content decreased. Yield was the most important factor in determining the total amount of starch produced."

Warnes says ethanol plants value corn for its starch content. In the future they might be willing to pay more for corn that contains higher levels of starch.

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Grants from the Minnesota Agricultural Utilization and Research Institute (AURI) and the Minnesota Corn Research and Promotion Council (MCRPC) helped fund the study.

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GOPH,DTN,V2,F4

NEXP5273

Source: Dennis Warnes (320) 589-1711

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

May 10, 1996

Forestry Camp for Teens Set for August in Northern Minnesota

Forests are a valuable source of wood products, wildlife habitat and recreational opportunities. They protect our soil and renew our water resources. Producing these benefits requires generations of careful planning and management. Tomorrow's forests depend on today's youth.

Forest Ecology Summer Camp will provide an opportunity for teens to explore the natural environment, natural resource careers and forest stewardship. The camp, for young people ages 14-18, will be offered August 18-24 at the Wolf Ridge Environmental Learning Center on Minnesota's north shore.

Camp participants will work in teams to develop a management plan for a 10-acre woodland. The plan will demonstrate how a well managed forest can serve as a valuable source of wood products, wildlife habitat and recreational opportunities, while protecting woodland beauty as well as soil and water resources. Leisure activities will include canoeing, rock climbing, hiking and a high ropes course.

The number of participants is limited, so early registration is suggested. Young people of color are encouraged to apply. Cost for the week-long camp is \$200 per person. Some scholarships are available.

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Camp sponsors include the University of Minnesota's Extension Service, Center for 4-H Youth Development, Department of Forest Resources and Department of Fisheries and Wildlife, USDA Forest Service Civil Rights Program, Minnesota Department of Natural Resources, and Wolf Ridge Environmental Learning Center.

For more information contact your local county extension office or Stephan Carlson, Center for 4-H Youth Development, by phone at (612) 626-1259 or by e-mail (scarlson1@mes.umn.edu).

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GOPH,V4MN,V5MN,V8MN,F8MN,F9MN,A1,A3,H3,N1,Y1MN,Z1,Z2,Z3,Z7,
SelMedia

NNRD5271

Source: Stephan Carlson (612) 626-1259, scarlson1@mes.umn.edu
Editor: Jennie Y. Rominger, EDS, (612) 625-6294, jrominger@mes.umn.edu

June 6, 1996

Publications Focus on Tillage Practices To Clean Minnesota River

Farm crop tillage practices that will contribute to a healthier Minnesota River are the subject of some new publications developed by the University of Minnesota's Extension Service.

According to a study conducted by Metropolitan Waste Services reported in 1994, approximately 625,000 tons per year of total suspended solids are transported by the Minnesota River at Fort Snelling in the Twin Cities. This amounts to 86 20-ton truck loads per day. According to an evaluation by the Natural Resource Conservation Service, the widespread adoption of conservation tillage practices within the south central part of the river basin could reduce sediment losses by approximately 45 percent.

The new publications are designed for crop producers, agribusiness personnel, educators, government agency personnel, and others with an interest in improving the health of the Minnesota River.

Titles of the publications in the series, along with their designated item numbers, are: "Description of the Minnesota River Basin and General Recommendations of Residue Management Systems for Sediment Control," (FO-6673); "Sediment Problems

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and Solutions for the Minnesota River," (FO-6671); "Tillage Best Management Practices for Corn-Soybean Rotations in the Minnesota River Basin," (FO-6676); "Tillage Best Management Practices for Continuous Corn in the Minnesota River Basin," (FO-6672); "Tillage Best Management Practices for Small Grain Production in the Upper Minnesota River Basin," (FO-6674); and "Economic Comparison of Incremental Changes in Tillage Systems in the Minnesota River Basin," (FO-6675).

Six publications in the series are available individually. The series is also combined in one publication, "Tillage Best Management Practices for the Minnesota Basin, Based on Soils, Landscape, Climate, Crops, and Economics," item BU-6644.

The publications are for sale at county offices of the Minnesota Extension Service. They can also be ordered by credit card from the MES Distribution Center by calling (800) 876-8636 or (612) 624-4900.

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GOPH,DTN,V2MN,C4MN,F4MN,T2MN,06,07,08,10,12,37,40,52,67,68,75,77,92

NAGR5286

Source: John Moncrief, (612) 625-2771

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

June 6, 1996

Tillage Systems Affect Sediment Going into Minnesota River

Tillage systems used on farmland in the Minnesota River basin affect the amount of sediment that goes into the river. John Moncrief, soil scientist with the University of Minnesota's Extension Service, points out some of the impacts.

"Fall chisel plowing that results in 30 percent crop residue cover after planting can reduce gross field erosion from 50-65 percent compared with a system without soil cover," says Moncrief. "Only a portion of the soil that is moved on any given field from erosion will be delivered to the river system, however. Estimates in the research literature range from 2 percent to about 19 percent."

Moncrief says chisel plowing is probably the best alternative to moldboard plowing on poorly drained soils. Light spring tillage only, such as disking, has performed well, but may delay entry into the field on poorly drained soils in wet springs.

"Ridge and no-till systems provide the maximum amount of surface residue cover and thus sediment control," says Moncrief. "Ridge-till systems have performed well over a wide range of soil and climatic conditions. This system does require a banded phosphorus and potassium application for corn. It also requires controlled

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combine, cultivator and planter traffic, a special planter and cultivator and, sometimes, herbicide applications for perennial weed control."

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GOPH,DTN,V2MN,C4MN,F4MN,T2MN,06,07,08,10,12,37,40,52,67,68,75,77,92

NAGR5289

Source: John Moncrief, (612) 625-2771

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

June 6, 1996

New CME Contract Should Make It Easier for Hog Producers To Hedge

Settlement in cash, not hogs, is one of the major changes the Chicago Mercantile Exchange's new Lean Hog Futures Contract is bringing to futures trading. The new contract, which replaces the Live Hog Futures Contract as of February 1997, should make it easier for producers to hedge, says Brian Buhr, economist with the University of Minnesota's Extension Service.

"The cash settlement price to be used is trademarked by the CME as the CME Lean Hog Index," says Buhr. "The CME Lean Hog Index is a two-day volume-weighted average of lean value carcass prices from the western Corn Belt, eastern Corn Belt, and mid-South. The prices originate as USDA figures on volume of hogs sold and prices in these major regions."

At the expiration of the futures contract, the cash settlement price must by definition be equal to the futures price, says Buhr. "This is expected to substantially reduce futures price variability at contract expiration, because it will be explicitly linked to the cash market," says Buhr. "This makes it much easier for producers to hedge, because the basis risk should be much lower near contract expiration."

The non-delivery system also removes the incentive to get out of the futures position before the time of delivery, Buhr points out. "Liquidation of futures positions

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prior to final contract expiration can lead to highly variable end-of-contract price movements," he says.

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GOPH,DTN,V2,A2,S2

NAGR5287

Source: Brian Buhr, (612) 625-1273

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

June 6, 1996

Specifications Change for Lean Hog Futures Contract

The new Lean Hog Futures Contract on the Chicago Mercantile Exchange has some different specifications compared with the Live Hog Futures Contract it replaces. Brian Buhr, economist with the University of Minnesota's Extension Service, points out some of these changes.

"The Lean Hog Futures Contract amount is still 40,000 pounds, but that amount is on a carcass weight basis," says Buhr. "Whereas about 167 hogs at 240 pounds were necessary to fill a Live Hog Futures Contract, it will now require about 225 (167 divided by .74 carcass conversion) hogs to fill the contract on a carcass weight basis. So, it will take more animals to fill the 40,000 pound requirement. The number of hogs is still important, even without delivery, because to form a hedge you will still need to match futures quantities with spot quantities, as always. It may be tempting for producers to mismatch the two with no delivery requirement hanging over their heads, but that would constitute increasing risk.

"The hogs to be slaughtered must also meet the specifications of 51-52 percent lean, .8-.99 inches of backfat at the last rib, and must weigh 170-191 pounds on a dressed weight basis. Of course, all these are new because the old contract was based on live animal measurements."

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Buhr says the daily price limit is still \$1.50/cwt. However, this represents a lower percentage of the total value of the contract than on a live weight equivalent.

"The new contract complements the pork industry's drive for lean value pricing," says Buhr. "It's also much easier to use once you get beyond the confusing prices and quantity conversions."

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GOPH,DTN,V2,A2,S2

NAGR5288

Source: Brian Buhr, (612) 625-1273

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

June 7, 1996

Evergreen Shrubs Hit by Winter Injury May Need To Be Replaced

If you have an evergreen shrub that is brown and dry, there's a good chance the severe weather of the past winter is the cause of the problem. Replacing the shrub is probably your best strategy, says Deb Brown, horticulturist with the University of Minnesota's Extension Service.

"Last winter was particularly hard on junipers, yews, arborvitae, and other evergreen shrubs," says Brown. "Portions of the plants most exposed to the sun and prevailing winds seemed to burn out most severely. The south- and west-facing sides of shrubs and, in some cases, the parts that stuck out in the snow usually look worst."

Brown says snow is a good insulator, so most low-growing junipers that were totally covered with snow all winter came through in good shape.

If most of a plant is now brown and dry, Brown says there's almost no hope of saving it. "You're better off digging it out and replacing it with a new one," she says. "But if there's still a fair amount of healthy looking green growth, you may be able to fertilize and water the plant to coax out as much new growth as possible. We should be seeing some new growth on those plants by now."

If recovery is poor, you can opt to replant at any time, right through early autumn, Brown points out. "Unless you've had problems with your evergreens most

(over)



years, you can replace them with similar plants," she says. "With any luck, we won't see a repeat of last winter's weather for many years to come."

#

GOPH,V2MN,V5MN,V8MN,G1

NAGR5290

Source: Deb Brown, (612) 624-7491

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

June 7, 1996

Kids and Sunscreens: A Vital Summer Combo To Curb Skin Cancer Risk

Kids are out of school and into the sun. Unprotected by sunscreen lotion or full coverage clothing, those kids are inviting bad sunburns that could result in skin cancer decades from now, according to Sherri Gahring, textiles and clothing specialist with the Minnesota Extension Service at the University of Minnesota.

Gahring says that 90 percent of the damage done to skin in a person's lifetime is done by age 20, so children are particularly vulnerable any time they're outside. "One in six Americans will suffer from skin cancer in his or her lifetime, and sunburn during childhood is strongly linked to that cancer incidence, which is rising nearly 4 percent annually," she says.

Parents should apply a sunscreen with a Sun Protection Factor (SPF) rating of at least 15 when their children are outdoors. Sunscreens are not recommended for babies under 6 months of age, so Gahring recommends keeping infants out of the sun or covering them completely with clothing, blankets or shade protection when outdoors. She also reminds parents that even water-resistant sunscreen will lose its effectiveness after the wearer sweats or uses a towel to dry off. Apply lotion frequently, generously and at least 30 to 45 minutes before exposure to the sun, she suggests.

Clothing protects against sun exposure, Gahring says, but many people don't realize that clothing varies in the sun protection it offers. A cotton knit tee-shirt, for

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example, often offers protection only equal to a sunscreen lotion with SPF of 6 to 9. A wet tee shirt worn over a swim suit is even less protective, probably only about SPF 3. Because of this, Gahring recommends using sunscreen lotion under clothing as well as on exposed parts of the body such as the face, neck, shoulders and ears.

Heavier clothing with a dense weave and dark color is more protective, but isn't comfortable when temperatures are high, Gahring adds. Some direct mail clothing manufacturers offer clothing in fabrics that offer SPF up to 30. These sun-protective fashions could be useful for very fair-skinned children and adults who spend a lot of time outdoors. She recommends hats with wide brims and flaps covering the ears and neck. Several manufacturers of outdoor wear now offer such hats in sizes and fabrics suitable for children, she says.

She offers a few final precautions for parents of children who will be outdoors a lot in the months ahead:

* Take the time of day into account. The sun's rays are strongest between 10 a.m. and 3 p.m. Adjust your sunscreen strength and application frequency accordingly.

* Certain medications increase a person's susceptibility to sunburn. Consult your physician about possible drug interactions if your child is on medication.

* Sunblocks containing zinc oxide or titanium dioxide prevent all light from reaching the skin and may be useful for noses, lips, tips of ears and other sensitive areas.

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GOPH, V4,V5,V7,C1,H2

NHEC5291

Source: Sherri Gahring, (612) 624-1708

Writer: Deedee Nagy, EDS, (612) 625-0288, dnagy@mes.umn.edu

MSC
9 A 27p

June 24, 1996

Scorecard Can Aid Decisions About Supplemental Nitrogen for Corn

Soil scientists with the University of Minnesota's Extension Service have developed a "scorecard" corn producers can use in making decisions about supplemental nitrogen. The scorecard decision aid is available from the extension office in each Minnesota county.

"Nitrogen that was applied last fall, last winter, or early this past spring can be the cause of some anxiety," says Mike Schmitt, U of M extension soil scientist. "With the cool temperature and rainfall patterns we saw this spring, the issue of supplemental N is appropriate.

"Supplemental N is not to be confused with sidedress N. If you planned on applying N in a sidedress manner as part of your original N management plan, that N is not considered supplemental. Supplemental N is the amount of N necessary to compensate for N that was already applied and possibly lost. Obviously, it gets confusing, because all supplemental N will be sidedress-applied."

Schmitt says the nitrogen management scorecard decision aid has been used successfully for the past several years throughout Minnesota. "Keep in mind that good

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judgment is still very important when using this simple decision aid," he points out.

"Also, each field needs to be evaluated separately."

Schmitt notes that the university's N recommendations have a range of 40-70 pounds per acre to account for varying individual situations.

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GOPH,DTN,V2,F4

NAGR5292

Source: Mike Schmitt, (612) 625-7017

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

June 24, 1996

MSC
9 A27p

Soil Compaction Can Be a Corn Yield Robber

Soil compaction can be a corn yield robber, says Denise McWilliams, agronomist at the University of Minnesota's West Central Experiment Station at Morris.

McWilliams cites a study in which compaction reduced yields 15 percent for 14 years after just one trip with heavy equipment over a field. "Freezing and thawing does not alleviate compaction," she adds.

McWilliams has the following suggestions for minimizing compaction:

- (1) Confine wheel traffic to specific lanes as much as possible.
- (2) Reduce trips over the field by combining operations.
- (3) Minimize equipment ground pressure. The average contact pressure produced by any tire is 1-2 pounds per square inch (psi) more than the tire inflation pressure. Thus, a tire at 8 psi will have a soil contact pressure of 9-10 psi. The same tire inflated to 18 psi will have a contact pressure of 19-20 psi.
- (4) Stay off wet soils. Work the driest fields first.
- (5) Reduce tillage. Each operation damages soil structure by compressing and breaking soil aggregates.
- (6) Add organic matter to soil. Organic matter binds soil particles so they are not as easily compressed.
- (7) Vary tillage depth year to year to minimize "tillage pan."
- (8) Reduce axle loads where possible.

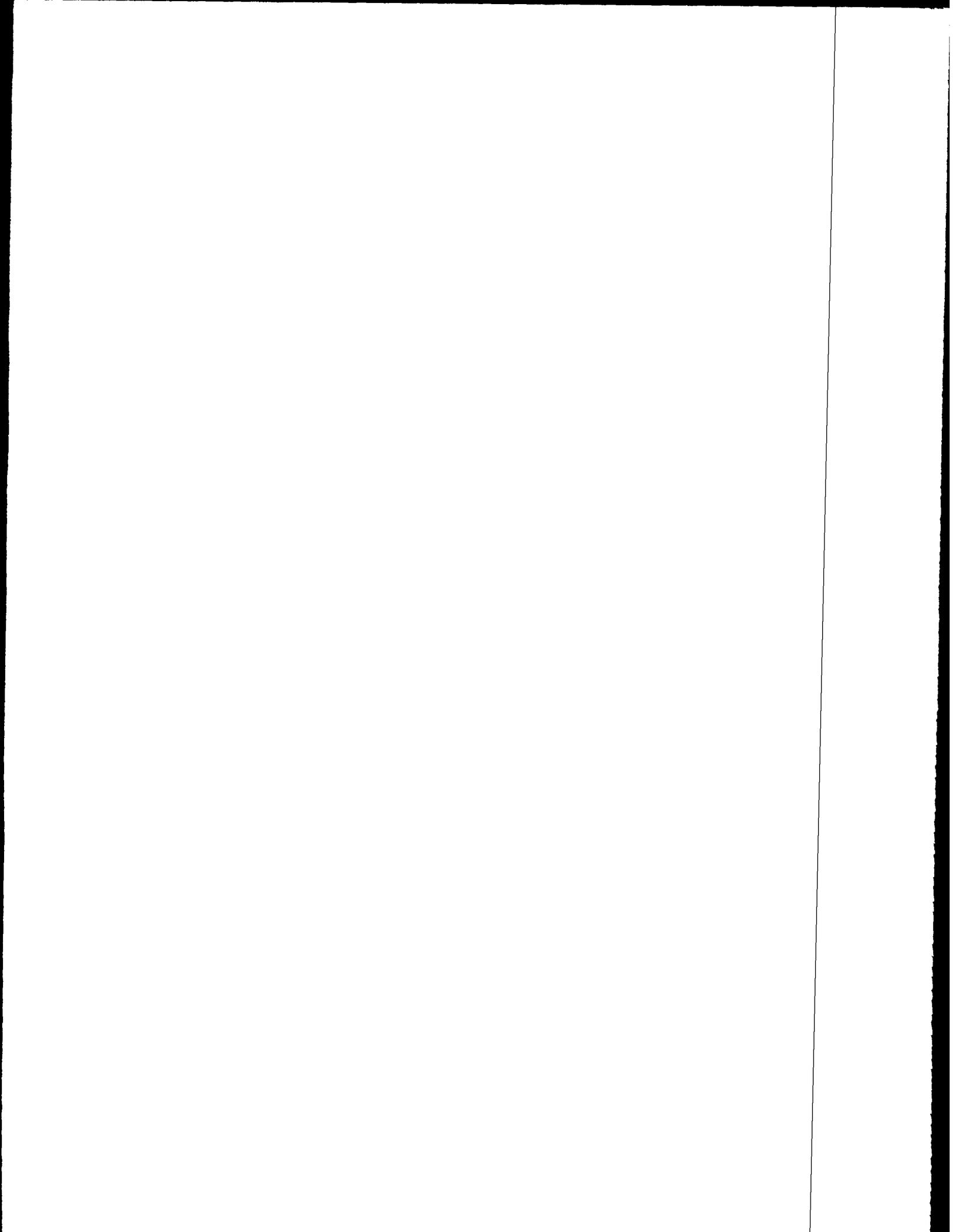
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GOPH,DTN,V2,F4,80

NEXP5293

Source: Denise McWilliams, (320) 589-1711
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

(Page 1 of 1)



*MISC
8/10/96*

July 2, 1996

Canada Thistle Is Becoming Harder To Control

Canada thistle is the most prevalent broadleaf weed in Minnesota, and it's a weed that's becoming harder to control. There are several reasons for this, says Bob Byrnes, extension educator in Lyon County with the University of Minnesota's Extension Service.

"The wet, cool soil conditions of the past several years have been ideal for Canada thistle root growth," says Byrnes. "In addition, the trend of less tillage for crops has allowed the root systems to develop without interruption. On top of that, many corn and soybean herbicide programs target weeds other than Canada thistle."

Canada thistle is found in both crop and non-crop areas and spreads by seeds, roots and rhizomes.

"The seeds develop early," says Byrnes. "They are ready to germinate 8-10 days after the flowers open. Up to 680 seeds per stem are produced. Each seed is attached to a tiny parachute that can be carried long distances by air currents. The seeds can survive up to 21 years in undisturbed soil.

"Once the seed germinates and the plant develops, each plant sends out horizontal roots. From the root system a new plant can develop every 8-12 inches. Each new plant develops a deep root system that stores food reserves and produces new

(over)



shoots. From one Canada thistle seedling a stand can spread out 60 feet in all directions."

Byrnes suggests either a suppression or a control strategy for Canada thistle. Suppression is intended to stop seed production, and involves mowing, tillage, or herbicide application prior to blossom development. Herbicides which will offer suppression include 2,4-D and Banvel in corn and small grain; Basagran in corn and soybeans; Express, Ally, or Harmony Extra in wheat and barley; and Ally in grass pastures.

Control methods are intended to eliminate seed production, destroy the root system, and deplete the food supply. A control program combines the in-season suppression and control methods with fall treatments of tillage or a control herbicide application. Examples of herbicides that provide Canada thistle control include fall application of 2,4D plus Banvel or Roundup; Stinger in corn, small grain, and pastures; and Curtail in wheat, barley, or pastures. "A two-year program will be necessary for Canada thistle control," says Byrnes.

The extension educator reminds producers to consult the herbicide label for drift precautions, rotational crop restrictions and grazing restrictions.

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GOPH,DTN,V2,F4

NAGR5295

Source: Bob Byrnes, (507) 537-6702

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

July 2, 1996

Worn Sprayer Nozzles Can Be Costly

Worn sprayer nozzles can cost you money. Harold Stanislawski, extension educator in Otter Tail County with the University of Minnesota's Extension Service, provides some numbers.

"A 50-foot sprayer with a 20-inch nozzle spacing would have 31 nozzles," says Stanislawski. "Those nozzles can cost anywhere from \$1.50 to \$4 each. Replacing them is going to cost from \$46.50 to \$124.

"Replacing nozzles costs money, but look at what those nozzles do during spray season. If that sprayer covers 1,000 acres of broadcast herbicide work in a season, each nozzle will have sprayed about 33 acres. With an average herbicide cost of \$10 an acre, each nozzle will have put out \$330 worth of pesticide.

"A nozzle that is applying 10 percent too much chemical will add \$33 to that \$330 chemical cost. Take the \$33 times the number of nozzles that are over-applying and it adds up pretty fast."

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GOPH,DTN,V2,E4,F4

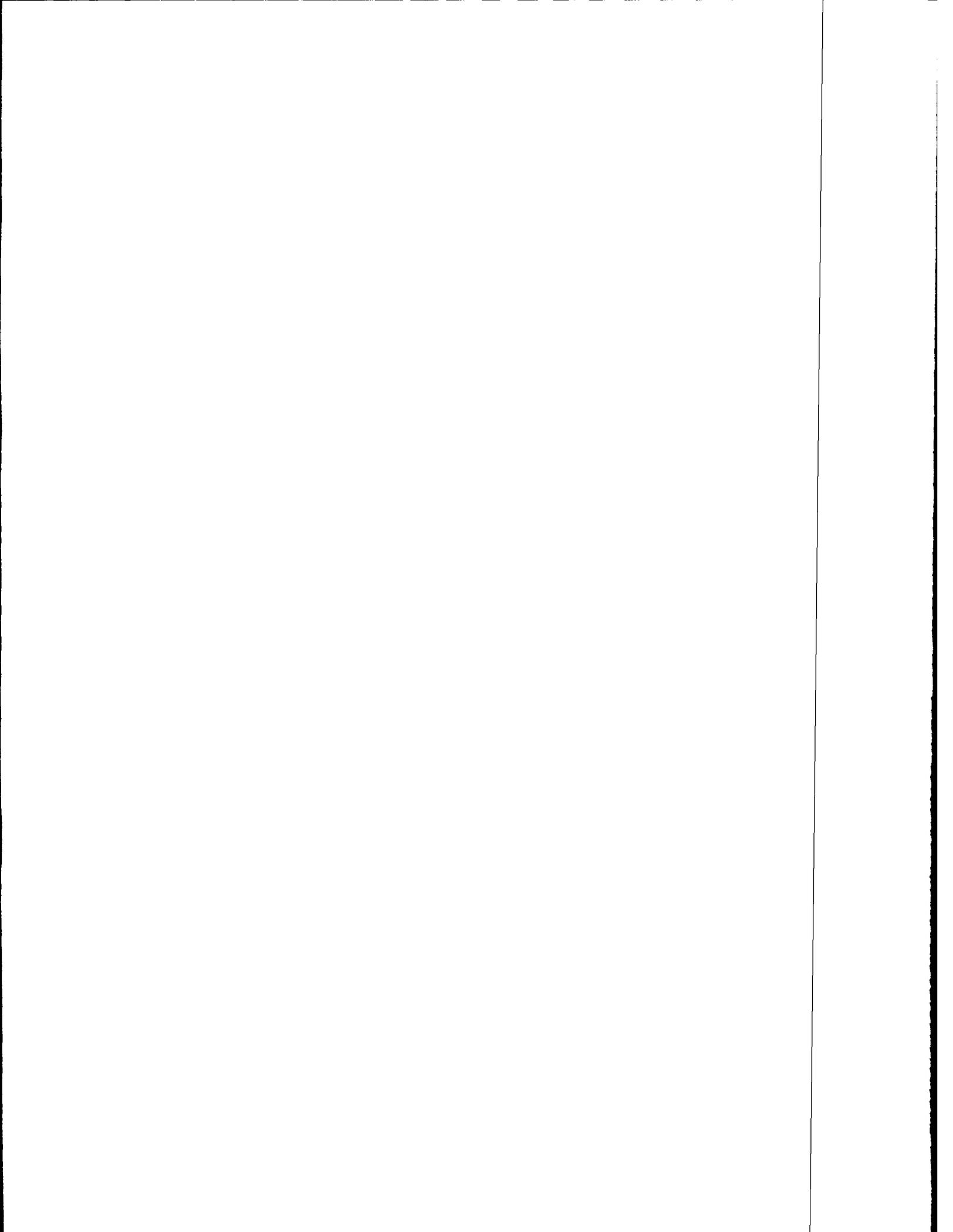
NAGR5294

Source: Harold Stanislawski, (218) 739-2271

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

(Page 1 of 1)





July 3, 1996

Keep Mower Running: Letting Grass Go to Seed Won't Thicken Turf

It's a tempting idea for the horticulturally challenged--let your grass grow until it goes to seed. Those seeds will fall to the ground and start new grass for a thicker more luxurious lawn, right?

Not so, says Deborah Brown, extension horticulturist with the University of Minnesota's Extension Service. "Kentucky bluegrass spreads vegetatively by means of runners," she says. "Your best bet for a thick lawn is to keep it growing vegetatively rather than allowing it to make seed, which takes energy away from runner production."

Brown adds that when you see flowers and seeds forming, mow regularly so the seeds do not mature. "Even if some seeds ripen, they need to fall into receptive soil to sprout and grow well. And when you mow the lawn, you'd be cutting off more than one-third of the height of the plants, which is the standard rule for mowing grass," she says. After mowing, you would be left with weakened grass, most of the blades removed, and lots of wiry stems.

If your lawn needs seeding, Brown recommends waiting until mid-August to mid-September. At that time, scruff the soil by power raking, raking hard with a rigid

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garden rake or core aerating. Then spread seed and starter fertilizer and water frequently. Brown says grass begun this way will be well enough established to survive the winter and come back strong the following spring.

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GOPH,V4,V5,G1

NAGR5297

Source: Deborah Brown, (612) 624-7491
Writer: Deedee Nagy, EDS, (612) 625-0288, dnagy@mes.umn.edu

July 5, 1996

Conference on Gamebirds, Hunting Preserves Will Be August 15-16

If you're interested in operating a hunting preserve or raising gamebirds, the Midwest Gamebird and Hunting Preserve Conference is for you. The conference will be August 15-16 at the Airport Hilton in Bloomington, Minn. Topics covered will include preventive medicine for gamebirds, gamebird environment and ground cover possibilities, hunting ethics and business practices.

Co-sponsored by the University of Minnesota's Veterinary Outreach Programs and the Minnesota Game Breeders and Shooting Preserve Association, the conference includes speakers from states as far away as Montana and Michigan.

Featured speaker John Schumacher, of Schumacher's Historical European Hotel, New Prague, Minn., will discuss game cooking and running a small business at a 6:30 p.m. banquet August 15. After the August 16 lectures on sporting clays and raising gamebirds, there will be a pig roast, sporting clays shoot and gun dog training seminar.

Cost for the two-day conference is \$60, if preregistered by August 1, or \$70 after that date. There is a reduced preregistration fee of \$35 for spouses or dependents (\$40 after August 1). To obtain registration/lodging information or a conference brochure, contact Peg Naumann, University of Minnesota Veterinary Outreach Programs, at (612) 624-3434.

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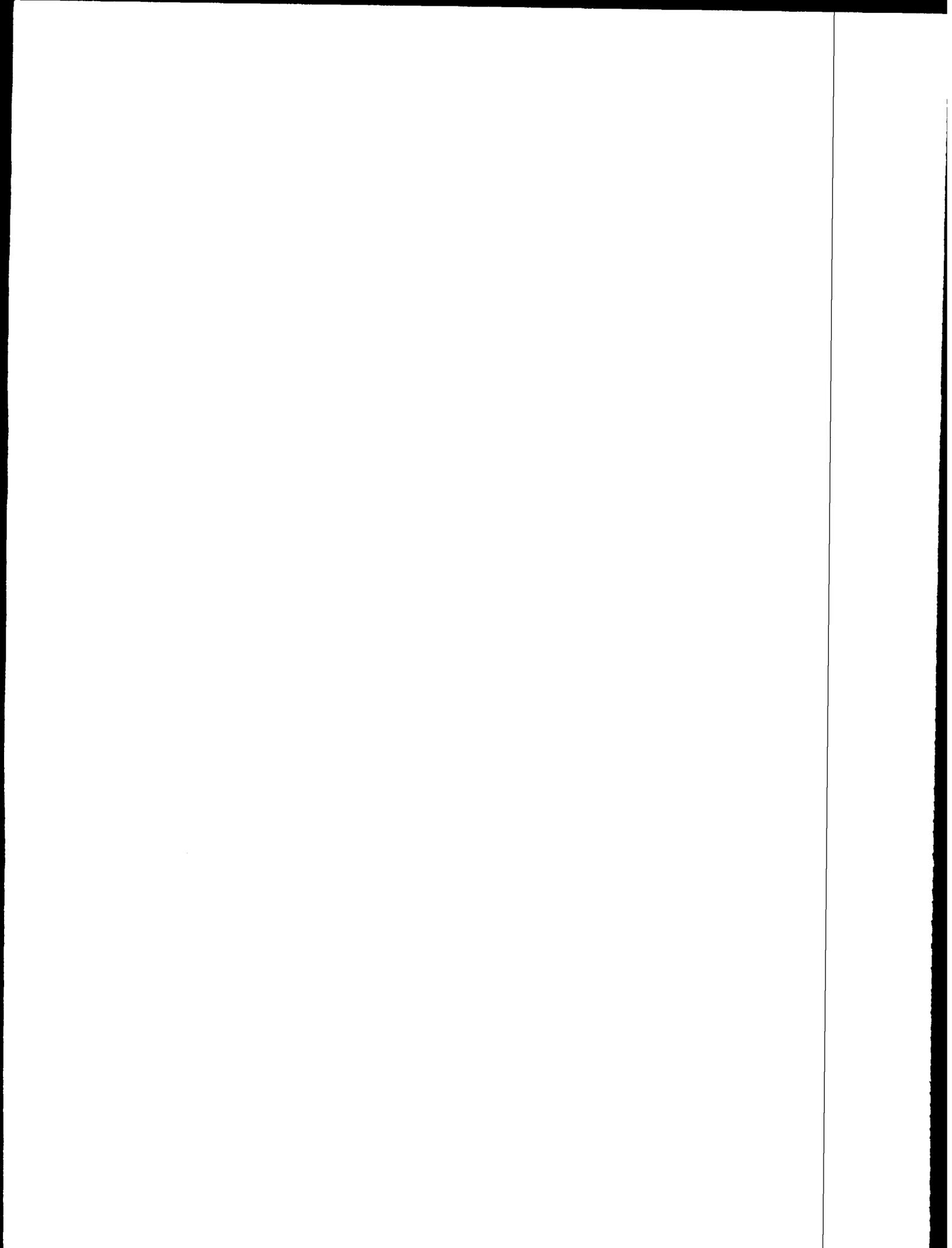
GOPH,V2,V4,V5MN,H8,P1,P3

NAGR5299

Source: Peg Naumann, (612) 624-3434
Writer: Scott Nichols, EDS, (612) 625-3168, news@mes.umn.edu

(Page 1 of 1)





July 5, 1996

Bug Zappers Won't Protect You from Mosquitoes

Don't count on an electric bug zapper to protect you from mosquitoes this summer. The devices are virtually useless against biting insects, says Jeff Hahn, entomologist with the University of Minnesota's Extension Service. They are also potentially harmful to the environment.

Bug zappers, or black light traps that electrocute insects, have been around for many years. Sales are approximately one million units per year. But Hahn cites results of a University of Delaware study showing that nearly all of the insects caught in an electrocutor black light trap are either harmless or beneficial. Biting pests don't end up in the traps.

"In the Delaware study, only 31 insects out of 13,789 trapped and counted in a suburban setting over the course of an entire summer were biting flies," says Hahn.

"Biting flies included both female mosquitoes and biting gnats."

Hahn says about half (48.4 percent) of the insects caught were harmless, nonbiting aquatic insects from nearby rivers and streams. These insects are part of the aquatic food chain, providing food for fish. Insects that are predators and parasites against other insects accounted for another 13.5 percent of the insects caught by the bug

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zapper. These predators and parasites, such as ground beetles and parasitic wasps, help keep insect pest populations naturally low.

“But zappers can hurt the environment because of the large number of harmless and beneficial insects they kill,” says Hahn. “Figures from the Delaware study indicate that four million bug zappers operating for 40 nights each summer could destroy as many as 71 billion nontarget insects each year. And the number of mosquitoes would be essentially unchanged.”

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GOPH,DTN,V2,V3,V4,V5,V7,V8,V9,G1,H5

NAGR5298

Source: Jeff Hahn (612) 624-4977

Editor: Joseph Kurtz (612) 625-3168; pkurtz@mes.umn.edu

July 18, 1996

Editor: Please consult the attached table of 1996-97 small grant awards, listed by county, for programs which were funded in your area during the previous funding cycle. For more information about these programs, contact Deb Noll (612) 624-7457.

Minnesota 4-H Foundation Accepting Grant Applications

Remember being frustrated when you were a kid and no one would listen to your opinions about "adult" issues? The Minnesota 4-H Foundation is awarding grant money to worthy youth development programs or projects that young people want and adults will support.

"Kids have to experiment with speaking their minds and taking responsibility for community issues that matter," says Deb Noll, a development associate with the 4-H Foundation. "Young people who want to get involved need to be nurtured by adults." She says it is important for young people to participate in discussing and implementing community programs. From such experiences, young people gain self-confidence and experience that help them handle new situations.

The 4-H Foundation is making about \$40,000 available to help fund youth development programs. Grants can range from \$400 to \$2,000, but any size application will be accepted, Noll says. Preference will be given to projects that bring adults and youth together and focus on developing lifelong skills in the young people. Other important criteria include:

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--Efforts to reach out to new audiences of adults and youth, including representation by community members of diverse ages, ethnicities, income levels and abilities.

--Emphasis on the learning process (such as the "learning by doing" model) rather than just on the end results.

--Evidence of working with others and contributions of time, money and supplies from local supporters.

--Uniqueness and innovation in programming.

Other funding guidelines encourage programs that will have a long-term impact and programs that involve a variety of community groups.

The deadline for submitting a grant application for the fall funding cycle is October 31 for programs beginning January 1, 1997. For help with the grant application process, contact Joyce Walker, Lucia Orcutt or Brad Rugg at (612) 625-9700 or (800) 444-4238. Forms are available from county offices of the University of Minnesota's Extension Service or by calling the Minnesota 4-H Foundation at (800) 444-4238. For more information about the grants program, contact the 4-H Foundation at (612) 624-7457.

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GOPH,V4MN,V5,F1,Y1

N4-H5301

Source: Debra Noll, (612) 624-7457

Editor: Jennie Y. Rominger, EDS, (612) 625-6294, jrominger@mes.umn.edu

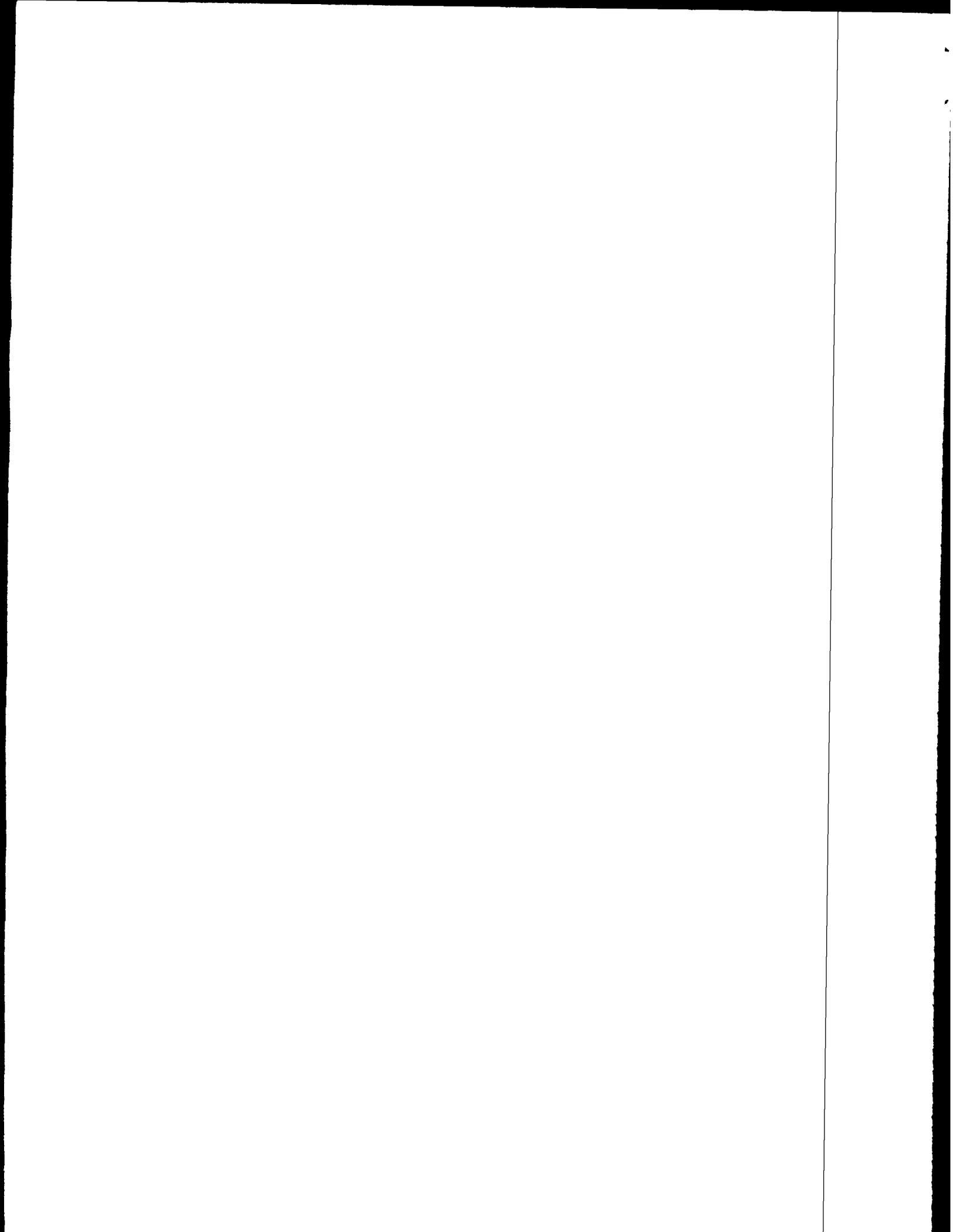
4-H Foundation 1996-1997 Small Grant Award Recipients

| County, City or Town | Project | Award |
|-------------------------------|---|---------|
| Carver, Scott, Sibley | Learning to Lead—youth and adult teams learn and practice leadership skills through development of team projects to better their community. | \$1,500 |
| Chisago | Disability Awareness Training Using Teen Improv—Using the teen improv model, teens are trained on the topic of disability awareness, then develop topical performances to be given at various schools and youth audiences. | \$1,750 |
| Fillmore | Cooperative Community Youth Project—work cooperatively with youth, local school district, churches, city government, business and parents to nurture and enhance skill development in entrepreneurship by establishing a youth-run restaurant. | \$3,000 |
| Freeborn, Mower, Rice, Steele | Organizing with Youth—continue a project to identify needs and attitudes of youth in relation to organized youth groups, strengthening youth organizations by utilizing information from youth focus group interviews. | \$1,000 |
| Grant | Growing with Diversity—a 4-H club helps a day activity center with needed clean-up while gaining a better understanding of the developmentally disabled. | \$ 150 |
| Hennepin | Black History Community Theater Project—African American youth portray historical African American figures at various events. Youth are coached in acting, technical assistance and costuming/makeup. | \$1,000 |
| Kandiyohi | Children's Healthy Lifestyle Development Project—Raise awareness of importance of developmentally appropriate physical activities for 3- to 5-year-olds and increase interaction of parents and other adults with children during the activity to promote healthy lifestyles. | \$1,000 |
| Koochiching | Mitts for Mites—provide mittens for small children of the Mizpah community and other areas of Koochiching County. | \$ 285 |

Page 2 of 3

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|---------------------------|---|---------|
| Maplewood, Minneapolis | Drama Kids—Through neighborhood park and recreation summer programs, youth select various plays to perform. Costuming, scenery development and prop building included in eight-session program. | \$1,450 |
| Murray | Currie Kids Camp—provide very accessible structured educational and recreational opportunities to Currie community youth who would not find these opportunities elsewhere. | \$ 898 |
| Nobles | JOLAAC(Jovenes Latinos en Accion)/Latino Youth in Action—build positive life skills of Latino youth through club structure of youth programming, while increasing understanding and building trust across cultural lines. | \$1,300 |
| Otter Tail | North St. Olaf 4-H Youth Development Community Pride—promote intergenerational partnerships through lumberjack wood cutting, art technique training in stenciling and wood burning, and wood finishing areas of sanding, staining and varnishing. | \$ 150 |
| Pipestone | Pipestone/Jasper After School Activities—through six-week sessions, offer children after school activities in recreation; nutrition; 4-H, scouting, Native American, and environmental programs; and safety. | \$1,150 |
| Ramsey | Urban Riding Outfit—provide 40 youth with weekly horse riding session where horse care, riding skills and stable care are taught. Create a horseback drill team performance to music as concluding celebration. | \$1,200 |
| Rock | National Gardening Association's GrowLab—inspire preschool and elementary-aged children around plant growth and life cycles, while cultivating environmental awareness and responsibility. | \$ 980 |
| Roseau | Expanding Clothing & Textiles Knowledge to Youth in Roseau County—through beginning and advanced sewing classes, youth will gain knowledge needed to sew garments, raising their self-esteem by creating something. Older youth and adult volunteers will conduct the training. | \$ 340 |
| Saint Cloud | The Greater St. Cloud Area Inclusive Community Project—support a summer program to reach out to limited resource youth living in the south side of St. Cloud through community pride activities. | \$1,000 |

| | | |
|-----------|---|---------|
| Sherburne | Sherburne County 4-H After School Initiative—experiential learning opportunities in a club atmosphere with caring adult involvement. | \$2,142 |
| Todd | River Theater—adults and youngsters working together direct and perform the production of their new environmental play about the history of Long Prairie River. | \$ 500 |



NEWS INFORMATION

July 19, 1996

MINNESOTA EXTENSION SERVICE

MSC
EATP
UNIVERSITY OF MINNESOTA

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1420 Eckles Avenue
St. Paul, MN 55108-6068
FAX: (612) 625-2207
E-Mail: news@mes.umn.edu

Local Hotlines Provide Information for Irrigators

Irrigators in north central Minnesota near Park Rapids, Perham and Staples can obtain daily crop water use "ET," or evapotranspiration, information for corn, dry beans, and potatoes by telephone. Telephone hotline messages with this information are available any time of the day, according to Jerry Wright, agricultural engineer with the University of Minnesota's Extension Service. The phone numbers are: Park Rapids, (218) 732-1963 at the Hubbard SWCD office; Perham, (218) 346-7923 at the East Otter Tail SWCD office; and Staples, (218) 894-3476 at Central Lakes Ag. Center.

Daily crop ET information can assist an irrigator in keeping track of field soil moisture. This information, along with in-field inspections, can help determine the best time to start irrigating. Daily ETs can also be very useful in planning if participating in the local electric load control program, helping assure that adequate soil moisture is available during the peak control periods.

Tracking crop daily ET use and regular in-field soil moisture checking can help an irrigator optimize the crop's growth while minimizing the potential for leaching of crop inputs, such as nitrogen, into the underlying groundwater.

Daily ET values best serve the user if recorded on a calendar log like an irrigation checkbook worksheet. Consider assigning the calling task to one of the younger members of your family.

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Each phone message basically presents a reasonable ET estimate of the daily crop water use for corn, dry beans, and potatoes for these crops' current growth stages, based on the previous day's climatic conditions as measured by a local weather station. Daily crop ET estimates are determined by taking the specific crop's research-based stage-of-growth correction factor times the calculated daily potential crop ET value. For example, daily ET for corn at the sixth leaf stage is equal to about 50 percent of potential ET; at blister stage ET is equal to 110 percent of potential ET.

Further information to set up an on-farm irrigation water management monitoring program is available in Minnesota Extension Service publication FO-3875, "Irrigation Water Management Considerations for Sandy Soils in Minnesota." Daily crop ET estimates based on high temperature are available in FO-1322, "Irrigation Scheduling--Checkbook Method." Both are available at your county extension office. They can be ordered by credit card from the MES Distribution Center by calling (800) 876-8636 or (612) 624-4900.

Daily crop information also can be managed with computer software such as WISDOM and PC-Irrigate. Information on WISDOM is available from the University of Wisconsin at (608) 262-8332. Information on PC-Irrigate is available from the University of Nebraska at (402) 472-4259.

For more details on how to use daily crop ET information, contact Wright at the West Central Experiment Station at (320) 589-1711, or your extension office, or the extension or SWCD office nearest each ET hotline.

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GOPH,DTN,V2MN,F4,X8

NAGR5302

Source: Jerry Wright, (320) 589-1711

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
EATP

July 19, 1996

Minneapolis Will Host Midwest Dairy Management Conference

Improving dairy profitability by fine-tuning management will be the focus of a conference August 28-29 in Minneapolis. The Midwest Dairy Management Conference will feature university scientists and management professionals from across the U.S.

The conference is designed for dairy producers who want to achieve a high level of management, as well as agribusiness professionals and educators. It will be at the Minneapolis Convention Center, and will include a trade show. The first session begins at 9 a.m. August 28, and adjournment is at 4 p.m. August 29.

The opening session will focus on the dairy industry in the 21st century. Speakers will include Mike Boehlje, Purdue University economist who was formerly at the University of Minnesota; Don Storhoff of Foremost Farms, Baraboo, Wis.; and Don Berg of Land O' Lakes.

The second session will cover managing forages, dairy manure and dairy nutrients. Presenters will be from Wisconsin, Michigan State University, Penn State University and the University of Missouri.

The third session will be on herd and cow management. Among the topics covered will be rearing replacement heifers on pasture, reproductive management, managing genetics, managing the cow in transition, health and people management for the

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expanding herd, mastitis treatment protocols, and rBST management. Presenters will be from midwest universities.

The fourth session, which will be the entire day August 29, will be on business management. The session will begin with a panel discussion by university scientists on controlling feed costs. There also will be a presentation on managing milk price risk, featuring a representative of the New York Coffee, Sugar and Cocoa Exchange. Other topics will be financial benchmarks, transferring management skills to employees and the next generation, business structures and ownership, and optimizing parlor performance and investment through capital budgeting.

Two panel sessions will close out the conference. One will be on effective use of consulting services. The other will be a producer panel on managing the growing dairy operation.

Cost of the conference is \$119 for one registration postmarked by August 1, \$149 after that date. This includes printed conference proceedings, refreshments, two noon lunches and two continental breakfasts. The cost for additional copies of printed proceedings is \$22 each.

To obtain a registration brochure or additional registration information, call Leon Meger or Gerald Wagner at (800) 367-5363 or (612) 625-2722. For information on the conference, call Joe Conlin at (612) 624-7497.

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GOPH,DTN,V2,D1

NAGR5303

Source: Joe Conlin, (612) 624-4995; Gerry Wagner, (612) 625-1798
Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

July 22, 1996

Many Grain Drying, Storage, Handling Systems Could Use Updating

With high grain prices, updated drying, storage and handling facilities may be a good investment for grain producers. Many grain systems in the Upper Midwest are outdated, says Bill Wilcke, agricultural engineer with the University of Minnesota's Extension Service. He cites the following problems and offers some solutions:

--Inadequate grain handling capacity for unloading, transferring between bins or between bins and dryers, or loading trucks. Possible solutions include grain receiving pits, higher capacity conveyors, strategically placed holding bins, automatic controls, or better systems layout.

--Inadequate drying capacity (not enough bushels dried per day). Ways to boost capacity include bigger dryers, additional dryers, changes in drying method, changes in cooling method, or installation of large wet holding bins (large enough to hold one to two days' harvest).

--High labor requirements. Addition of automatic controls, high capacity conveyors, or holding bins, or changing drying methods, can reduce labor requirements.

--High energy use per bushel for drying. New gas-fired dryers are much more energy efficient than older models, so replacing the dryer is one solution. Other possible solutions include changing the way the current dryer is operated, switching fuel

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sources, reclaiming exhaust heat, changing cooling methods, or changing drying methods.

--Poor grain quality (broken kernels, low test weight). Damage caused by dryers can be reduced by lowering drying temperature, buying a newer dryer (newer ones are designed to give better grain quality), changing cooling method, or changing drying method. Damage caused by conveyors can be reduced by repairing worn conveyors, reducing speed of augers, switching to more gentle conveyors, or changing system layout to reduce drop height and number of times grain is handled.

--Lack of high quality storage. Add new storage bins or upgrade existing bins with good aeration systems, grain distributors and temperature monitors.

--Safety hazards. Replace missing shields, bury overhead power lines that are near grain bins, and install safety cages and landings with bin ladders, or replace ladders with stairs.

"The first step in making improvements is to analyze the current grain system to identify bottlenecks and problems," says Wilcke. "Then try to identify likely future needs. It may be helpful to look at some other grain systems and study planning references."

Wilcke recommends the "Grain Drying, Handling, and Storage Handbook," MWPS-13, as a reference. To order a copy, call Terry Capaul in the U of M Biosystems and Agricultural Engineering Department at (612) 625-7024.

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GOPH,DTN,V2,E4,F4

NAGR5309

Source: Bill Wilcke, (612) 625-8205

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

July 22, 1996

Fall Beef Cattle Conference Will Be Sept. 30-Oct. 1 at Brainerd

More profitable beef cattle production through improved marketing and management is the theme of a conference in Brainerd this fall. The Integrated Resource Management (IRM) Fall Conference will be Sept. 30-Oct. 1 at Ruttger's Bay Lake Lodge and Conference Center.

The conference is designed for beef cattle producers, agribusiness personnel, educators and other interested persons. It will be preceded on Sunday, Sept. 29, by golf, a reception and a steak cookout.

The theme of the Sept. 30 session is growth strategies. Topics include jump starting the beef industry, marketing to increase profitability, searching for the bottom line and obtaining better financing.

Small-group sessions on six different topics will take place in the afternoon, with each topic presented three times. The topics will be designing a grazing system, high output, low-input cattle, financial analysis software, performance record-keeping software, genetics and a fed cattle marketing game/simulation.

There will be an evening roundtable discussion on improving the Minnesota beef cattle industry.

(over)



Getting value for your beef cattle is the October 1 theme. Morning topics include what cow-calf producers, cattle feeders, and consumers want from value-based marketing, followed by presentation of an example of value-based marketing currently in use.

Afternoon topics will be covered during a ranch tour. The topics include feeding cows for best body condition, forage sampling and analysis, artificial insemination management and live animal evaluation.

Participation in the conference is limited to 75 producers and agricultural professionals. Space should be reserved by August 10; send a refundable \$50 deposit to University of Minnesota, Animal Science Extension, 101 Haecker Hall, 1364 Eckles Ave., St. Paul, MN 55108-6120. Make checks payable to the University of Minnesota. For further information or a conference brochure, contact Brent Woodward at (612) 625-4995.

#

GOPH,DTN,V2,B1

NAGR5310

Source: Brent Woodward, (612) 624-4995
Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
A27p

July 24, 1996

Soil Testing Is Key to Balanced Fertilization

Soil testing is the key to a balanced fertilizer program for crop production, according to a soil scientist with the University of Minnesota's Extension Service. George Rehm says there is no ideal balance among calcium (Ca), magnesium (Mg) and potassium (K) in soils.

"There are some who believe that a 'balanced' fertilizer program is one where the amount of any nutrient removed by the crop is replaced in the fertilizer program for the following year," says Rehm. "This approach to fertilizer application doesn't make use of soil testing, and can be very expensive."

There are also some who believe there should be an ideal balance among calcium, potassium and magnesium in soils, says Rehm. For example, it was once thought that crop yields would be maximized if 65 percent of the negatively charged sites in soils were occupied by calcium and 10-15 percent of these sites were occupied by magnesium. More recent research has shown that yields don't depend on the relationship of these nutrients to one another, Rehm points out.

"The Ca:Mg ratio in Minnesota soils varies from 1:1 to 8:1," says Rehm. "But this shouldn't be a cause for concern. The fact that the Ca:Mg ratio can vary over a wide range and not affect crop production should eliminate most of the controversy

(over)



regarding calcitic and dolomitic limestone. Decisions on the source of lime to use should be based primarily on cost rather than on what affect the material may have on the Ca:Mg ratio in the soil."

Rehm says Wisconsin researchers varied the Ca:Mg ratio in soils from about 2.25:1 to 8.5:1 and measured the effect on alfalfa yields. The ratio had no effect.

"If we summarize all of the recent research with calcium, magnesium and potassium, we find that Ca:Mg, Mg:K and Ca:K ratios are not important for crop production," says Rehm. "There is no 'ideal' balance among these three nutrients in soil. It is important, however, that these nutrients be present in soils in amounts that are adequate for crop needs, just as with nitrogen and phosphorus. If soil test K and Mg levels are low, these nutrients will be needed in a fertilizer program. The ratio of one to the other, or 'balance,' is not important."

Rehm says a balanced fertilizer program provides adequate, but not excessive, supplies of all plant nutrients in the soil system. "A large percentage of our soils in Minnesota are capable of supplying adequate amounts of the essential nutrients," he points out. "When soil supplies of nutrients are low, as indicated by a soil test, adequate amounts must come from fertilizer."

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GOPH,DTN,V2,F4

NAGR5312

Source: George Rehm, (612) 625-6210
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

July 24, 1996

Plant Analysis Is Tool for Improving Crop Management

Plant tissue analysis is one of the tools crop producers have available to improve management practices. Plant analysis is usually used for one of two purposes, says George Rehm, soil scientist with the University of Minnesota's Extension Service.

"Perhaps the most obvious use is in troubleshooting," says Rehm. "There are often situations when the cause of abnormal crop development is not obvious. Analysis of plant samples may provide some answers in these situations."

Rehm says three samples are necessary when using plant analysis in troubleshooting. One sample should consist of plants taken from the stunted area. Normal plants should be used for the second sample. For the third sample, take plants that show only a slight amount of stunting or slight discoloration. "If the problem is caused by a shortage of some nutrient, careful study of the results of the analysis of all three samples will usually provide the answer," Rehm points out.

The other main use of plant analysis is for growers to monitor the effectiveness of their fertilizer program. "If used for this purpose, plant analysis has only limited value unless it's accompanied by a regular soil testing program," says Rehm. "Results of the analysis can be compared with 'standard' or 'critical' values."

(over)



When using plant analysis to monitor a fertilizer program, it is necessary to sample specific plant parts or plants at a specific growth stage, says Rehm.

For corn, there are two stages for sampling. One is the seedling stage, when plants are less than 12 inches tall. Sample 10 whole plants. The other is the stage from tasseling to silk initiation. Sample the leaf opposite and below the ear, and take samples from 10 plants.

For soybeans, there also are two stages. One is the vegetative stage, when plants are less than 12 inches tall. Sample 10 whole plants. The other stage is from initial flowering to pod set. Take the most recently matured trifoliolate, excluding petiole, from 50-75 plants.

For small grains, take 20-30 whole plant samples at the boot stage. For alfalfa, sample at the 1/10 bloom stage. Take the top six inches of 20-30 plants.

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GOPH,DTN,V2,F4

NAGR5311

Source: George Rehm, (612) 625-6210
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

July 30, 1996

New Compendium Is Bees' Knees

They supply us with hobbies and businesses. They pollinate nearly a third of our agricultural crops. They are honey bees. Now more than ever, with Minnesota wild honey bee populations practically wiped out by a combination of hard winter and mite infestation, there's been a renewed interest in the art of beekeeping.

"Beekeeping in Northern Climates," a manual and video by apiculture specialists at the University of Minnesota, covers practices useful for beginners as well as experts to ensure high honey production and successful overwintering for honey bee hives.

The 68-page manual and companion 40-minute video detail the hive management system created by university entomologist Basil Furgala for beekeepers in Minnesota and colder climates. Topics include wintering bees in cold northern climates, bee diversity and biology, bee diseases and parasites, honey production and marketing and equipment needs.

The manual has several supplementary lists and charts, including beekeeping suppliers and associations, blooming dates of bee-pollinated plants, and other beekeeping texts. For those interested in financial data on bee-pollinated crops, honey bee products or beekeeping services, the manual includes an economic profile of the bee industry.

(over)



The manual and video present some options for dealing with severe winters and serious mite infestations. Furgala and his students developed the overwintering methods in "Beekeeping in Northern Climates" to improve survival rates for hives not sent south for the winter. Minnesota Extension Service entomologist Marla Spivak updated the sections on bee diseases and pests with the help of colleague Gary Reuter. Spivak is currently working on breeding honey bees that can demonstrate defenses against the mites responsible for the recent decimation of nondomesticated, or "feral," honey bee populations. In the compendium, Spivak and Reuter discuss options for dealing with mite infestations.

Together the manual and video are \$45 plus shipping and sales tax. Purchased separately the manual and video cost \$15 and \$40, respectively, plus shipping and sales tax. For content questions or other information, call the U of M Entomology Department at (612) 624-3636. To order, call the Minnesota Extension Service Distribution Center at (800) 876-8636 or (612) 624-4900. Ask for item EP-6684-NR if you want both the manual and video. Ask for item MI-6683-NR (manual) or VH-6553-NR (video) if you want to order separately

#

GOPH,V2,V5,G1,P1

NAGR5313

Source: Marla Spivak, (612) 624-4798
Writer: Scott Nichols, EDS, (612) 625-3168, news@mes.umn.edu

CORRECTION: Editors, broadcasters--The following news release that was originally mailed July 22 had an incorrect telephone number at the end of the release. This release has the correct telephone number. We apologize for any inconvenience caused by this error.

July 31, 1996

Fall Beef Cattle Conference Will Be Sept. 30-Oct. 1 at Brainerd

More profitable beef cattle production through improved marketing and management is the theme of a conference in Brainerd this fall. The Integrated Resource Management (IRM) Fall Conference will be Sept. 30-Oct. 1 at Ruttger's Bay Lake Lodge and Conference Center.

The conference is designed for beef cattle producers, agribusiness personnel, educators, and other interested persons. It will be preceded on Sunday, Sept. 29, by golf, a reception and a steak cookout.

The theme of the Sept. 30 session is growth strategies. Topics include jump starting the beef industry, marketing to increase profitability, searching for the bottom line and obtaining better financing.

Small-group sessions on six different topics will take place in the afternoon, with each topic presented three times. The topics will be designing a grazing system, high output, low-input cattle, financial analysis software, performance record-keeping software, genetics and a fed cattle marketing game/simulation.

(over)



There will be an evening roundtable discussion on improving the Minnesota beef cattle industry.

Getting value for your beef cattle is the October 1 theme. Morning topics include what cow-calf producers, cattle feeders, and consumers want from value-based marketing, followed by presentation of an example of value-based marketing currently in use.

Afternoon topics will be covered during a ranch tour. The topics include feeding cows for best body condition, forage sampling and analysis, artificial insemination management and live animal evaluation.

Participation in the conference is limited to 75 producers and agricultural professionals. Space should be reserved by August 10; send a refundable \$50 deposit to University of Minnesota, Animal Science Extension, 101 Haecker Hall, 1364 Eckles Ave., St. Paul, MN 55108-6120. Make checks payable to the University of Minnesota. For further information or a conference brochure, contact Brent Woodward at (612) 624-4995.

#

GOPH,V2,B1

NAGR5318

Source: Brent Woodward, (612) 624-4995
Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
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August 2, 1996

Minnesota Nutrition Conference Will Focus on Feeding Livestock

Leading scientists from across the U.S. in the area of nutrition for beef and dairy cattle, hogs, sheep and poultry will take part in a conference in the Twin Cities in September. The event is the 57th Minnesota Nutrition Conference and Protiva Technical Symposium, which will be Sept. 23-25 at the Marriott Hotel in Bloomington.

The conference provides an opportunity for animal nutritionists to share information about the current, innovative research taking place at universities and in industry. It is designed for nutritionists, feed industry representatives, veterinarians, educators and producers. Speakers are scientists from the University of Minnesota, other U.S. land grant universities and industry.

The Minnesota Nutrition Conference opening day, Sept. 24, will focus on ruminant nutrition. Morning topics include sheep flock nutrition, feed efficiency for feedlot cattle, ionophores for feedlot cattle, water requirements for ruminants and trace mineral requirements. Dairy nutrition will be the main subject in the afternoon. Topics will include feeding for milk components, managing body weight and condition of lactating cows, fiber digestibility of forages, and yeast and microbial additives.

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The morning session Sept. 25 will be on swine nutrition. Topics will be energy in swine diets, chromium use in swine diets, protected trace minerals in swine diets, and feeding new corn varieties and soybean products.

The afternoon session Sept. 25 will be on poultry. Topics will be grain processing and digestion, new corn varieties, electrolytes in poultry diets and limiting amino acids for turkeys.

The free Protiva Technical Symposium will be Sept. 23, preceding the Minnesota Nutrition Conference. The Protiva symposium will focus on dairying. Topics will be experiences with bST, dairy profitability outlook, cow comfort and effects on nutrition, and feeding soybean products.

Fee for the Minnesota Nutrition Conference is \$60 pre-registered, \$75 at the door. The deadline for pre-registration is Sept. 20. To obtain a brochure or further information, contact Leon Meger or Gerald Wagner at (800) 367-5363 or (612) 625-2722.

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GOPH,DTN,V2,B1,D1,P3,S1,S2

NAGR5319

Source: Gerald Wagner, (612) 625-1978

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

August 12, 1996

Make Sure Stored Small Grains Are Dry, Cool

Grain spoilage is always costly. Current high grain prices make it more costly than usual, notes Bill Wilcke, agricultural engineer with the University of Minnesota's Extension Service.

"Preventing grain spoilage is primarily a matter of keeping grain dry enough and cool enough to limit mold and insect activity," says Wilcke.

Recommended moisture content for small grain storage is 14 percent for up to nine months' storage and 13 percent for more than nine months. "If grain is wetter than 14 percent, either run it through a heated-air dryer or put it into a natural-air drying bin," says Wilcke. "Since most heated-air dryers were designed for corn, monitor the dryer carefully. Adjust the controls as needed to keep kernel temperature below 140 degrees F to prevent starch damage for milling grain. Keep the kernel temperature below 110 degrees F to prevent germ damage for seed or malting grain."

To reliably dry small grains with natural air, Wilcke says it's best to use a bin that has a full perforated floor and an airflow per bushel that is matched to the grain's initial moisture content. Airflow values he suggests are 0.5 cfm/bu (cubic feet of air per minute per bushel of grain) for 14 to 16 percent moisture grain, 0.75 cfm/bu for 16 to 17 percent moisture, and 1.0 cfm/bu for 17 to 18 percent moisture.

(over)



"Be aware that small grains, especially wheat, have greater airflow resistance than shelled corn," says Wilcke. "Therefore, natural-air bins designed for shelled corn will provide much less airflow per bushel when filled with small grains."

The Minnesota Extension Service has a FANS computer program available to help you determine airflow for different fan, bin and grain combinations. To access the program, contact a county extension office, or download the program from the Internet (<http://www.bae.umn.edu/extens/harvest.html>). For more information on drying, get a copy of Minnesota Extension Service fact sheet FS-5949, "Wheat and Barley Drying."

After grain is dry enough for storage, run aeration fans to cool the grain to less than 60 degrees F as soon as possible, says Wilcke. "In late summer and early fall, you might have to run fans just at night to accomplish much cooling," he points out. "Fans should be run continuously during drying, but intermittent fan operation is okay for grain that is dry enough for storage."

"After all grain in the bin has cooled to less than 60 degrees F, wait until mid-fall to cool grain to about 40 degrees F. Finally, in late fall, cool it to about 25 degrees F for winter storage. See Minnesota Extension Service fact sheet FS-5947, 'Wheat and Barley Storage,' for more details."

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Web,DTN,V2,F4

NAGR5324

Source: Bill Wilcke, (612) 625-8205
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

August 12, 1996

For Yield Monitoring To Pay, It Must Lead to Better Management

What good is a yield map to your farming operation? That's a basic question you need to consider before going "whole hog" on yield monitoring, says a soil scientist with the University of Minnesota's Extension Service.

John Lamb offers the following points to consider about yield monitors. "First, there may be merit in having information about grain yields in a field," says Lamb. "But to make this information more useful, you need to combine other information with the yield map."

The map represents the results of a whole growing season's effects on crops, Lamb points out. Without information such as soil tests, pest infestations (such as corn borers and weeds), treatment of pests, distribution problems of inputs, tillage differences and weather damage, a yield map is of little use for future management decisions, he notes.

"The yield monitor may also identify problems caused by more permanent soil properties that reduce yield," says Lamb. "These include salt-affected soils, poor drainage and iron chlorosis areas. It may be possible to apply management strategies such as using salt-tolerant crops, tile or surface drainage, or chlorosis-tolerant soybean varieties on a site-specific basis. You can then use future yield maps to evaluate the usefulness of these strategies."

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Another use for a yield map could be to allocate inputs based on a yield goal. "Most of our fertilizer recommendations are based partially on yield goals," says Lamb. "In sandy soils the nitrogen recommendation is totally based on the yield goal. Logic would indicate that we could vary the rate of fertilizer applied by using yield maps from the previous seasons."

To use a yield map for setting yield goals, it's necessary to know if grain yields are stable from year to year. Yield stability occurs if the pattern of yield variability across the field is the same from year to year, or if the areas with the best or worst yields are in the same part of the field ever year.

"Stability is important because normally the fertilizer recommendations are greater for higher yield goals than lower yield goals at a given soil test category," notes Lamb.

He says if a yield goal for a certain part of a field is changing each year, it's very difficult to know what yield goal to use for managing inputs over a long time. "In setting a yield goal for a field, the common rule of thumb is to use at least five years' worth of information and throw out the abnormally high and low years," he says. "This same rule may apply when using yield map information for setting yield goals."

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Web,DTN,V2,A2,F4

NAGR5325

Source: John Lamb, (612) 625-1772

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
9/27/96

August 13, 1996

Plant Seeds or Kill Weeds, but Not Both

If you want to seed your existing lawn and remove all those pesky weeds, you've got a problem. Seeding and using weed killer the same season rarely works.

"Those two activities are usually incompatible," says Deborah Brown, extension horticulturist with the University of Minnesota's Extension Service.

"You'll need to decide how bad the weeds are, and whether they're annuals or perennials," says Brown. "Annuals come back from seeds each year, while perennials come back on the same roots as the previous year. Annuals will die over winter no matter what you do to them, so you can pull them out or mow them short before roughing up the soil to sow seed," she says.

Perennial weeds can be dug out or spot-killed with Roundup™ about a week before you plan to seed, but Brown warns not to use any broadleaf weed killers in any areas you wish to reseed.

"When you plant grass seeds in early autumn, the young plants develop enough roots to carry them through the winter. If the grass looks thick and healthy next May or June, then you can consider using a broadleaf weed killer," says Brown.

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Web,V2,V3,V5MN,V8MN,G1

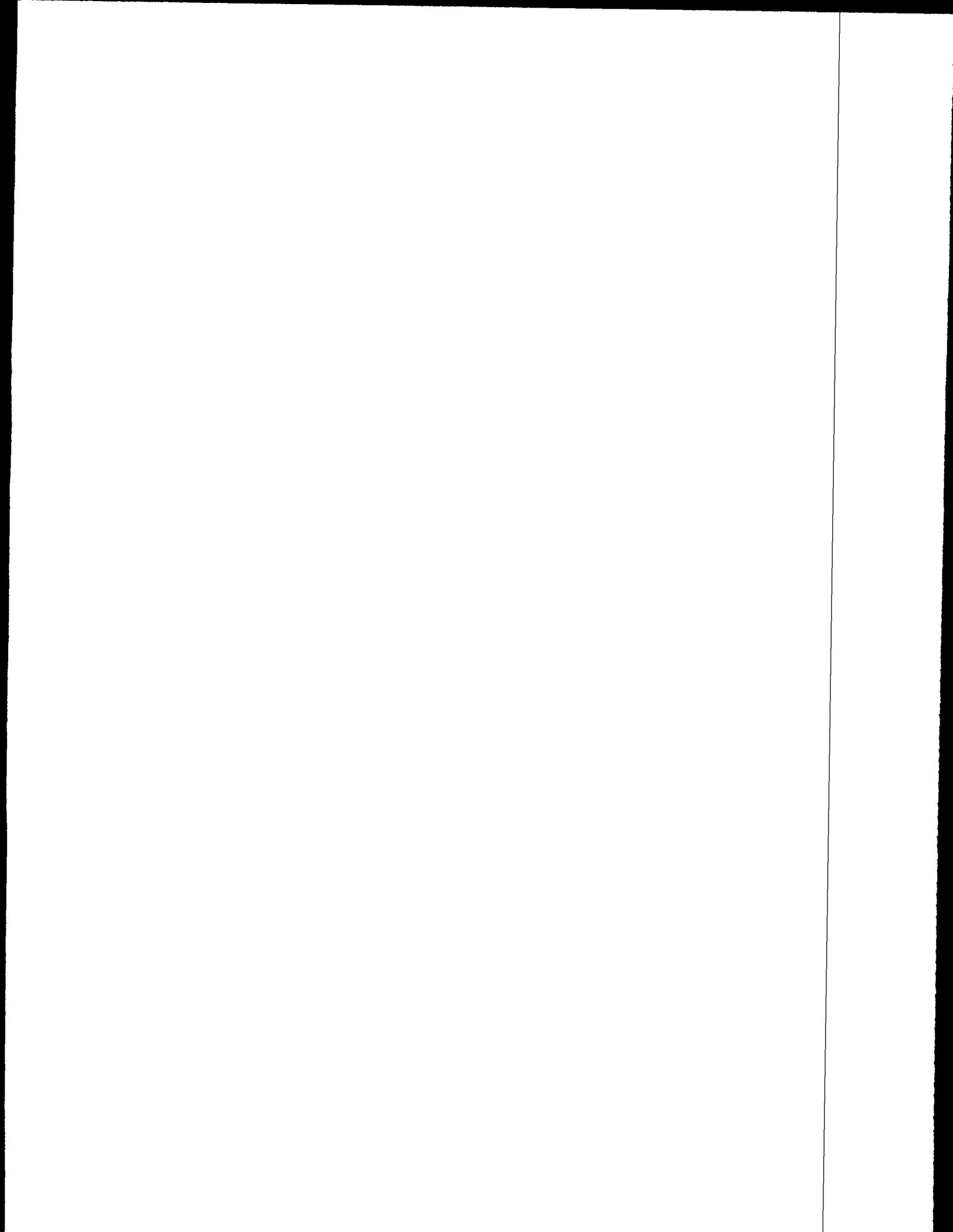
NAGR5327

Source: Deborah Brown, (612) 624-7491

Writer: Scott Nichols, EDS, (612) 625-3168, news@mes.umn.edu

(Page 1 of 1)





NEWS INFORMATION

August 13, 1996

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<http://www.mes.umn.edu/Documents/news.phtml>

Decaying Fruit Is Fine Cuisine for Late Summer's Yellowjackets

During the late summer and fall, yellowjackets become more interested in sweets and other sources of carbohydrates. Many become scavengers, searching far and wide for overripe and decaying fruits.

Once attracted to your garden, it's difficult to discourage them, according to Jeffrey Hahn, assistant entomologist with the University of Minnesota's Extension Service.

Short of waiting until yellowjackets die from the first hard frosts, "the best bet is to try to keep them out of your garden to begin with," says Hahn. "You can do this by picking fruit and vegetables as they ripen and removing any found on the ground."

Hahn says that insecticides don't keep yellowjackets out of your garden. "Aerosols that effectively control yellowjackets, typically labeled as wasp or hornet sprays, are not registered for use around food plants and should not be used in gardens," says Hahn. He adds that insecticides labeled for fruit or vegetable use won't do any good either. After these insecticides are applied, you have to wait until the produce can be safely picked. "By the time it is safe to harvest your produce, the wasps have returned," says Hahn.

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Web,V2,V3,V4,V5MN,V8MN,G1

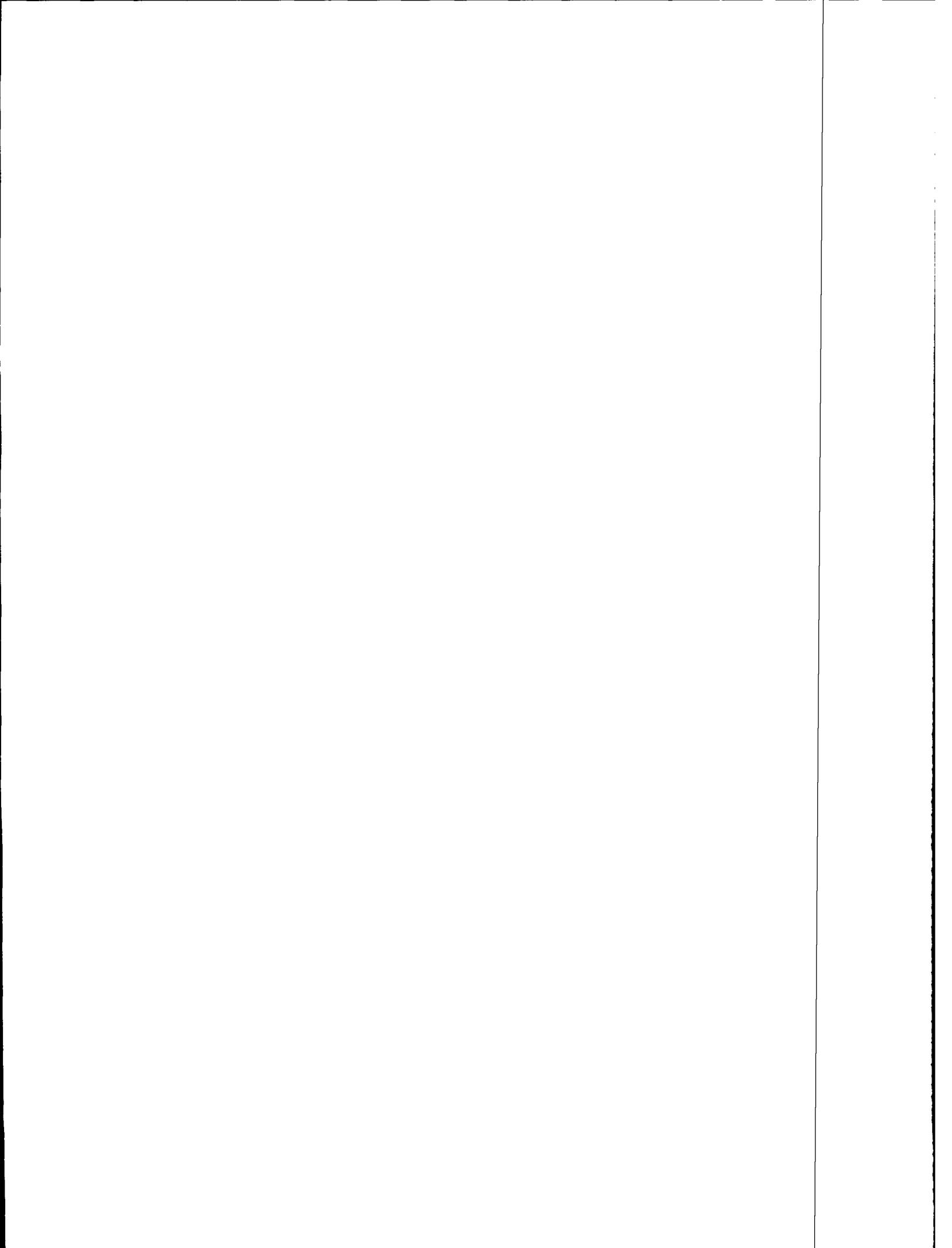
NAGR5326

Source: Jeffrey Hahn, (612) 624-4977

Writer: Scott Nichols, EDS, (612) 625-3168, news@mes.umn.edu

(Page 1 of 1)





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August 15, 1996

Minnesota, Iowa, Wisconsin Plan Regional Water Quality Conference

Clean water, like motherhood and apple pie, generally attracts support from all corners. But effective, practical actions to make water cleaner usually require cooperation among people and organizations. A conference centering on how people, process, science and technology can improve Midwest water quality will take place Sept. 16-18 in LaCrosse, Wis. Title of the conference is "New Approaches to Rural Nonpoint Source Pollution: What Makes Them Work?"

The conference is designed for persons interested in exploring effective water quality initiatives, partnerships and research. Primary sponsors are the University of Minnesota and government agencies dealing with water quality in Minnesota, Iowa, and Wisconsin.

The conference will provide information on in-depth studies of effective water quality initiatives, partnerships and research, and a look at new developments since 1993, when a similar conference was held in LaCrosse. It will present practical do's, don'ts, whys and hows of successful water quality efforts. The conference will explore changing responsibilities of agencies, agricultural producers, agribusinesses and rural communities in protecting water quality, and also provide networking opportunities for people and organizations committed to improving water quality.

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Conference format will include keynote sessions, in-depth one- and two-hour discussions and extensive poster sessions.

To receive a copy of the conference program and registration information, make a request to Nonpoint Source Conference, c/o Linda Schroeder, 282 77th St. S.E., Delano, MN 55328; phone (612) 972-3908; e-mail schroecomm@aol.com; fax (612) 972-3904.

Primary conference sponsors are the Minnesota Pollution Control Agency; Wisconsin, Iowa and Minnesota Departments of Natural Resources; Natural Resources Conservation Service—USDA; USDA-ARS Northern Sand Plains MSEA; University of Minnesota Center for Agricultural Impacts on Water Quality; Minnesota Department of Agriculture; and US EPA Region VII.

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GOPH,DTN,V2,A2MN,C4

NAGR5328

Source: Bruce Giebink, (612) 625-4749
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

August 16, 1996

Corn Yields Not Stable in Five-Year University of Minnesota Study

Corn yields showed little stability from year to year in a five-year University of Minnesota study involving irrigated continuous corn. Lack of year-to-year yield stability complicates the process of trying to fertilizer according to yield goals.

"Yield stability means the best or worst yields are in the same part of the field every year," says John Lamb, soil scientist with the university's Minnesota Extension Service. "It can also mean the pattern of yield variability across the field is the same from year to year."

A common fertilizer management strategy is to set higher yield goals where yields were higher the previous year, and to apply more fertilizer to these areas, notes Lamb.

Lamb conducted a study from 1991 to 1995 on a 4.4-acre area with sandy soil near Princeton, Minn. His objectives included determining how much variability occurs across a relatively uniform field, how stable the grain yield was across the landscape, and whether yield information from previous years can be used to establish a yield goal for the next year's fertilization.

Herbicide, irrigation, and fertilizer inputs were applied uniformly across the experimental area. The area was divided into 50- by 60-ft. grid cells. Hand harvesting of the grid cells provided yield information.

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The difference between the minimum and maximum grain yields ranged from 44 bushels per acre in 1992 to 72 bushels per acre in 1991. This is a considerable amount of variation for such a small area, notes Lamb.

There were also large differences in overall yield from year to year, which can be attributed to the large differences in growing season weather conditions.

Lamb says yields were not stable from year to year. Each year he grouped grid cells according to how they compared with the highest-yielding grid cell. The top yielder was set at 100 percent and the other grid cells were grouped in 10 percent increments from the top yield. One group of grids yielded 90-100 percent of the top grid, the next group 80-90, the next group 70-80, etc.

"Only three percent of the grid cells fell into the same group all five years," says Lamb. "Also, if you used the first four years of yield information, from 1991 to 1994, you could only account for 46 percent of the yield variability in 1995. This means that in this study, the use of previous yields from yield maps would not be very useful for establishing yield goals."

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GOPH,DTN,V2,A2,F4

NEXP5330

Source: John Lamb, (612) 625-1772

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

NEWS INFORMATION

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*MSC
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August 16, 1996

Adding to Dairy Profitability Through Growth Will Be Conference Focus

"Stepping into the Future: Expanding Dairy Profitability Through Strategic Growth" is the title for a four-state dairy extension conference planned for two locations in November.

The conference will be November 13-14 in St. Paul, Minn., at the Ramada Hotel, and November 14-15 in Dubuque, Iowa, at the Holiday Inn Dubuque Five Flags. Sponsors are the extension services of Iowa State University, the University of Illinois, the University of Minnesota and the University of Wisconsin.

The conference is designed for producers considering changes to expand profitability in their dairy operations and for those who advise producers. Educators, consultants and producers will share their views on many dairy farm business issues and explore alternatives for increasing profits.

The program will cover topics such as alternative growth strategies, planning, economic benchmarks, labor management and cow comfort. There will also be sessions on managing risk, facility design and manure handling. Producers will discuss their experiences in managing a growing dairy operation. Time is also reserved for questions and answers.

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Fee for the conference is \$125 for registrations postmarked by October 25, \$150 after that date. The fee for additional persons from the same farm is \$95. For a registration brochure or additional registration information, call Leon Meger at (800) 367-5363 or (612) 625-2722. For more information about the conference program, call Joe Conlin at (612) 624-7497.

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Web,DTN,V2,V4,D1

NESP5329

Source: Leon Meger, (612) 625-2722; Joe Conlin, (612) 624-7497
Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

August 19, 1996

Stockpiling Makes Forage Available for Fall Grazing

Stockpiling forage for fall grazing means giving pastures a chance to grow in late summer. Stockpiling makes standing, dried forage available after frost, says Gregory Cuomo, forage agronomist with the University of Minnesota's West Central Experiment Station at Morris.

"If extending the grazing season into fall is an option you would like to pursue, remove animals in late summer so that plants have time to regrow before frost," says Cuomo. "After frost, you can turn animals in to graze."

Cuomo says when fall grazing starts, strip grazing is most desirable, and results in a longer period for grazing. If animals have access to the entire pasture at one time, they will waste more forage. Animals will also graze the better portions of the pasture and plants first. "This results in a shorter period of use, and poorer and poorer forage quality as the fall progresses," says Cuomo. "With strip grazing, animals will eat more of what is available and will have as good a quality forage as possible every time they are moved to a new strip."

How much forage is available after frost will depend on what forage is growing, how long the stockpiling period has been, and how much it rains. The quality of forage depends largely on how long the regrowth period is before frost. Shorter regrowth

(over)



periods will result in relatively low yields but higher quality forage. Longer regrowth periods will provide more forage but it will be lower in quality.

One way to increase the quantity and quality of stockpiled forage is to use nitrogen fertilizer. Cuomo says approximately 50 pounds of nitrogen per acre, applied after the animals are removed, should be sufficient.

"Like all forage management systems, stockpiling has its pluses and minuses," says Cuomo. "However, if extending the grazing season with moderate quality forage has a place in your operation, stockpiling may be worth considering."

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Web,DTN,V2MN,B1,D1,S1

NEXP5331

Source: Gregory Cuomo, (320) 589-1711
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

August 28, 1996

Good News--and Bad: Is Farming Really Getting Safer?

There's good news and bad on the farm safety front. First the good--statistics show that agriculture is no longer the nation's most hazardous industry. From 1985 to 1994, fatality rate estimates published by the National Safety Council ranked agriculture as the nation's most hazardous industry. For nearly ten years, the rate of work-related death in agricultural occupations including farming, ranching, and commercial fishing surpassed other dangerous industries such as mining and construction. But, the Safety Council's 1996 figures show that agriculture dropped to second place, with a death rate less than half of what it was ten years ago.

The National Safety Council's statistics show agriculture with a work-related death rate of 24 per 100,000 workers, behind mining's 30 per 100,000 and 16 per 100,000 in construction. The agricultural rate translates into a total of 800 workers killed per year and an estimated 140,000 disabling injuries.

Minnesota has also done well in the prevention of deadly farming-related injuries. Figures from the University of Minnesota's Extension Service show the state experienced a 10-year-high number of fatalities of 47 in 1986. That number had dropped to 24 in 1994, but was back up to 31 in 1995.

Efforts to improve safety on farms appear to be working over the long haul, says

(over)



John Shutske, U of M extension farm safety and health specialist. "Progress has come about as new technologies and improved designs have made machinery safer," notes Shutske. "Educational efforts by extension educators, teachers, health professionals, agricultural supply businesses, and rural community leaders have heightened awareness tremendously."

The bad news is hidden in these figures. "We're still seeing far too many deaths from tractor runovers and rollovers," says Shutske. "Also, the National Safety Council's statistics do not include children below the age of 14 even though a considerable proportion of deaths in farm workplaces involve children below this age."

During the past ten years in Minnesota, 35 people have been run over and killed by tractors or by implements such as wagons, mowers, or tillage equipment. The vast majority of these runovers were young kids. However, a fairly large number of people over age 65 get run over by equipment.

The problem with children riding on and falling off of farm machinery is not new. "We've spent decades trying to convince parents and grandparents about the hazards of 'extra riders,' yet we still see this behavior happening," says Shutske. "People think, 'That will never happen to my kid.' If parents could only be with me when I visit farm families and speak to the parents of young children who were run over and killed or seriously injured while they were driving the tractor, they might think twice about allowing kids to ride. It's a situation that can rip families apart."

By following the simple rule of NO EXTRA RIDERS, we could dramatically reduce the number of these needless deaths, says Shutske. This includes extra riders on

(more)

the farm, in non-farm workplaces, county fairs, and farm shows. "Even tractors with cabs are not totally safe," Shutske points out. "We've had incidents where young children have fallen out the door of the tractor cab only to be run over by the crushing weight of the tractor and a trailing implement."

Here's a second problem area: tractor rollovers. A modern tractor usually weighs more than 10 tons. When it rolls over onto a person the result is usually a death. Even an older model tractor weighs several thousand pounds, more than enough weight to cause massive internal damage to a person's body. These same older model tractors are also the ones most likely to have a higher center of gravity, a narrow tricycle style front-end, and most dangerously, no rollover protective structure (ROPS). "Since our average tractor in Minnesota is over 25 years old, it is important that we take this issue seriously," says Shutske.

The best way to prevent tractor rollovers is to avoid operating older model, high risk tractors. "If you have a different machine that is equipped with rollover protection, it's a much wiser choice," Shutske points out. "If you have an older tractor with no ROPS, another option is to purchase an add-on ROPS from your machinery dealer."

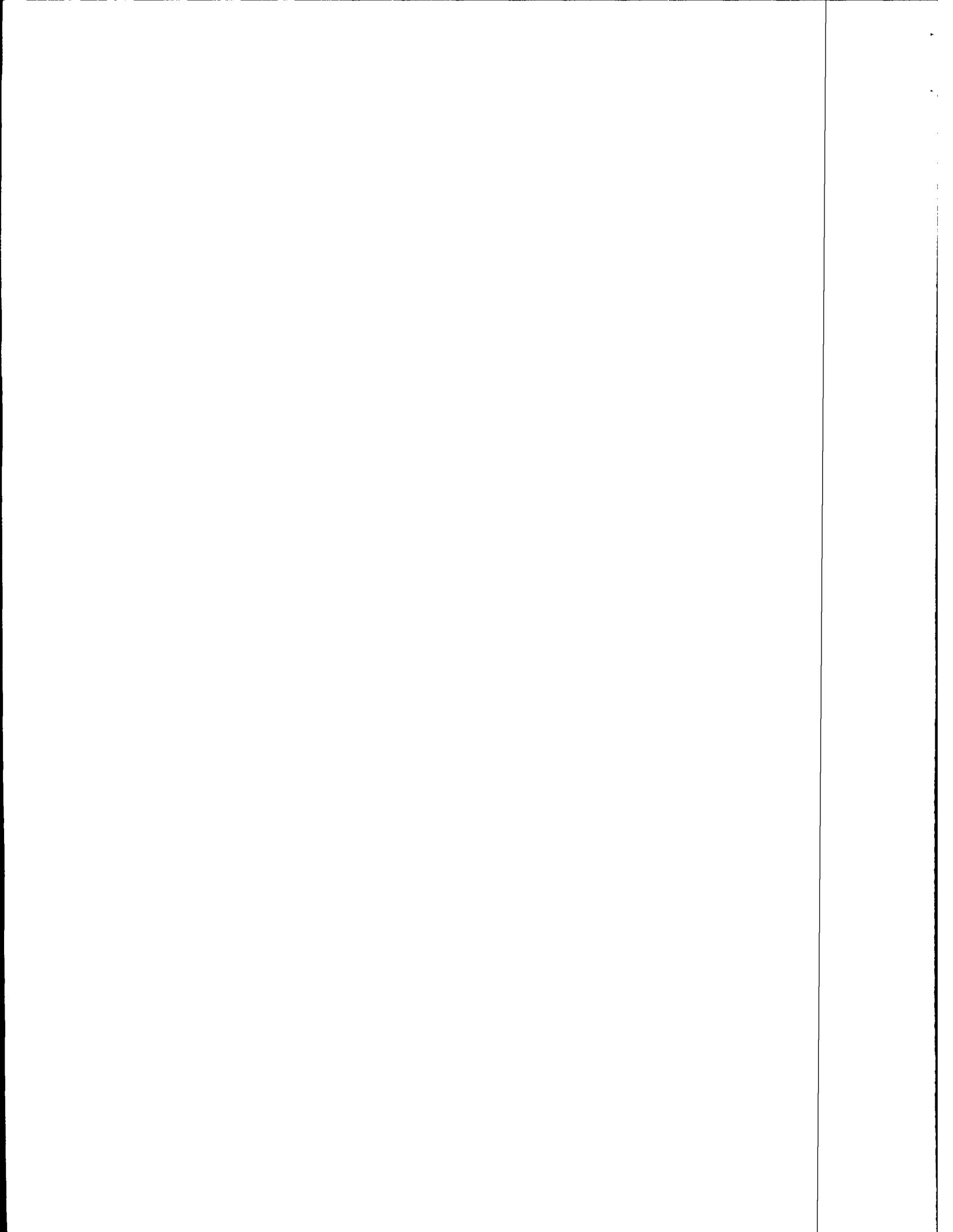
For more facts about preventing tractor runover and rollover deaths including information about the availability of ROPS for your older tractor, contact the Minnesota Extension Service Farm Safety and Health Program at 612-624-7444.

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Web,DTN,V4MN,V5MN,A4,E4

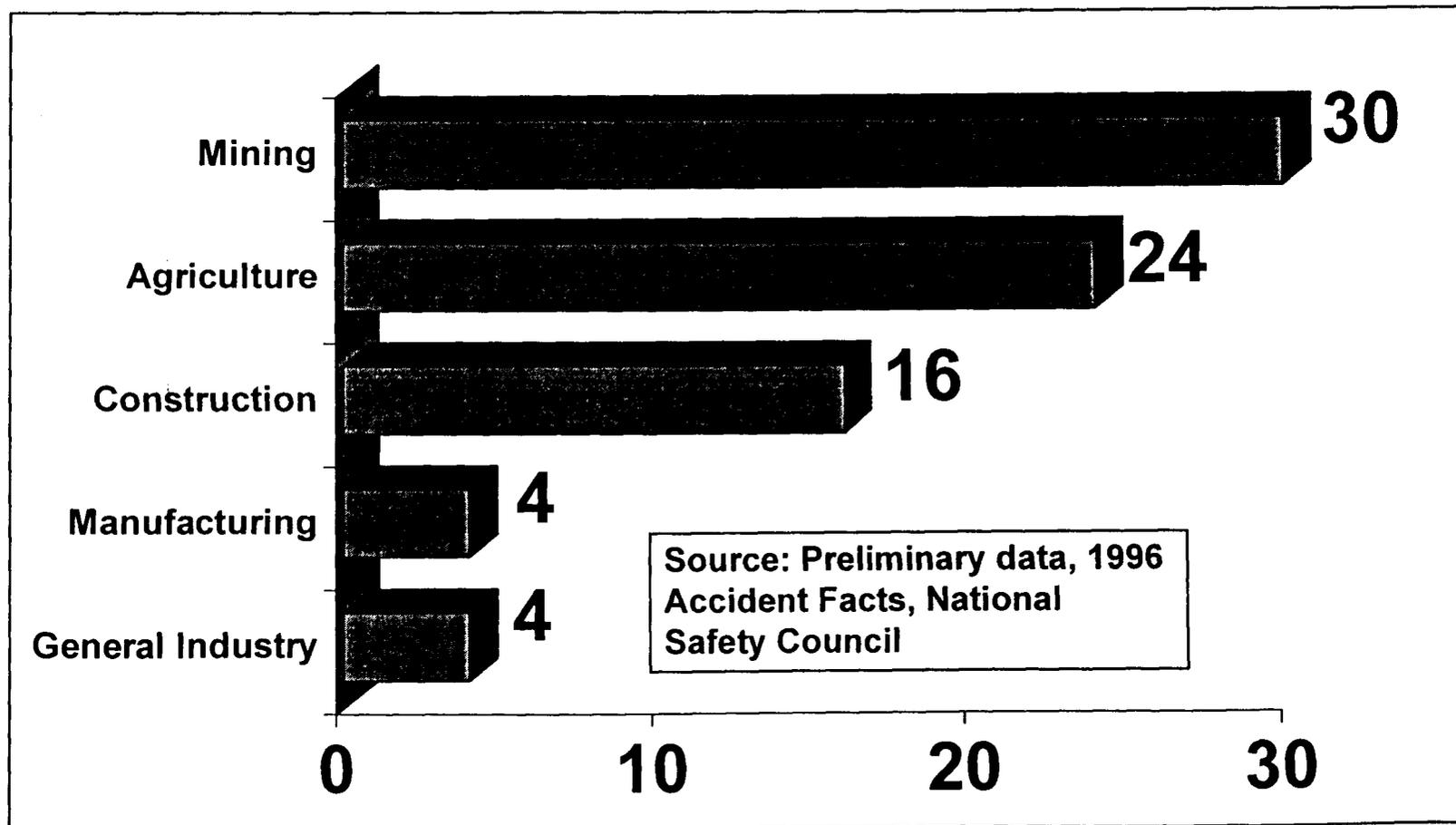
NAGR5333

Source: John Shutske, (612) 626-1250, shutske@gaia.bae.umn.edu
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu
(Page 3 of 3)

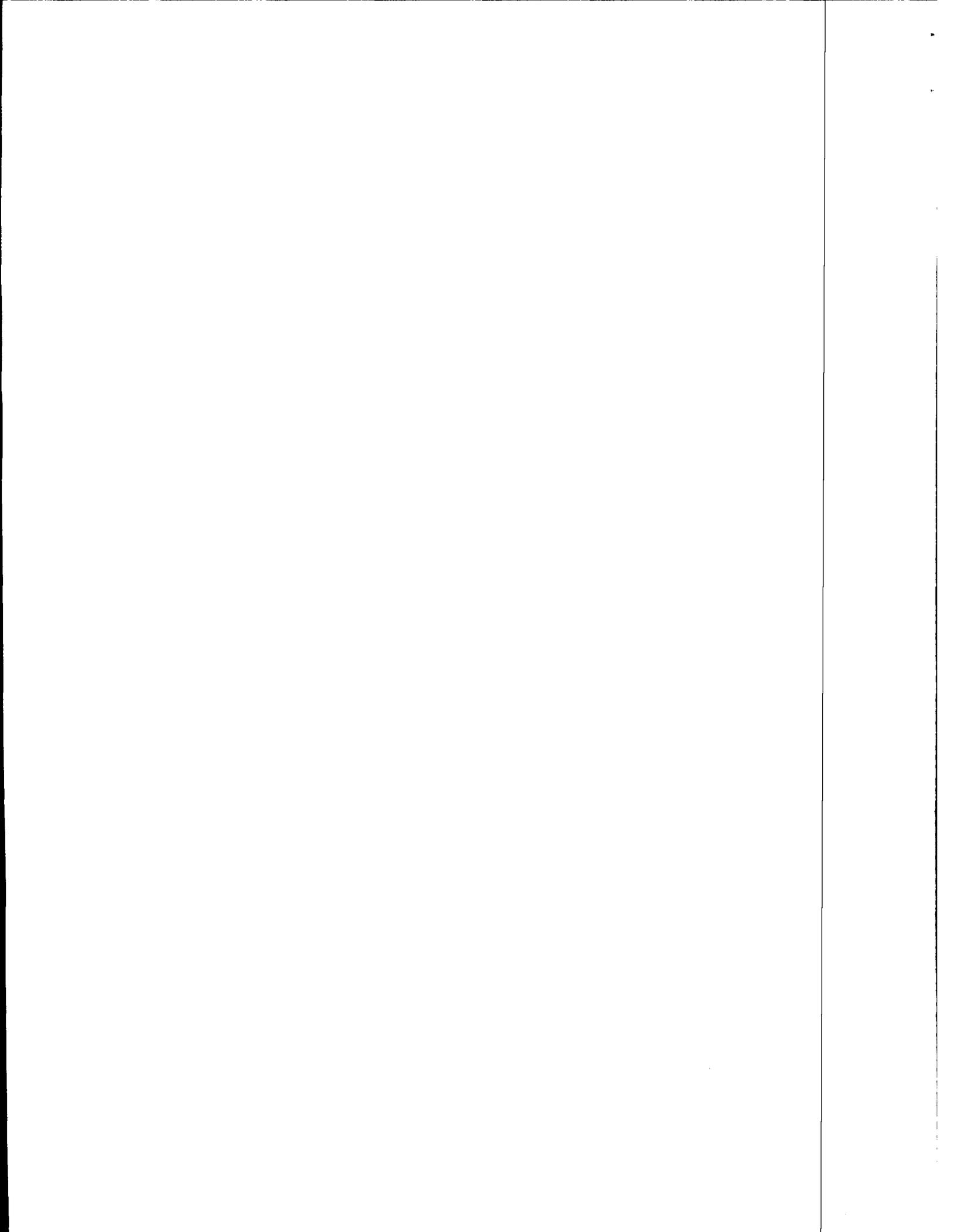


Death Rates - by Industry

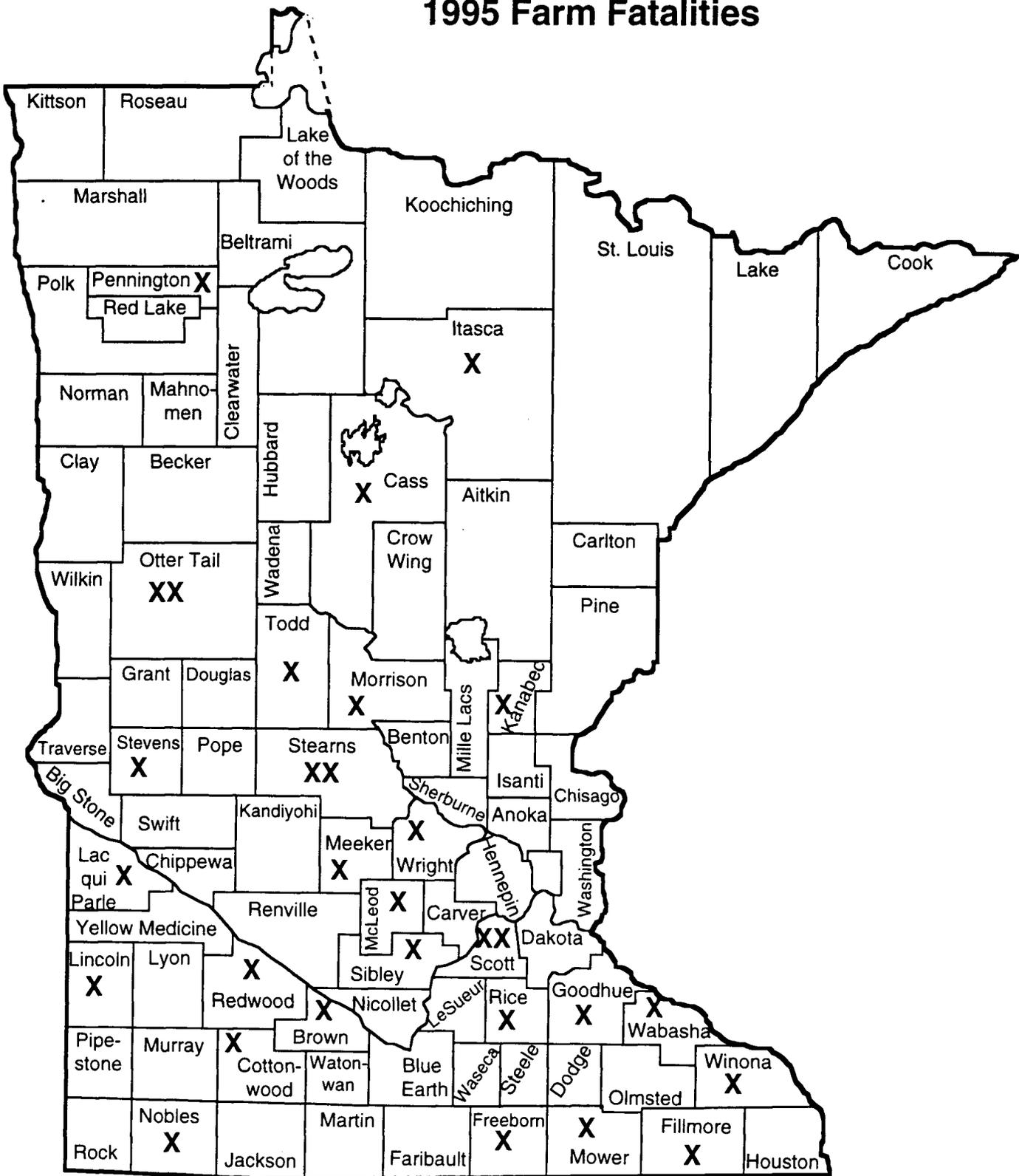
Number of Deaths Per 100,000 Workers



Graphic Prepared by Minnesota Extension Service's
Farm Safety and Health Program

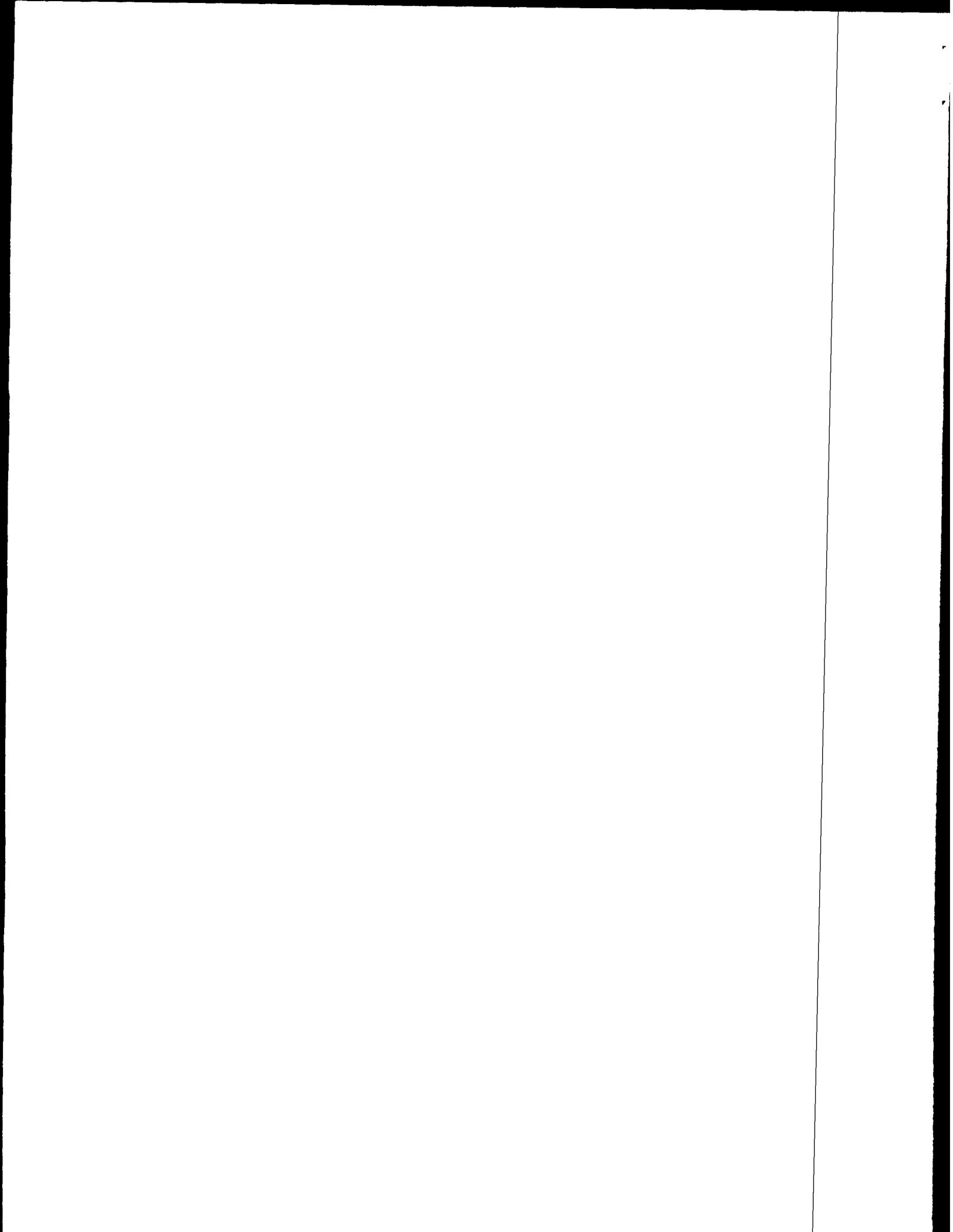


1995 Farm Fatalities



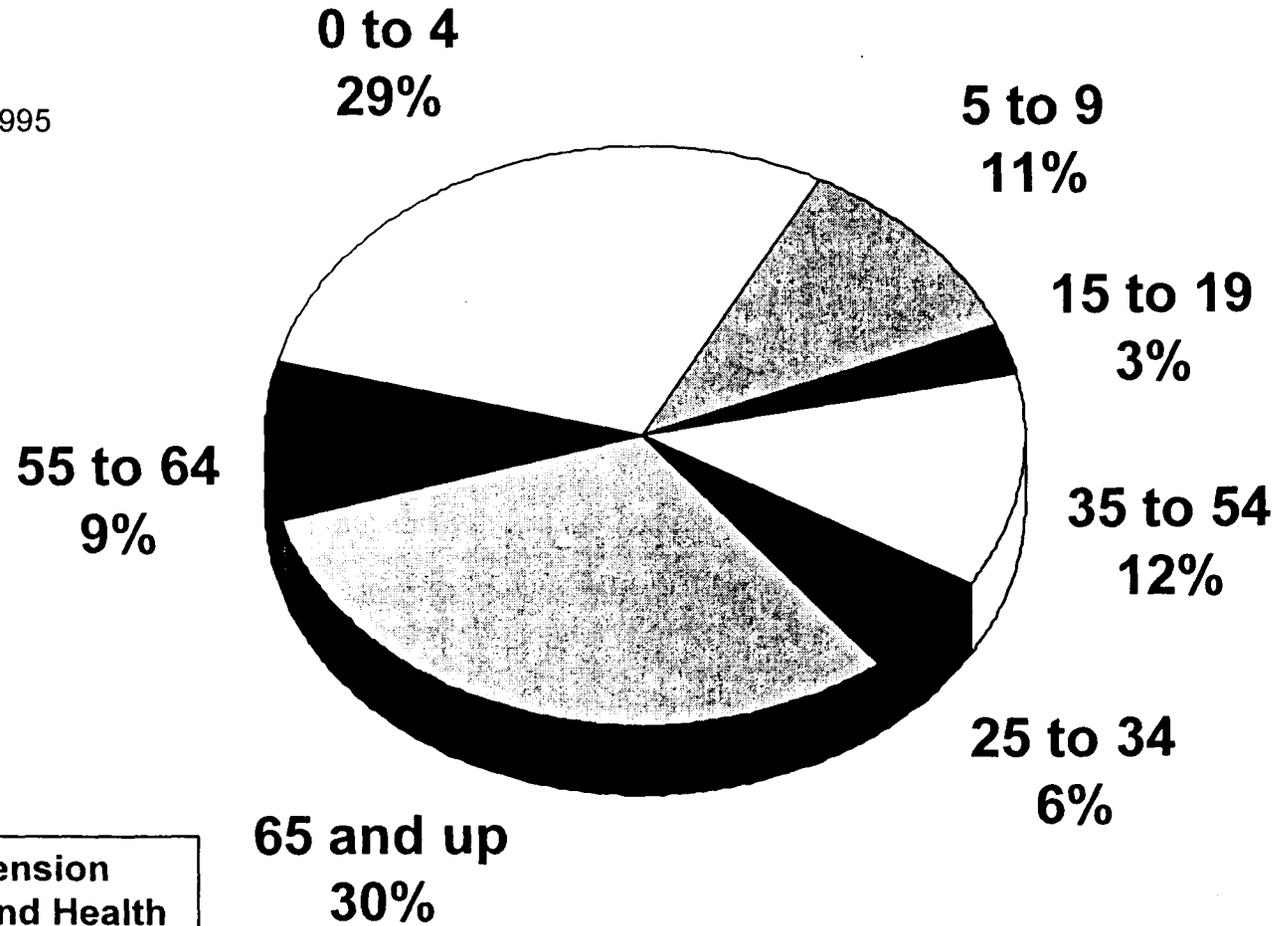
Source:
Minnesota Extension Service's Farm Safety
and Health Program

Total: 31

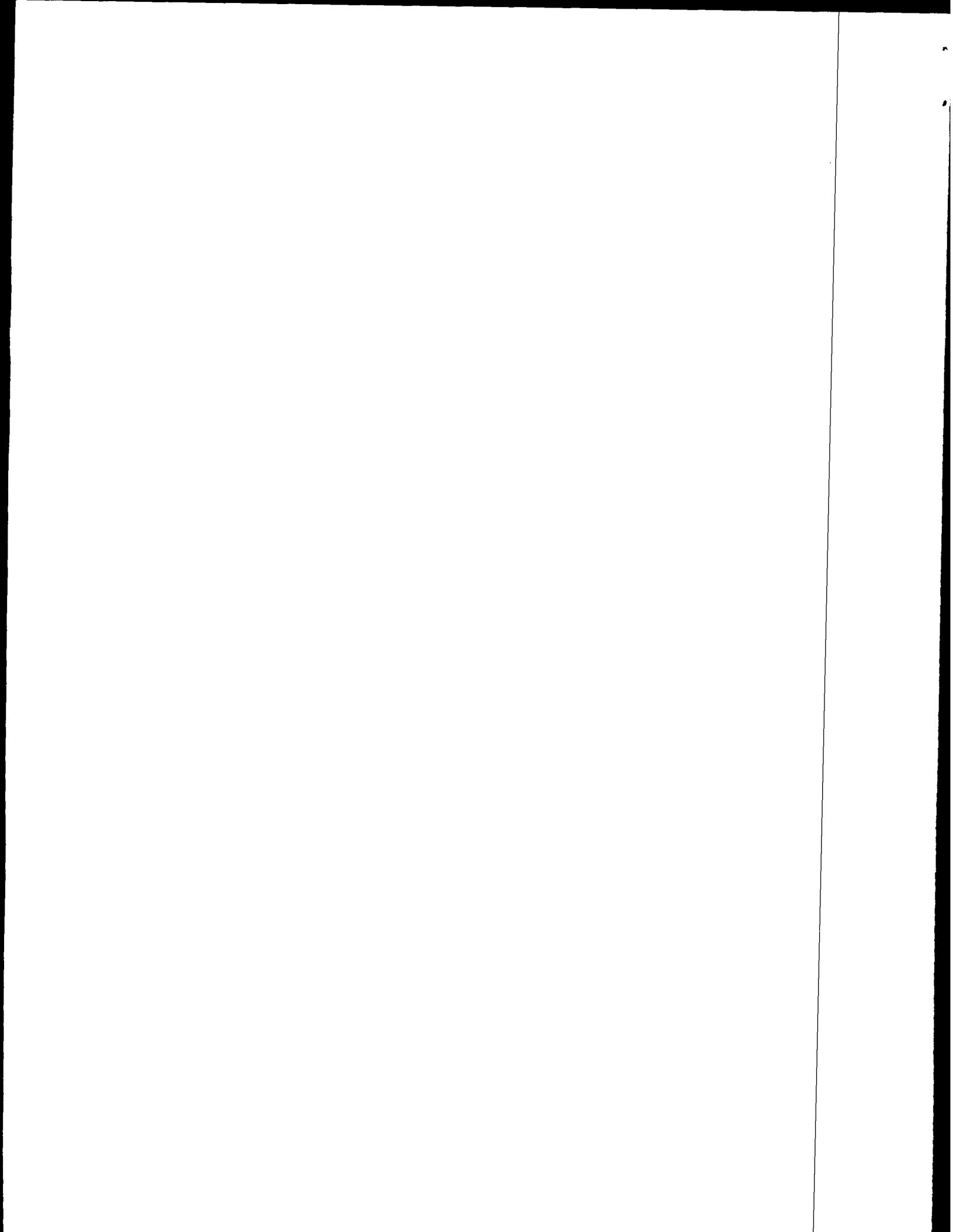


Age of Minnesota Farm Tractor Runover Fatality Victims During Past Ten Years

Dates: 1986-1995



Source: Minnesota Extension Service's Farm Safety and Health Program



MSC
9/4/96

August 28, 1996

Farm Safety Education Enters the Information Age

Farmers all over the country are reaping the harvest of a technological revolution. Technology has made possible the precision application of fertilizers and pesticides by satellite-guided machines, constant weather updates via 24-hour television weather channels, and instant access to information on everything from alfalfa to zoonoses.

Technology is changing the way safety and health information is delivered too. A few years ago, the principal way for an extension educator to reach people was to visit farms or talk to groups at meetings and field days. "Now we can reach people living and working in rural communities in so many different ways," says John Shutske, farm safety and health specialist with the University of Minnesota's Extension Service. Information technology has broken down barriers of distance, Shutske says, since digital information travels at nearly the speed of light and can be accessed 24 hours a day.

One of the most exciting developments over the past two years is the "World Wide Web." The Web is a primary on-ramp for the Internet, a piece of the information superhighway that links schools, libraries, extension offices, clinics, and rural homes.

"We were one of the first farm safety programs in the world to begin to use the Internet to deliver educational information to extension educators, health professionals, and farmers to prevent farming injuries and occupational diseases," says Shutske.

(over)



"There is a wealth of current and valuable information out there," he continues. "Within minutes, anyone with access to a computer and modem can read or print accident prevention publications, farm injury statistics, audio visuals for educational presentations, and current medical research on complicated agricultural health problems such as farmer's lung or hearing loss."

Eventually, people will also be able to view video-based information or hear the testimonials of farm injury victims through their computer.

Michele Schermann, a registered nurse who works with Shutske's program, says, "Information technology helps us provide important information to non-traditional audiences such as health care providers. Nurses, doctors, and other providers play an important role in providing health and safety information to farm families. For example, if a doctor in northwest rural Minnesota wants to learn more about the possible relationships between pesticides and cancers, it's now possible to provide abstracts of newly published medical research literature within minutes."

Internet use also increases efficiency. Shutske routinely polls his colleagues at universities, government agencies, and businesses throughout the country for ideas on innovative ways to improve the safety and health status of his clientele.

For more information, call 612-624-7444 or check out the University of Minnesota's Farm safety and Health Web page at: <http://www.bae.umn.edu/~fs>

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Web,DTN,V4MN,V5MN,A4,E4

NAGR5334

Source: John Shutske, (612) 626-1250, shutske@gaia.bae.umn.edu
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

(Page 2 of 2)

MSC
8-22-96

August 28, 1996

Migrant Labor, Physical Sacrifice are Keys to Minnesota Harvest

Wanted: Hard worker for back-breaking labor, 12-hour days, in hot, wet fields or large processing plants. Must be willing to relocate repeatedly. Piece work rate or minimum wage, no benefits. Barracks-style housing provided. Women and teens encouraged to apply.

Sound attractive? Not for most of Minnesota's work force. But for the state's seasonal or migrant farmworkers, this "want ad" describes reality. More than 20,000 migrant workers and their family members provide essential seasonal labor for agricultural employers in Minnesota.

Most migrant workers in Minnesota are of Mexican ancestry, although many are U.S. citizens or residents. They come to Minnesota from southern Texas to work in the Red River Valley of northwest Minnesota harvesting sugar beets and in the fertile agricultural area of southern Minnesota. Teens and children often accompany adult migrants.

In southern Minnesota, migrant workers harvest fruits and vegetables, especially corn, peas, asparagus, and strawberries. They work in canneries packing produce and in poultry and hog processing plants. The peak employment period for migrant labor in most areas is July and August, with the season beginning slowly in April and May and tapering off after October, when remaining workers help with Christmas tree harvesting.

Many migrant workers and their families live and work in camps in the middle

(over)



of the fields they harvest. Others live in towns nearby. Workers are often hired through intermediary crew leaders. Most migrant work pays minimum wage or slightly above, without health care benefits or vacation time. Whether it is detasseling corn, packing peas, picking rocks out of fields, or processing hogs, agricultural labor is physical and demanding.

Migrant farmworkers contribute substantially to the Midwest's robust farm economy, yet their contributions to the state's agricultural production sometimes go unheralded, and largely uncounted. Like most information on farmworkers, estimates about the value of migrant labor are based on inadequate raw data.

"Nobody knows for sure how many migrant workers even come to Minnesota to work," says Patricia Ohmans, who works for the Minnesota Extension Service's Farm Safety and Health Program. "When we've tried to plan our programs for migrant workers here, we've gotten conflicting numbers from every source we checked. When I looked at the index of newspaper stories over the last ten years, I found there's literally more information available on migrating geese than there is on migrant workers," Ohmans says.

What is known is that migrant workers suffer heavily from illnesses and injuries related to the work they do. Dermatitis, respiratory problems, and back and muscle injuries are among the most common problems treated at clinics serving migrant workers, according to Migrant Health Services, based in Moorhead, Minn. Reports of pesticide exposures, although primarily anecdotal, are not infrequent.

"Pesticide exposure among Minnesota farmworkers is a health and safety concern that has not been well documented," says John Shutske, farm safety and health specialist for the Minnesota Extension Service. The Worker Protection Standard, a recent initiative by the Environmental Protection Agency to train migrants on the hazards of pesticide use, is the first such federal effort in many years.

(more)

Migrant workers are in need of such basic health and safety information, says Shannon Pergament, coordinator of the Migrant Farmworker Camp Health Aide program, which trains migrant workers in health education. Lack of education, illiteracy, cultural differences, and racial discrimination contribute to the substantial health problems migrant workers and their family members experience.

Other obstacles to easy health care access include inadequate or non-existent insurance coverage, inadequate transportation to care sites, and clinics that are closed after migrants' working hours, Pergament says.

The Camp Health Aide project is an initiative sponsored by the Minnesota Extension Service to promote health education, disability awareness, and community leadership among migrant farmworkers. This summer, 15 farmworkers near Blooming Prairie, Minn. were trained as camp health aides. Aides deliver disability prevention and health education, provide basic first aid, and make health referrals to their fellow workers and camp residents. For more information about the Camp Health Aide project, contact the Patricia Ohmans with the Farm Safety and Health Program at (612) 625-1743.

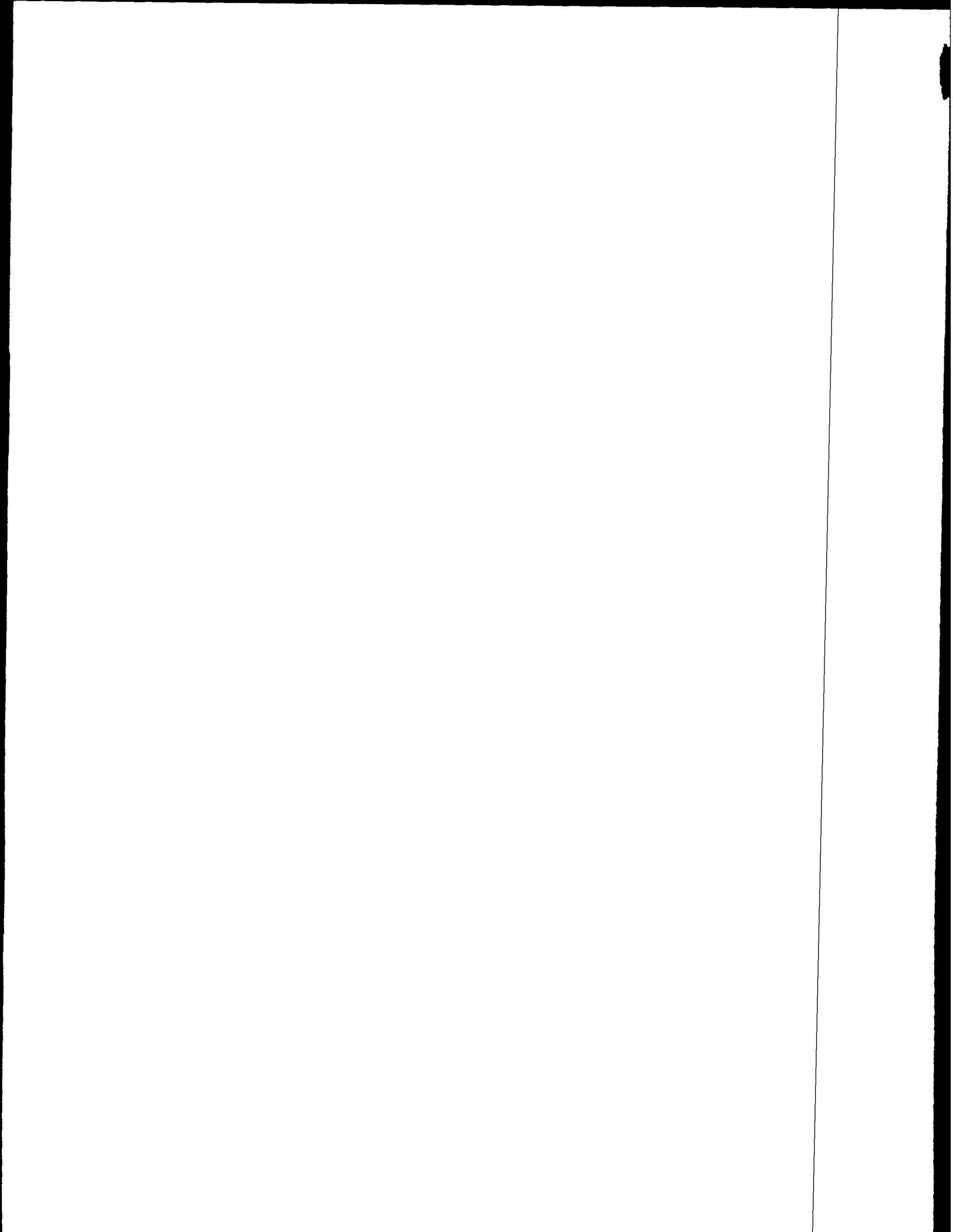
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Web,DTN,V4MN,V5MN,A4,E4

NAGR5335

Source: Patricia Ohmans, (612) 625-1743

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu



MSC
EAP/p

August 28, 1996

New Materials Teach Children about Farm Safety Hazards

Some 150,000 to 200,000 children are injured on U.S. farms and ranches each year, according to the National Children's Safety Network. How can rural children and their city friends learn about safety hazards on the farm?

A new set of fun, educational materials developed by the University of Minnesota Extension Service's Farm Safety and Health Program can help teachers, 4-H leaders, extension educators, and other rural leaders looking for educational resources. "We've developed some fun ways to teach kids about serious matters, like deadly manure pit gases, tractor rollovers, and livestock handling," says Michele Schermann, who designed the teaching materials.

John Shutske, U of M extension farm safety and health specialist, says, "Our evaluations of successful youth education programs show that kids learn important safety skills when the material is presented in a fun, hands-on fashion. Our materials emphasize hazard recognition and avoidance."

The farm safety topics set is appropriate for school-age children and pre-teens. While aimed at farm children, the principles apply to all children whether they live on a farm, visit the farm, or have never been to a farm.

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Each set of plans includes a printed list of teaching objectives, a materials list for building a demonstration from easy-to-find materials, discussion topics, and a list of printed and audio visual resource materials available from the Minnesota Extension Service and other agencies. Farm safety topics in the set include: lawnmower safety, reaction time, manure pit dangers, and tractor rollover protection.

The parts of the set can be used individually or all at one time such as at a "farm safety camp." The materials can also be used in school to teach other topics. "For example," Schermann says, "the tractor rollover demonstration can be used by teachers in a science class to demonstrate laws of motion and principles of gravity and acceleration."

For more information on ordering these farm safety materials, contact Michele Schermann at 612/624-7444.

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Web,DTN,V4MN,V5MN,A4,E4

NAGR5336

Source: John Shutske, (612) 626-1250, shutske@gaia.bae.umn.edu
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

August 28, 1996

Beef Cattle Conference Will Feature Presenters from 7 States

Presenters from seven states will address various ways to make beef cattle production and marketing more profitable during an upcoming Minnesota conference. The Integrated Resource Management (IRM) Fall Conference is for beef cattle producers, agribusiness personnel, and other interested persons. It will be Sept. 30-Oct. 1 at Ruttger's Bay Lake Lodge and Conference Center near Deerwood.

Some of the conference presenters and topics are:

- Jack Maddux, owner and manager, Maddux Cattle Co., Wauneta, Neb.--"jump-starting" the beef industry;
- Jim Robb, agricultural economist, Livestock Marketing Information Center, Lakewood, Colo.--cattle marketing, outlook, and profits;
- Harlan Hughes, extension economist, North Dakota State University--bottom line profits and high output, low input cattle;
- Don Anderson, president/CEO, Norwest Agricultural Credit, Inc., Sioux Falls, S.D.--obtaining financing for beef production;
- Leonard Wulf, internationally known Limousin producer, Morris, Minn.--cow-calf producer perspective on value-based marketing;
- Don McCasland, owner, Wheeler Feedyard, Clovis, N.M.--cattle feeder

(over)



perspective on value-based marketing;

--John Story, director, meat and deli operations, Fairway Foods, Inc., Northfield, Minn.--consumer perspective on value-based marketing;

--Tom Peters, DeKalb Feeds, Rock Falls, Ill.--an example of a ranch-to-rail value-based marketing system;

Minnesota beef cattle producers on the program in addition to Wulf are Mark Frederickson of Starbuck and Roger Gilland of Morgan.

University of Minnesota faculty members on the program include beef cattle scientists Brent Woodward, Alfredo DiCostanzo, and John Hall; agronomists Neal Martin and Greg Cuomo; economists Bill Lazarus and Brian Buhr; and extension educators Philip Berg, Jeremy Geske, and Jeff Arseneau. They will cover such topics as grazing systems, use of computers, genetics, nutrition, marketing, and live animal evaluation.

The conference replaces the Cow/Calf Days programs normally held in February in Minnesota.

Participation in the conference is limited to 75 producers and agricultural professionals. The fee for registrations postmarked by Sept. 10 is \$75 for one person and \$100 for two people from the same farm. The corresponding fees after Sept. 10 are \$95 and \$120. To register, send a check payable to the University of Minnesota to Animal Science Extension, University of Minnesota, 101 Haecker Hall, 1364 Eckles Ave., St. Paul, MN 55108-6120. For further information or a conference brochure, contact Brent Woodward at (612) 624-4995.

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Web,DTN,V2,B1,X1

NAGR5332

Source: Brent Woodward, (612) 624-4995

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

(page 2 of 2)

August 28, 1996

Farm Employers of Migrant Workers Must Follow Specific Safety Rules

Worker safety in agriculture in Minnesota is governed by few regulations compared with many other large industries, according to a farm safety and health specialist with the University of Minnesota's Extension Service. John Shutske says the two exceptions are the regulations that pertain to restricted use pesticides and those that employers of migrant and seasonal agricultural workers must follow.

"Since the majority of farmers in Minnesota use some type of crop protection product on their land, there is good awareness about pesticide safety practices," says Shutske. "Most producers are keenly aware of the state and federal regulations for pesticide use. However, there is a lack of information about the basic regulations that have been put into place to protect the health and safety rights of the state's estimated 20,000 migrant farmworkers and their families. Often, workers themselves are not aware of their rights under these regulations."

Federal Department of Labor standards that have been around for more than 20 years state every worker in the U.S. has the basic right to work in an environment that is free of recognized hazards likely to cause serious injury or death. Minnesota state law also requires that all businesses, including farms with employees, have a written safety

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program in place. This program must specify the measures farm employers will take to prevent worker injuries and health problems, including proper training and hazard identification.

“If an OSHA inspector visits a farm or other agricultural workplace that employs migrant workers, this written safety plan is likely to be the first thing they will ask to see,” says Shutske. He adds that the two standards most often cited by OSHA inspectors are the ones that cover housing conditions in temporary migrant worker labor camps and the field sanitation standard. The field sanitation regulation specifies that workers must be provided with toilet and washing facilities in the fields they are working. A review of OSHA’s federal database shows that there were 275 citations issued in the U.S. in 1995 when these two standards were violated by employers of migrant workers.

Migrant and seasonal farmworkers also have specific rights granted in the “Migrant and Seasonal Agricultural Worker Protection Act” through the Labor Department. The act specifies that all labor contractors or “crew leaders” be registered by the U.S. Department of Labor. The act also specifies that workers have the following rights:

- To receive accurate information in their language about wages and working conditions before beginning work.
- To have farm labor contractors show proof of their registration at the time workers are recruited.

(more)

- To be paid agreed-upon wages when due (at least minimum wage).
- To receive itemized, written statements of earnings and deductions for each pay period.
- To purchase goods such as household supplies and food from sources of their choice.
- To be transported in vehicles that are properly insured and operated by licensed drivers, and that meet federal and state safety standards.
- For migrant farmworkers who are provided housing:
 - * To be housed in a property that meets federal and state safety and health standards.
 - * To have the housing information (including cost, if any) presented to them at the time of recruitment.

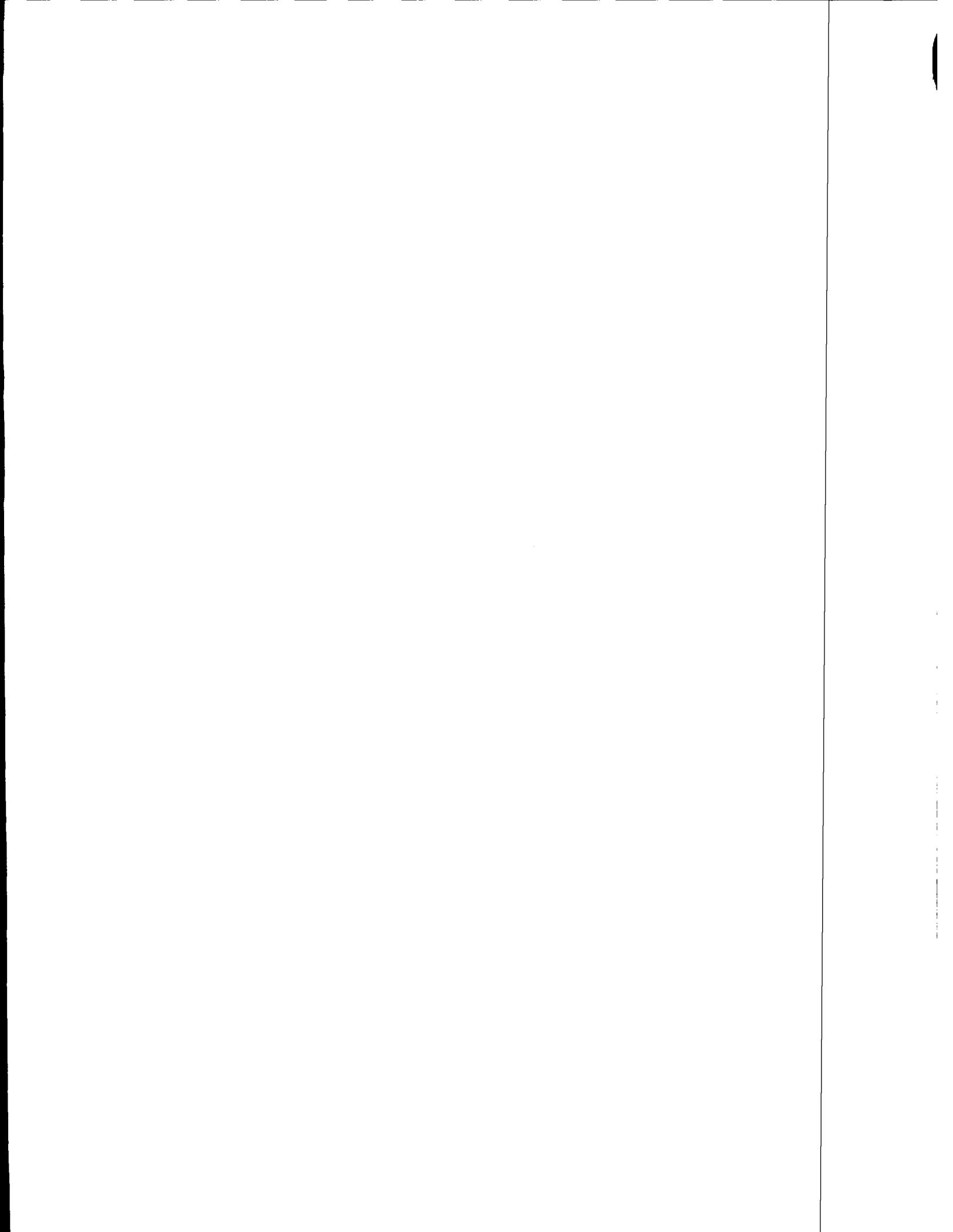
For more information about complying with various safety and health standards, contact the Minnesota Department of Labor and Industry at 612/296-2116. Additional information, including posters and other publications describing the Agricultural Worker Protection Act, is available from the U.S. Department of Labor's Wage and Hour Division at 612/370-3371.

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Web,DTN,V4MN,V5MN,A4,E4

NAGR5337

Source: John Shutske, (612) 626-1250; shutske@gaia.bae.umn.edu
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu



September 5, 1996

Don't Overlook Dairy Cows' Water Needs

Don't overlook your cows' water needs. Dairy cows need lots of water to produce up to their potential, says Dave Kjome, southeast Minnesota dairy educator with the University of Minnesota's Extension Service.

"Dairy producers often worry about protein intake in a cow while giving little attention to her water intake," says Kjome. "The cow produces milk containing 87 percent water and only 3.2 percent protein."

What is the daily water need of a lactating dairy cow? "A cow producing 25,000 pounds of milk per year needs 21,750 pounds, or 2,607 gallons, of water per year for milk production alone," says Kjome. "Add to that another 6,000 gallons for maintenance of daily body functions and you realize the importance of water. A dairy cow needs 30-40 gallons of water per day during the summer."

Kjome says cows may not drink enough water because they may have trouble getting to the water due to location or competition. The refill rate of the waterer or the quality of the water can also limit consumption.

"A good rule of thumb is that cows in a free stall barn or on pasture need a minimum of one inch of 'effective' linear water space per cow," says Kjome. "Therefore, 60 cows would need at least five feet of water access space."

(over)



"Waterers should be long, shallow and quick-filling. They should be located near feed bunks and in cow exit lanes. A cow will drink 50 percent of her daily intake right after milking."

Kjome recommends watering tanks designed so they can be cleaned daily of feed or forage material that may accumulate.

Check water flow rate, says Kjome. At peak flow times, waterers should refill at a rate of two gallons per minute. Research has indicated that consumption increases when flow rate rises above one gallon per minute.

One way to measure water flow is to use a five-gallon bucket and a watch with a second hand. Fill the bucket and divide five gallons by number of minutes it takes to fill the bucket.

Kjome recommends monitoring water use by cows. "You can use a standard household water meter, which costs around \$60," he says. "It's best to isolate the line for cow consumption when installing the meter, rather than having to subtract out milk house and parlor waste water. The meter needs to be monitored daily. You can record information in a pocket notebook or on a calendar."

If the well limits water consumption, consider a large storage tank that can be filled at the rate of the well pump, but fills waterers at a higher rate through gravity or some other means.

The bottom line is to serve your cows clean, fresh, cool water, says Kjome. "If you wouldn't drink the water you give your cows, why should they drink as much as you want them to drink?" he asks.

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Web,DTN,V2,D1

NAGR5338

Source: Dave Kjome, (507) 280-2869

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
gdt/p

September 16, 1996

Separating manure solids can reduce hauling costs, water contamination

A problem for many farmers is too little land for the number of livestock, which means manure must be hauled. And farmers with liquid manure systems are hauling lots of water, an expensive proposition.

But when the solid portion of livestock manure is separated from the liquids, most of the phosphorus ends up in the solids. If a farmer must haul manure to prevent phosphorus buildup or because of phosphorus regulation, this can be a tremendous advantage.

"Sure, you are hauling away manure," says Dick Levins, economist with the University of Minnesota's Extension Service. "But if the reason is to haul away phosphorus, the cost to consider is how much it costs to haul phosphorus, not whole manure."

Mechanically separating manure can reduce manure application and hauling costs, according to a University of Minnesota study based on a 500-cow dairy operation in southeastern Minnesota. "Hauling a pound of phosphorus in liquid manure was almost three times as expensive as hauling it as separated solids," Levins says.

The cost advantage favored the separation system by over \$8,000 per year in the example dairy. The study was conducted by graduate student Zsolt Vincze and Levins.

(over)



"From an agronomic standpoint, manure separation is ideal since you have a better product," says Mike Schmitt, soil scientist with the Minnesota Extension Service. You can do a better job of allocating nutrients when you have two products with different ratios.

However, convincing farmers to invest in manure separation equipment will be a "tough sell," Schmitt says. The situation isn't cost effective for smaller livestock operations. In addition, Schmitt says, many people think of manure as something to get rid of as fast as possible, rather than as a fertilizer nutrient resource.

Heavy applications of manure lead to concentrations of nitrogen and phosphorus that can contaminate groundwater and surface waters.

Current environmental standards for manure application are based on crop nitrogen requirements, which result in a phosphorus build-up on many soils. However, the Minnesota Pollution Control Agency (MPCA) is considering a crop phosphorus requirement, opposed to nitrogen. And that will mean trouble for some Minnesota farmers.

For copies of the study, contact Mike Schmitt, 227 Soils, University of Minnesota, St. Paul, MN 55108.

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Web,A4,H8

NEXP5344

Sources: Mike Schmitt, (612) 625-7017; Dick Levins, (612) 423-2455
Writer: Jack Sperbeck, EDS, (612) 625-1794, jsperbeck@mes.umn.edu

September 16, 1996

Consider nitrogen management when returning CRP acres to corn

If you're putting CRP acres back into corn production next year, now is an excellent time to start thinking about nitrogen management for those acres. George Rehm, soil scientist with the University of Minnesota's Extension Service, offers some points to consider.

Some producers have already moldboard plowed or chisel plowed their CRP fields going back to corn, notes Rehm. Others plan to plow this fall. With either tillage system, a considerable amount of residue has been incorporated, affecting nitrogen recommendations for corn.

"In order to arrive at cost effective nitrogen recommendations, plan as though corn were the previous crop," says Rehm. "If plowing takes place before mid-October, use a soil nitrate test to measure the amount of nitrate-nitrogen produced from the breakdown of the organic matter during the summer and early fall. Adjust the nitrogen recommendations for the amount of nitrate-nitrogen measured. If you plow after mid-October, use the standard recommendations for corn following corn."

Be sure to use a soil nitrate test to determine nitrogen recommendations if corn is to be planted in 1998 following corn in 1997, says Rehm.

(over)



To reduce the potential for soil erosion, leave the soil surface as rough as possible through the winter months, says Rehm. This means deferring nitrogen applications until next year.

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Web,DTN,V2,F4

NAGR5341

Source: George Rehm, (612) 625-6210

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

September 16, 1996

Apparent herbicide failures may be due to misidentification of weeds

If an herbicide you have applied doesn't control weeds as you expected, maybe you have different weeds than you thought. Such experiences are becoming more common, says Bob Byrnes, extension educator in Lyon County with the University of Minnesota's Extension Service.

"Varying biotypes within the same weed species allow the survival and reproduction of herbicide-resistant weed biotypes," says Byrnes. "Some examples are Roundup-resistant quackgrass, Pursuit-resistant cocklebur, and waterhemp resistant to common ALS-inhibiting herbicides."

Visual identification of herbicide-resistant biotypes is often difficult, if not impossible, notes Byrnes. Many times, identification occurs only when the plants are not controlled by herbicides.

"Waterhemp is a plant that looks very similar to pigweed, and is very difficult to identify at early growth stages," says Byrnes. "Pursuit, the popular post-emergence broadleaf herbicide used in soybeans, doesn't control waterhemp, but does control smooth and redroot pigweed. Some producers have felt Pursuit hasn't performed adequately because weeds assumed to be pigweed were not adequately controlled. Then they found through proper identification that the weeds were waterhemp."

(over)



Byrnes points out some ways to distinguish among waterhemp and smooth and redroot pigweed. Waterhemp has no hair, has shiny leaves, and leaf shape is long and narrow. Smooth pigweed has no hair, has shiny leaves, and has ovate leaves (wider base than top). Redroot pigweed is hairy, has a dull color, and has a rough surface and ovate leaves.

"Correct weed identification is of paramount importance when evaluating weed control and herbicide performance," says Byrnes. "Because of increased use of post-emergence weed control and less cultivation, selection pressure for resistant weed biotypes has become increasingly common. Providing weed control history when bringing in weeds for identification is essential."

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Web,DTN,V2,F4

NAGR5343

Source: Bob Byrnes, (507) 537-6702

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

September 16, 1996

More cores needed for soil sample where fertilizer has been banded

How many soil cores do you need for a composite soil sample to do a good job of characterizing soil nutrient concentrations? John Lamb, soil scientist with the University of Minnesota's Extension Service, says accuracy and precision are two factors to consider.

"Accuracy refers to the correctness or nearness of a soil test value to the field average," says Lamb. "In most cases, a plus or minus 15 percent or better accuracy will be sufficient. Precision is the ability to reproduce the same results with a different soil sample. An 80 percent precision level is considered adequate."

Lamb cites data from North Dakota State University indicating that at the same precision and accuracy levels, you need the most cores for a phosphorus soil test, followed by nitrate-nitrogen, and then potassium. This assumes that you discard soil abnormalities caused by dead furrows, head lands, potholes, soil texture, slope or soil color. "At a common precision level of 80 percent and an accuracy level of plus or minus 15 percent, you need 21 cores for phosphorus," Lamb says.

Another factor in how many cores to take is prior fertilization. "If you have banded P or K, which are immobile in the soil, and you don't know the location of the band, then the number of cores required increases dramatically," says Lamb. Nebraska research suggests that in a soil with a history of broadcast phosphorus applications, 20

(over)



cores are required for a phosphorus soil test. That same soil with a history of banded applications requires 290 cores taken at random to achieve the same levels of accuracy and precision."

Lamb says a Colorado study suggests that if you know the direction of the band and the spacing between bands, then you can reduce the number of cores needed by collecting paired cores. The first core would be taken randomly from the area to be sampled. The second, paired core would be taken half the distance of the band spacing away from the first core in a direction perpendicular to the band application. For example, to sample a field where bands were north-south and 30 inches apart, you would take the first core anywhere in the sampling area. You would take the second core 15 inches either east or west of the first core. This method has been reported to reduce the needed number of cores to between 30 and 60 per soil sample.

"The bottom line is that if you are sampling an area with a history of broadcast fertilization in Minnesota, you need 20 cores to produce a good quality, representative soil sample," says Lamb. "However, if the fertilization history includes band application in recent years, you need more cores and the method of obtaining cores will have to be more systematic."

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Web,DTN,V2,F4

NEXP5342

Source: John Lamb, (612) 625-1772
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

September 19, 1996

Tree guides enrich fall color viewing, identification

The show is about to begin. Pack your camera and a map because Minnesota's fall color season is nearly here.

Another item you'll want to have is a tree identification guide, and in Minnesota that means picking up a copy of "Minnesota Trees," available from the University of Minnesota's Extension Service.

People pay a lot of attention to trees each fall, and with the assortment of forest types found here, Minnesota offers one of the most diverse autumn shows.

That diversity is due in part to Minnesota's unique location at the intersection of three major ecological regions--the eastern deciduous forest, the western tall grass prairie and the northern conifer forest. The different soils, climate and landscape patterns in these regions support different types of vegetation, including trees.

Consequently, Minnesota's forests cover the spectrum from the bright yellows of the tamarack swamps and aspen groves to the reds, oranges and golds of mixed deciduous forests.

"Minnesota Trees," item BU-0486-NR3, provides 94 pages of detailed information about more than 100 species commonly found in the Gopher State. It's available for \$9.50 plus tax and shipping. The book will help you identify trees in summer or winter,

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and provides interesting facts about each species, with a species index and diary included. It's considered an invaluable reference for teachers, outdoor enthusiasts and nature lovers.

A less-detailed, 16-page guide is also available. "A Beginner's Guide to Minnesota Trees," item BU-6593-NR3, is available for \$1 plus tax and shipping. It will help you identify 35 tree species commonly found in Minnesota by using easy-to-follow keying symbols. The beginner's guide is perfect for casual nature observers and elementary and secondary school-age children.

Both field guides are small and durable, making it easy to take them into the forest. They are also the only Minnesota-specific field guides available that are written for a general audience.

You can order the field guides by calling the Minnesota Extension Service Distribution Center at (800) 876-8636 or (612) 624-4900. Quantity discounts are available. Be sure to mention the title and item number of the publication you want. Price and availability are subject to change. These items are available in alternate formats upon request.

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Web, V4MN, V7MN, V9MN, F8MN, X9

NNRD5345

Writer: Martin Moen, (612) 624-0793, mmoen@forestry.umn.edu

September 25, 1996

New immigrants to southwest Minnesota are focus of conferences

The newest wave of immigrants to southwestern Minnesota--Hispanics, Africans, and Asians--are the focus of upcoming conferences October 18-19 in Marshall and Worthington. Conference sponsors include Southwest State University at Marshall; the University of Minnesota's Extension Service; Southwest Minnesota Leadership for Local, Elected, and Appointed Persons Project (SWLEAP); and numerous local agencies and organizations.

The conferences are designed for local community leaders, employers, employees and interested citizens of southwestern Minnesota. Nationally-recognized experts from universities and agencies across the U.S. will make presentations and lead discussions. Questions the conferences will deal with include who the newcomers are, why they came, and what they experience upon arrival. Social services, housing, education and crime are topics which will receive special attention.

The conference October 18 at Southwest State University is titled "To Call It Home: The New Immigrants of Southwest Minnesota." Registration begins at 8:30 a.m.; the program is scheduled for 9 a.m. to 4 p.m.

The program will include presentations on the new immigrants of the Midwest, meatpacking's consequences for community relations, meatpacking's impact on health

(over)



care and social services, the impact of rural industrialization on the housing and labor markets, and reports from southwestern Minnesota community leaders.

The Worthington conference October 19 is titled "To Call Worthington Home: A Community Forum." It's scheduled for 8:30 a.m. to 4 p.m. at West Elementary School.

The event will bring together local industry employers and employees, civic and community leaders, and others to discuss the new immigrant populations and changing communities. It will also provide an opportunity to continue discussion of the issues raised at the Marshall session.

Registration fee for the Marshall conference is \$25 by October 10, \$35 after that date. For the Worthington conference, it's \$10 by October 10, \$15 after that date.

For further information on the Marshall program or for a conference brochure, call (507) 537-7373. For further information or a brochure on the Worthington conference, call (507) 372-8627 or (507) 372-8210.

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Web,V4MN,A1,A3,E1,F6,H3,Z6

NEXT5348

Source: Mary Ann Gwost Hennen, (612) 624-3070
Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
e A27p

September 27, 1996

Minnesota soybeans need more harvest and post-harvest care

Harvesting high-quality soybeans can be more challenging for producers in Minnesota than for producers further south. Minnesota's shorter growing season and narrower window of harvest opportunity frequently bring more difficult harvesting conditions. Bill Wilcke, agricultural engineer with the University of Minnesota's Extension Service, says some quality problems showed up in a recent study by Iowa State University's Grain Quality Laboratory.

"The study indicates that for the years 1987-1990, Minnesota soybeans had higher moisture content, more foreign material, more splits, and more DKT (total damaged kernels, which is largely mold damage) than soybeans from other states in our region," says Wilcke.

Minnesota growers can produce soybeans that are as high in quality as those of our neighbors, but have to work a bit harder to do so, says Wilcke. "With the expected high prices for soybeans this year, it would be worth investing a little more time, effort and fuel (electricity and perhaps gas) this year to make sure you have high quality beans available for sale," he adds.

Careful combine operation is the first step in harvesting high-quality soybeans, says Wilcke. Check the condition of harvested beans frequently and change combine settings as needed to minimize the number of split beans and the amount of foreign

(over)



material in the grain tank. It might be best to leave unusually wet or immature beans from replanted spots or other parts of fields for later harvest, Wilcke points out, rather than mixing them in with beans that are clean, dry and fully mature.

"If soybeans are 13 percent moisture or less, they can go directly into storage," says Wilcke. "All storage bins should have some kind of aeration system--especially for a high-value crop such as soybeans. Use the aeration system to cool beans down to 20-30 degrees F for winter storage. Storage at this temperature reduces the likelihood of mold growth and reduces the chances of natural convection currents that can cause moisture migration and spoilage at the top of the bin."

If soybeans are wetter than 13 percent moisture, they need artificial drying for safe storage. Natural-air drying (no heat) should work well if you have a bin with a full perforated floor and fan power of about 0.75 horsepower per 1,000 bushels of beans (for bins less than 18 feet high). "Heated-air drying can also be used for soybeans," says Wilcke, "but keep the temperature down to less than 140 degrees F to avoid splitting seeds. Turn the temperature down even further, to less than 110 degrees F, if you plan to keep the beans for seed."

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Web,DTN,V2MN,F4MN,X2

NAGR5349

Source: Bill Wilcke, (612) 625-8205

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
z A r p

September 27, 1996

Nematode can make soybeans more vulnerable to other diseases

The soybean cyst nematode is an organism that cuts soybean yields. It can also make soybean plants more vulnerable to other soil microorganisms that can further reduce yields, according to a University of Minnesota nematologist.

Senyu Chen of the university's Southern Experiment Station at Waseca says nematode infection begins when juvenile nematodes penetrate soybean roots.

"Nematode penetration creates openings for other organisms, such as fungal and bacterial pathogens, to enter the roots," says Chen. "Substances released from the wounds caused by nematode penetration may be good food sources for the fungi and bacteria. The nematode alters plant metabolism so that the plant metabolites may favor not only the nematode needs, but also the needs of other pathogens. As a result, the incidence of other soybean diseases may increase in a field infested with the soybean cyst nematode."

Scientists have found that "Fusarium" wilt in soybeans is more severe in nematode-infested fields than in fields without the nematode, says Chen. In the greenhouse, soybean plants in the presence of both the soybean cyst nematode and the fungus "Fusarium oxysporum" were severely wilted. Those grown in the presence of either organism alone did not wilt.

(over)

"Phytophthora root rot is caused by a fungus and is one of the most severe soybean diseases in the northern Midwest," says Chen. "It has been found to be more severe in phytophthora-susceptible cultivars when both the fungus and the soybean cyst nematode are present than when the fungus alone is present. Nematode penetration, however, has not broken soybean resistance to phytophthora root rot."

Recently, notes Chen, a disease called "sudden death syndrome" was found in the north central United States. A fungus, "Fusarium solani," is considered the primary causal agent of the disease. Dual inoculation of soybeans with the fungus and soybean cyst nematode has caused more severe foliar symptoms than those caused by the fungus alone. "This suggests that the nematode is involved in this disease complex," says Chen.

Charcoal rot is another important soybean disease in the north central U.S. It's caused by a fungus called "Macrophomina phaseolina." Chen says a field study showed that the soybean cyst nematode increased the colonization of roots by the fungus and increased yield losses due to charcoal rot.

"Soybean cyst nematode infection not only enhances other soilborne soybean diseases, it also inhibits nodule formation and nitrogen fixation by nitrogen-fixing bacteria," says Chen. "Severe infection by the nematode may result in nitrogen deficiency and chlorosis symptoms in soybean plants."

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Web,DTN,V2,F4,X2

NEXT5350

Source: Senyu Chen, (507) 835-3620

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

October 2, 1996

AirSmart software aims for better air quality in homes

Learning about residential indoor air quality need not be difficult or boring, thanks to AirSmart, a new interactive computer program available from the Minnesota Extension Service.

AirSmart was developed by a team headed by University of Minnesota extension housing specialist William J. Angell. Development was funded in part under a cooperative agreement with the U.S. Environmental Protection Agency (EPA).

"People spend two-thirds of their lives in their homes," Angell says. "So, avoiding exposure to pollutants in the home is very important for their health and well-being. That's why the EPA is concerned that not only consumers, but also public health workers, real estate developers and agents, builders, heating and air-conditioning contractors, housing inspectors, and others involved in public and private housing understand the factors that contribute to healthful indoor air quality."

AirSmart blends the health science and building science dimensions of indoor air quality in a way that's easy to understand. The software can be used for audiences as young as high school age because it presents concepts and uses language in an easy-to-grasp manner.

Angell says, "AirSmart can be used to self-instruct, demonstrate, explain to audiences and use in one-to-one consultations. The user first sees a cross-section of a house, complete with household equipment and furnishings. By 'clicking' on various parts, the user learns how common household pollutants affect health and steps that should be taken to avoid them or correct the situations that produce them."

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AirSmart allows users to explore three dimensions of air-borne pollutants: what they are, how they affect health and how to deal with them to protect one's health.

The building science dimension of the software emphasizes pollutant sources, planned and unplanned pathways, and transport mechanisms in both heating- and cooling-dominated regions. AirSmart addresses all the major pollutants, including bioaerosols, carbon monoxide, environmental tobacco smoke, nitrogen dioxide, particles, polycyclic aromatic hydrocarbons, radon and volatile organic compounds. Among the issues it addresses are variable susceptibility, material source dynamics and low-dimension products, what "adequate ventilation" means, moisture dynamics, and spot and whole-house ventilation.

AirSmart comes with a user manual and is available in three versions: WINDOWS (order item CS-6695-NR), Macintosh (item CS-6706-NR) and CD-ROM (item CS-6707-NR). The PC (Windows 3.1 or higher on a 386 or higher processor) and Macintosh (Quick Time version 1.6 or higher on a 68030 processor using system 6.0.7 or higher) versions require 22.3 MB hard disk space, 8 MB of memory (RAM), a mouse, and a 640x480, 256-color video card and color monitor. The CD-ROM version operates on both Windows and Macintosh platforms.

AirSmart costs \$100 a copy plus \$7 shipping. Make checks or money orders payable, in U.S. dollars, to University of Minnesota. Send orders to: MES Distribution Center, 20 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108-6069. To place a credit card order or to obtain prices for more than two copies of AirSmart, call (800) 876-8636 or (612) 624-4900.

#

Web,V4MN,V8MN,H2,H5,SelMedia

NHEC5351

Source: William J. Angell, (612) 624-6786, wangell@mes.umn.edu
Writer: Sam Brungardt, EDS, (612) 625-6797, sbrungardt@mes.umn.edu

*MSC
EADP*

October 15, 1996

Potassium deficiency symptoms appear in southeastern Minnesota crops

There have been numerous reports of potassium deficiency symptoms in both corn and soybeans this year in southeastern Minnesota. George Rehm, soil scientist with the University of Minnesota's Extension Service, says 1996 weather, and also production practices, are likely causes.

Rehm says agronomic crops require relatively large amounts of potassium to produce optimum yields. Potassium is also relatively immobile in soils. Therefore, normal root growth is necessary so that actively growing plants can absorb adequate amounts of potassium.

"Soil compaction has probably restricted root growth, limiting the ability of plants to absorb potassium," says Rehm. "Soil compaction has been a major problem in recent years. Planting seasons have been wetter than normal. Soils have also been wet at harvest.

"Overall, however, soils were drier than normal in southeastern Minnesota in 1996. Dry soils enhance potassium fixation, which reduces the amount of potassium available for plant growth. The combination of compaction and dry soils can explain many of the observed deficiency symptoms."

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Rehm says some growers who reported deficiency symptoms used 10-34-0 as starter or pop-up fertilizer as a substitute for 7-21-7. Symptoms were more severe where potassium hadn't been applied in a starter fertilizer.

"Soil tests for potassium were either low or very low in fields where potassium deficiency symptoms were obvious," says Rehm. "Paying close attention to soil test values is a way to improve crop production."

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Web,DTN,V2,F4,Z4

NAGR5362

Source: George Rehm, (612) 625-6210
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

October 15, 1996

Topdressed lime doesn't benefit established alfalfa

Don't expect alfalfa to benefit from lime by topdressing the lime after the alfalfa has already been established. The lime needs to be broadcast and incorporated ahead of seeding, says George Rehm, soil scientist with the University of Minnesota's Extension Service.

"Some growers seed alfalfa without checking soil pH, and later find that the pH is acid," says Rehm. "This raises the question of whether to topdress lime on the established alfalfa as a rescue treatment."

Rehm cites a study in Goodhue County in 1990 and 1991. Alfalfa in the field selected for the study had been seeded in the spring of 1989, producing an excellent stand. The soil pH, however, was 5.7 and lime had not been applied prior to seeding. Topdress applications of lime in the fall of 1989 did not improve yields in 1990 and 1991.

"Lime is used to establish a good pH environment for the bacteria that cause nodulation, allowing alfalfa to use the nitrogen in the atmosphere," says Rehm. "These nodules don't develop on roots at the soil surface. The majority of the nodules are 4-6 inches deep. Surface-applied lime that isn't incorporated won't change the pH at this depth. Incorporation is necessary to get the full benefit of the lime."

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If you plan to seed alfalfa in 1997, you need to take a soil sample to measure soil pH and determine the amount of lime needed, says Rehm. Then broadcast the needed lime and incorporate, either in the fall or spring. Seed alfalfa after the lime is incorporated.

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Web,DTN,V2,F4

NEXP5361

Source: George Rehm, (612) 625-6210

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
9-16-96

October 16, 1996

Cooling corn is next step after drying

Cooling is a key step after drying in the process of storing new-crop corn. Cool the corn to a temperature that is low enough to limit mold and insect activity, says Bill Wilcke, agricultural engineer with the University of Minnesota's Extension Service.

First, dry the corn to a safe storage moisture. Wilcke says that's 15 percent for winter storage, 14 percent for storage through summer, and 13 percent for a year or more of storage.

For corn dried in heated-air dryers, the first step in cooling is to remove dryer heat. Wilcke cites three options for cooling hot, freshly-dried corn:

1. Cool corn rapidly in the dryer. This is fast and fairly effective, but it really stresses the kernels and leads to a lot of kernel cracking. It also results in a lower test weight than when cooling takes place more slowly. Almost no moisture is lost during rapid cooling, and corn usually remains about 10 degrees F warmer than the outdoor temperature.

2. In-storage cooling. Hot corn from the dryer goes directly into a storage bin and is cooled slowly by the bin's aeration fan. This method requires a good aeration system with a fan that is sized to keep up with the dryer. Provide at least 12 cubic feet of air per minute (cfm) per bushel per hour of dryer capacity. But compared with rapid cooling in

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the dryer, in-storage cooling results in slightly better corn quality, one to two points more moisture loss, and greater dryer capacity. Some condensation occurs along bin walls, especially during cold weather, so run aeration fans extra time to remove the condensed moisture, or consider moving the corn soon after cooling is complete.

Full-perforated floors are best for in-storage cooling, but the process can work in bins that have duct systems or square pads in the center. However, without a full-perforated floor, cooling rates vary in different parts of the bin and you need to take more temperature measurements to make sure all corn has cooled before you turn off the fan.

3. Dryeration. Hot corn from the dryer goes into a cooling bin, is kept hot for 4 to 12 hours, cooled in 12 to 24 hours, and then moved to storage. Dryeration results in excellent grain quality and provides a two- to three-point moisture loss during cooling. Because so much condensation occurs inside the walls of the cooling bin, it is best to move corn after cooling to prevent spoilage next to the walls.

After dryer heat has been removed from corn, further cooling will be necessary. Wilcke provides the following guidelines:

Wait until the average outdoor temperature (divide the sum of the daily high and daily low by two) is 15 to 20 degrees F less than the corn temperature. Then start the aeration fan and let it run until a cooling front moves all the way through the bin. During cooling, stored grain does not all cool at once. Instead, cooling takes place in a zone, or front, that is several feet thick and moves through the grain in the same direction as the cooling air.

(more)

The target grain temperature for winter storage in the upper Midwest is 20 to 30 degrees F. It often takes several cooling cycles to get grain cooled to this level. For example, it isn't unusual to have a corn temperature of 60 degrees F after dryer heat is removed. Cool the grain again in mid-fall when average outdoor temperatures reach 40 to 45 degrees F. Then, initiate the final cooling cycle in early winter when outdoor temperatures reach 20 to 30 degrees F.

The time it takes to move a cooling front through a bin depends mainly on the airflow per bushel provided by the aeration fan. As a rough rule, cooling time in hours is equal to 15 divided by cfm per bushel. Storage bins are often designed for an airflow of 0.1 cfm/ bu, so cooling times of 150 hours are common. The Minnesota Extension Service has a computer program available to help you estimate the airflow in storage bins.

Be aware that the calculation for cooling time provides only a rough estimate. You still need to measure grain temperatures at several points in the bin to verify that all grain in the bin has been adequately cooled. Once grain has been cooled to winter storage temperature, you can turn the fan off and leave it off unless abnormal outdoor temperatures or mold problems cause the grain temperature to change.

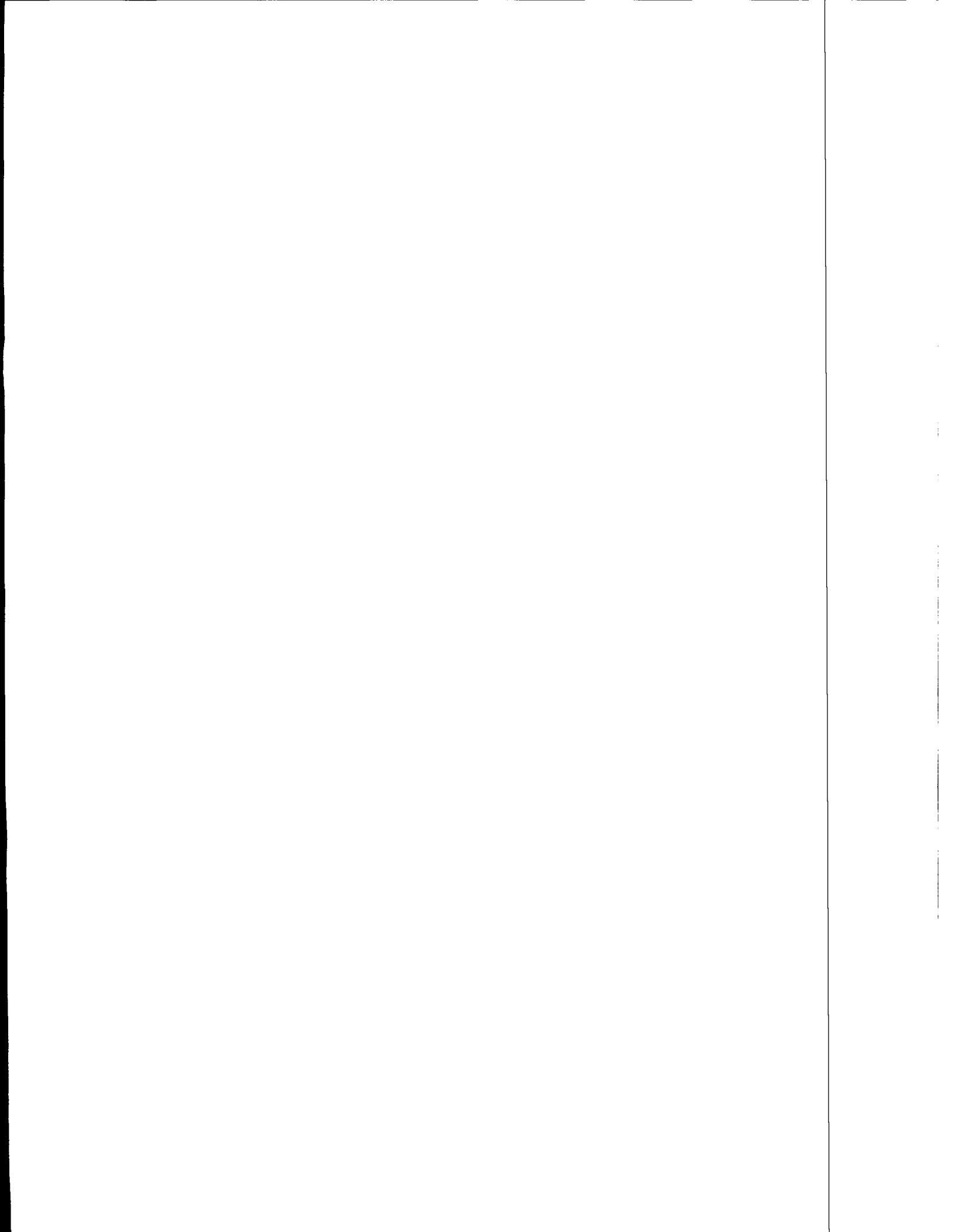
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Web,DTN,V2,F4,X2

NAGR5363

Source: Bill Wilcke, (612) 625-8205

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu



October 21, 1996

1996 Sheep Research Report available from University of Minnesota

Ram genetics, feeding supplemental yeast, skirting wool, and accelerated lambing are among the topics covered in a sheep research publication that is available by mail from the University of Minnesota.

The "1996 Minnesota Sheep Research Report" contains results and progress reports from the university's sheep research projects. Some of the other topics covered include artificial insemination, parasites, sheep barn organic dust, and feeding betaine to lambs.

Copies of the 56-page research report are available for \$5 each. Send a check payable to the University of Minnesota to Charles Christians, 101 Peters Hall, 1404 Gortner Ave., University of Minnesota, St. Paul, MN 55108.

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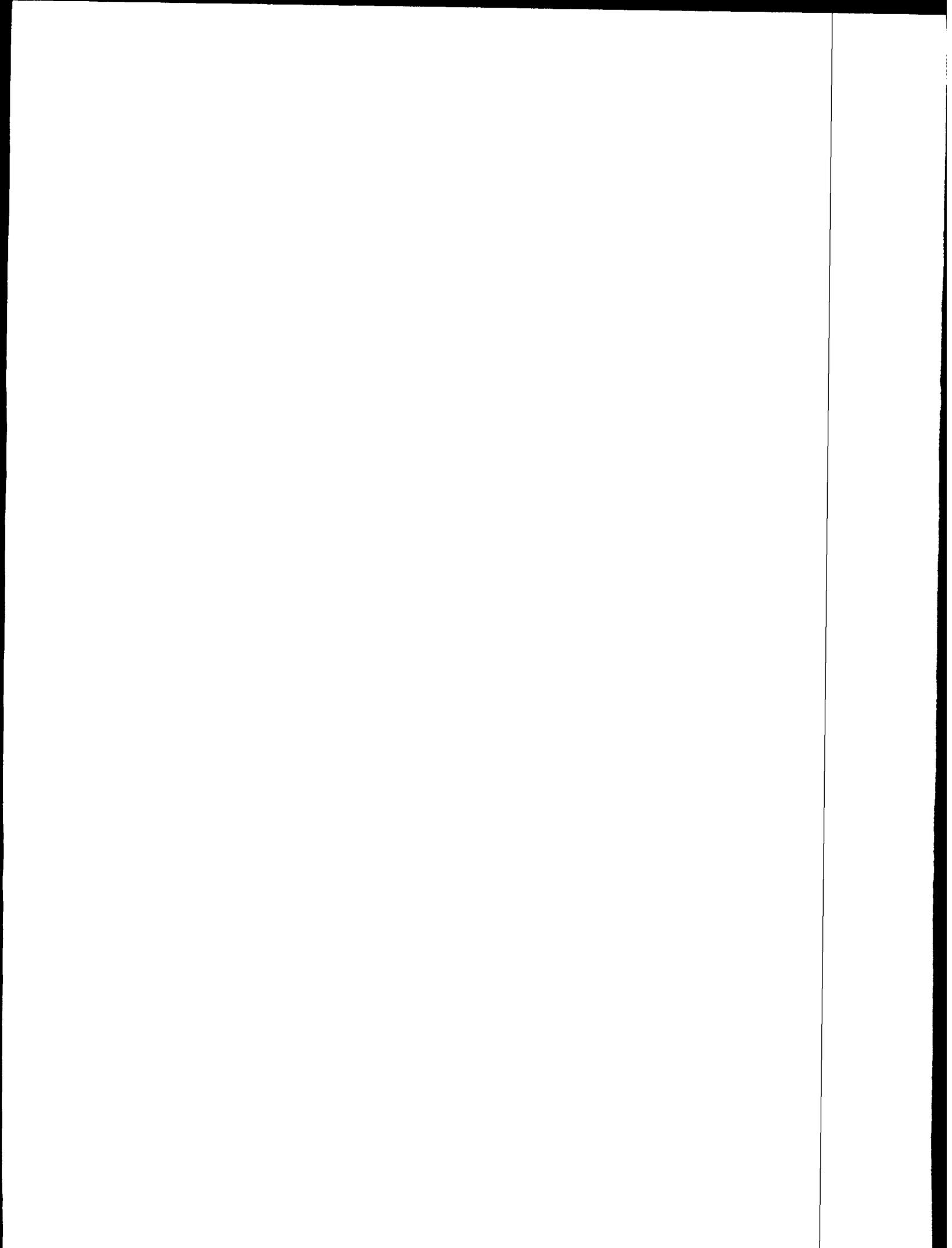
Web,DTN,V2,S1,X6

NEXP5364

Source: Charles Christians, (612) 624-0766
Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

(Page 1 of 1)





October 23, 1996

Poor school indoor air quality is issue for parents, too

School officials rate indoor air quality unsatisfactory in 30 percent of Minnesota's schools, according to a recent study by the U.S. General Accounting Office. It isn't just school officials who are concerned; so are parents. "Parents can promote healthy indoor air quality in schools in a number of ways," says William Angell, housing specialist with the University of Minnesota's Extension Service. However, Angell cautions parents to put risks at school in perspective. Some risks from poor indoor air quality (IAQ) are many times greater at home than at school.

"If your child has asthma, allergies or other respiratory problems," says Angell, "make sure school personnel are aware of your child's condition. Be clear that you expect your child to be reasonably protected from air quality conditions that may adversely affect your child's health." Examples of conditions which affect air quality, according to Angell, include having animals in a classroom and the presence of mold from leaks or spills and fumes from paint, finishes, solvents or toners.

Angell suggests asking school officials if an indoor environmental quality (IEQ) management plan has been implemented as part of the school's overall health and safety plan. If the school does not have an IEQ management plan, suggest that school officials get a copy of "Indoor Air Quality: Tools for Schools" from the U.S.

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Environmental Protection Agency (EPA)." Schools can request a free copy of the booklet by writing on letterhead to the EPA's Indoor Air Clearinghouse, P. O. Box 37133, Washington, DC 20013-7133. Ask for document number 055-000-00503-6.

If being indoors at school seems to make your child sick, ask your health care provider for assistance. "Your health care provider should be familiar with health effects associated with poor indoor air quality, or should be able to refer you to someone expert in the health effects of airborne pollutants," counsels Angell.

If your child experiences health problem from being indoors at school and the problems cannot be resolved with school officials, Angell suggests parents discuss with them the option of relocating the child to another classroom or another school.

Discuss your concerns with other parents. Is there a pattern to symptoms? Be supportive of school officials who are working to prevent and resolve indoor air quality problems, advises Angell.

Do your part to help your child. "If you smoke, for example," says Angell, "quit. If that's not possible, don't smoke indoors or let anyone else. Test your home for radon and install a carbon monoxide detector."

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Web,V2MN,V4,V5MN,V6MN,V7,V8MN,V9,E1,E3,F1,F2,Y1

NHEC5366

Source: William Angell, (612) 624-6786, wangell@che2.che.umn.edu
Writer: Jennie Y. Rominger, EDS, (612) 625-6294, jrominger@mes.umn.edu

October 23, 1996

Minnesota schools ranked 7th worst nationally for indoor air quality

School officials rate indoor air quality unsatisfactory in 30 percent of Minnesota's schools, according to recent data from the U.S. General Accounting Office (GAO) cited by William Angell, housing specialist with the University of Minnesota's Extension Service. The GAO survey ranked Minnesota seventh worst in indoor air quality nationally, with 19 percent of the nation's schools rated unsatisfactory.

If school officials' perceptions are correct, the indoor air quality (IAQ) problems in some Minnesota schools "could be partially due to the severity of our climate; we rely on mechanical ventilation to supply conditioned fresh outdoor air for much of the school year," says Angell. The view that climate is a significant factor in unsatisfactory indoor air quality in schools could also explain why Alaska has the worst school IAQ (50 percent rated unsatisfactory).

Wisconsin school officials ranked indoor air quality unsatisfactory in only 12 percent of their schools. If climate is a major factor, could school indoor air quality really be that much worse in Minnesota? Angell suspects that Minnesota school officials may have a greater awareness of concerns about school IAQ, so they are more likely to report indoor air quality as unsatisfactory. If this is the case, Angell says it's "good news since awareness is the first step to resolving indoor air quality problems."

(over)



Angell, who has researched school indoor air quality issues nationally, notes there has been very limited scientific inquiry into school indoor air quality. He favors a systematic examination, like a statewide survey, of indoor air quality in Minnesota's schools. Data collected could identify problems to be corrected and better characterize the impact of indoor air quality of the state's school children.

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Web,V2MN,V4,V5MN,V6MN,V7,V8MN,V9,E1,E3,F1,F2,Y1

NHEC5365

Source: William Angell, (612) 624-6786, wangell@che2.che.umn.edu

Writer: Jennie Y. Rominger, EDS, (612) 625-6294, jrominger@mes.umn.edu

October 24, 1996

Matching crop nutrient needs with manure supplies is growing issue

How do you even out crop needs for the nutrients in livestock manure with the amount of manure available? That's a growing issue for crop and livestock producers today, says Mike Schmitt, soil scientist with the University of Minnesota's Extension Service.

"If you sell crops off the farm, you may find you need more nutrients for the entire farm than the manure provides," says Schmitt. "If you purchase feed, your manure may contain more nutrients than you need."

If your farm, on a whole-farm basis, needs more nutrients than the manure has to offer, Schmitt recommends applying the manure based on the phosphorus content and supplementing with nitrogen fertilizer. At the same time, prioritize in your mind those fields that have the highest overall nutrient demand (the highest producing fields or fields with the lowest soil tests).

Another option, says Schmitt, is to import manure from a producer who has more supply than need. This should be a win-win situation. Often a deal can be worked out so that the seller receives some return for the manure, and the buyer gets the nutrients for less than commercial fertilizer would cost.

If your manure contains more nutrients than your crops need, Schmitt suggests several things you can do:

(over)



--Base application rates on the crop's nitrogen requirements (unless the soil tests high in phosphorus or there is potential for pollution of nearby water). Do not, however, exceed agronomic rates of application.

--Check your feeding program. It could be that you are giving your animals too many nutrients. Make sure you're feeding what your animals need, and no more.

--Maximize nutrient use. Consider planting earlier, using higher-yielding hybrids, increasing pest control, or adopting other cropping practices that will increase your yield and your nutrient use.

--Rent cropland or sell manure. If you have more manure than your cropland needs, the solution may be to apply it beyond your own boundaries. One way is to rent land. Another is to sell or barter the manure.

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Web,DTN,V2,B1,D1,F4,S2

NAGR5368

Source: Mike Schmitt (612) 625-7017

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

October 24, 1996

Test manure for nutrient content to get maximum value

To get the maximum value from the manure you apply to your fields, test the manure for nutrient content. That's the recommendation of Mike Schmitt, soil scientist with the University of Minnesota's Extension Service.

"Imagine using fertilizer without knowing anything about its N-P-K content," says Schmitt. "That's essentially what most farmers are doing when they spread manure, because different animals on different feeding regimens produce manure with different amounts of nutrients."

Collect a sample just before you drive off to the field, says Schmitt. You can use a can attached to a stick to sample liquid manure from the hauling tank, or use a shovel to sample solid manure from the spreader. Repeat for several loads and mix the samples in a larger bucket. Then take a sample from this bucket and send it to a laboratory for analysis (most labs that analyze feed or soil samples also test manure). Sample once every year or two and anytime you dramatically change feed rations or manure storage and handling systems.

"Numerical tables are available for estimating the nutrient content of manure," says Schmitt. "However, the numbers from the tables are only averages. The nutrient content of your manure may be very different."

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Web,DTN,V2,B1,D1,S2

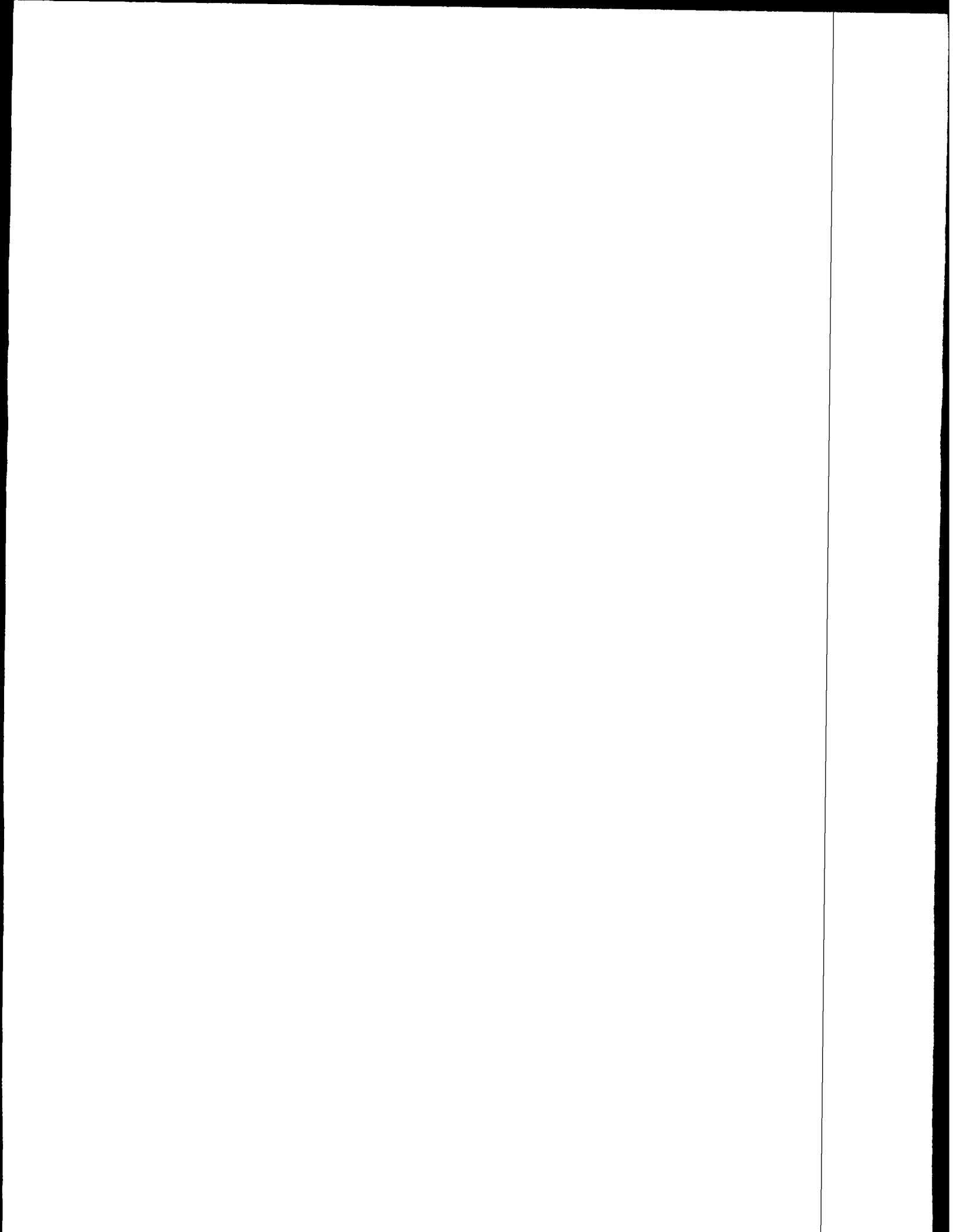
NAGR5367

Source: Mike Schmitt, (612) 625-7017

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

(Page 1 of 1)





October 25, 1996

Management methods for growing dairies will be on conference agenda

Dairy producers who want to grow and prosper can benefit from the management methods used to rebuild the Japanese economy after World War II. That's one of the messages a Wisconsin dairy producer will bring to an upcoming four-state dairy extension conference in St. Paul, Minn., and Dubuque, Iowa.

The conference, titled "Stepping into the Future: Expanding Dairy Profitability through Strategic Growth," will be November 13-14 in St. Paul at the Ramada Hotel, and November 14-15 in Dubuque at the Holiday Inn. Sponsors are the extension services of Iowa State University, the University of Illinois, the University of Minnesota, and the University of Wisconsin.

John Rosenow, a dairy producer from Cochrane, Wisc., will be one of the conference speakers. He will talk about setting goals for a growing dairy operation and implementing a plan to reach the goals. Rosenow believes 14 points of management developed by W. Edwards Deming are useful to dairy producers who want to grow and become more profitable. The methods Deming developed are credited with being a key factor in taking Japan from the rubble of World War II and one percent of the world's economy to prosperity and 10 percent of the world's economy in 30 years.

In a preview of his presentation, Rosenow says one of Deming's management points is to "cease dependence on mass inspection." This means, says Rosenow, that a

(over)



dairy must adopt processes that ensure quality. "The correct way is to create systems that result in good quality feed or milk," he says. "The incorrect way is to test the final product and then adjust your ration to fit poorer quality."

Another of Deming's points is to "end the practice of awarding business on price alone." Rosenow says if a dairy farm manager is buying hay from a number of suppliers based on price, he must have many specifications such as protein, relative feed value, moisture, bale size, color, and smell. If the cheaper load of hay varies considerably from previous loads, that will affect how it mixes, how it is consumed, or how the cows will respond. "If a relationship can be developed based on factors other than price alone, a uniform product from one or two individuals may prevent the losses that occur from the variation," says Rosenow.

The upcoming conference is designed for dairy producers considering changes to expand profitability, and for those who advise producers. University faculty, dairy consultants and producers will be on the program.

Some of the other topics on the agenda include planning for growth, economic benchmarks, labor management, managing risk, cow comfort, and manure handling. Round-table discussions and question-and-answer sessions are also scheduled.

The fee for the conference is \$150. The fee for additional persons from the same farm is \$95. For a registration brochure or additional registration information, call Leon Meier at (800) 367-5363 or (612) 625-2722. For more information about the conference program, call Joe Conlin at (612) 624-7497.

#

Web,DTN,V2,V4,D1,X3

NAGR5369

Source: Joe Conlin, (612) 624-7497

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

October 31, 1996

Workbook helps families plan for costs of raising children

Every parent knows their child is priceless, but the cost of raising that child is a different matter. When planning for the future, parents need to accurately estimate these costs. To help parents make those estimates, the Minnesota Extension Service has developed "The Cost of Raising Children," a workbook that walks readers through a national set of figures estimating the cost of raising children of several ages.

"The Cost of Raising Children" can be an important part of the planning process for two-parent families, one-parent families, and sets of one-parent families where children live with parents in different households. The information also can help families estimate costs when child support is being planned.

The workbook considers the costs of housing, food, transportation, clothing, health care, child care and education, as well as miscellaneous expenses. The information is easy to follow and the workbook gives readers both examples of how to keep records and a place to record their family information. The workbook can be used to record family costs monthly or yearly and provides the most current financial information.

"The Cost of Raising Children" is available from county offices of the Minnesota Extension Service (MES) or can be ordered from the MES Distribution Center (item BU-5899-NR) at 20 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN

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55108-6069. The price for Minnesota orders is \$4.28 per copy (includes tax and shipping); for outside Minnesota the price is \$4.00. Checks should be made payable to the University of Minnesota. To place a credit card order or obtain prices for more than one copy, call (800) 876-8636.

#

Web,V4,V5,V6,V7,V8,V9,A1,A3,C1,F3,H3,N1,T3

NHEC5371

Source: Jean Bauer, (612) 625-1763

Writer: Kathleen Cleberg, EDS, (612) 624-3259, kcleberg@mes.umn.edu

November 7, 1996

Program on profitable sheep production will be Dec. 6-7 in St. Cloud

Successful and profitable sheep production will be the focus of an upcoming "Shepherd's Holiday" in St. Cloud. The event will be Dec. 6-7 at the Best Western Kelly Inn in St. Cloud, and is sponsored by the Minnesota Lamb and Wool Producers Association. It's designed for persons involved or interested in sheep production, and includes a youth program and trade show. Several University of Minnesota faculty members are among the speakers.

The sheep seedstock industry in the U.S. will be the subject of the opening presentation at 1 p.m. Dec. 6. The speaker will be Bob Kimm, who teaches livestock production at Hawkeye Tech in Waterloo, Iowa.

The program will then move to the Armory in St. Cloud for a series of hands-on sessions. They will be on baby lamb techniques, hand spinning, forage quality testing, live sheep evaluation, blood collection for OPP/B. ovis testing, and getting more money for wool. Those leading the sessions will be Holly Neaton, Watertown, Minn. veterinarian; Sue Ross, Delano, Minn. wool crafter; Greg Cuomo, U of M forage scientist; Dan Durheim, U of M graduate student; Cindy Wolf, U of M veterinarian; and Bill Head, U of M sheep scientist.

The evening banquet speaker will be Hudson Glimp, University of Nevada sheep researcher. He will present a vision of the sheep industry's future.

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Topics and speakers Dec. 7 will be:

- The value of buying worthwhile rams, Kimm.
- Pasture management, Cuomo.
- Efficient lamb feeding with high-priced feed, Glimp.
- Results of Midwest farm flock survey, Head.
- Production records, Janet McNally, Pine City, Minn. producer.
- The best use of facilities, Kimm.
- Results of the National Sheep Health Survey, Wolf.
- Prairie Lamb Co-op, John Essame, Belview, Minn. producer.
- OPP testing, Judy Lewman, Mound, Minn. producer.
- Economics of raising sheep, Dave Resch, Scott County extension educator.

There is a registration fee discount through Nov. 23. For registration or other information, call George Mead at (612) 682-4626, or Linda Neumann at (612) 955-1525 or (612) 446-1405.

#

Web,DTN,V2,V4,S1,X6

NAGR5375

Source: Cindy Wolf, (612) 625-1780 or (612) 625-7755
Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

November 7, 1996

Store pesticides in separate facility

Store pesticides carefully. That's a key to avoiding contamination from pesticides, says Kevin Cavanaugh, University of Minnesota agronomist. Careful storage also preserves the quality of product and minimizes the risks to the environment.

"Start by reading the label to determine what special handling or storage requirements are necessary," says Cavanaugh.

Pesticides should be stored in a separate facility designated only for that purpose, he points out. "Having the pesticides isolated will help protect humans and animals from accidental exposure," he continues. "Be sure to lock the pesticide storage unit securely."

Materials that should not be stored in the pesticide storage unit include animal feed, seed, fertilizer and protective pesticide clothing. "Keeping these materials out of the pesticide storage unit will avoid contamination from spillage or chemical vapors," says Cavanaugh.

He recommends storing dry chemical products on shelves above liquid products to avoid contamination by leaks of liquid products. All bagged materials should be thoroughly sealed to prevent caking and chemical breakdown from moisture. Metal containers should be placed on wooden pallets to prevent corrosion from moisture. If

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herbicides are to be stored over the winter, inspect all bags for tears and check containers for possible leaks.

The pesticide storage facility should have a concrete floor to make cleanup of spills easier, says Cavanaugh. Having cleanup supplies available for chemical spills is essential. Supplies to have on hand include detergent, hand cleaner, water, absorbent materials such as sawdust or cat litter, a shovel, a broom and a fire extinguisher.

"A good pesticide storage facility should be well lighted, well ventilated, and well insulated," says Cavanaugh. "High temperatures can cause liquids to expand. If the storage unit is poorly insulated, fluctuating temperatures can cause liquid formulations to expand or, worse, catch on fire. Low temperatures can cause some liquid formulations to separate, making it difficult or impossible to mix them. Freezing of herbicides may cause physical separation of emulsifiable concentrate formulations."

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Web,DTN,V2,E4,F4

NAGR5372

Source: Kevin Cavanaugh, (612) 625-2778

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

November 12, 1996

Applying phosphorus when soil test levels are high is waste of money

Corn and soybeans will yield more when they grow in soil that has adequate phosphorus. But applying phosphorus is a waste of money if there's already enough of the element in the soil, according to a 20-year University of Minnesota study.

"Soil test surveys indicate that soil test phosphorus (STP) has been built to very high levels in many fields during the last 30 to 40 years," says Gyles Randall, soil scientist at the university's Southern Experiment Station at Waseca. "In the years 1991-93, 69 percent of the soil samples tested by the U of M Soil Testing Laboratory had STP values in the very high range, 21 parts per million (ppm) or higher. These very high levels are due primarily to a history of fertilizer phosphorus and/or manure application rates above what is removed by the crop."

Randall cites a study at Waseca from 1973 through 1993. The initial STP at the site was 20 ppm by the Bray method. Phosphorus fertilizer was applied annually in the fall from 1973 through 1984 at rates of 0, 50, and 100 pounds of phosphate per acre. Because the range of STP values varied widely at the end of the 12 years, no P was applied from 1985-1992, but residual effects of the earlier phosphate applications were measured.

Randall says yields were increased above the no-phosphate treatment by the 50-pound treatment in six of the 12 years when P was applied, and in all eight of the later

(over)



years due to the residual effect of the P. Yields were not further improved by the 100-pounds-per-acre phosphate treatment in any of the 20 years.

Yield data from the study allowed researchers to determine the critical STP concentration at which additional fertilizer applications did not increase corn or soybean yields. The data clearly showed that yields did not increase when STP was greater than 12.7 ppm Bray. Yield losses were greater than 25 percent when STP was less than 5 ppm. The response for soybeans and corn was similar.

Total economic return to fertilizer P applied during the 12-year fertilization phase was \$136 per acre for the 50-pound rate. But there was a loss of \$92 per acre over the same period for the 100-pound rate. When including the eight-year residual period, total return for the 20-year period was \$260 per acre higher for the 50-pound rate compared with the 100-pound rate.

"Results from this long-term study indicate that applying fertilizer phosphorus to maintain STP at levels greater than 20 to 25 ppm for corn and soybean production does not pay," says Randall. "However, maintaining STP in the range of 16 to 20 ppm with 40 to 50 pounds of phosphate per acre is an excellent management tool to optimize yield and profitability."

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Web,DTN,V2,F4

NEXP5376

Source: Gyles Randall, (507) 835-3620
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

November 12, 1996

Plan strategies to deal with work overload, time shortage

Too much work to do, and not enough time to get it done--that stressful feeling was reported by most of the 30 dairy farmers surveyed by a team of Minnesota Extension Service (MES) extension educators in 1993.

"A certain amount of 'gotta get it done' stress is valuable--it gets you up in the morning," says Madge Alberts, a member of the team who is now a program leader for the MES children, youth, and families initiative. "But too much of this stress just makes you feel bad."

If you need a better match between the number of hours in the day and the amount of work you have, Alberts offers the following ideas:

--Believe you can find a better balance. If you think the way things are is the way they have to be, they won't improve.

--Consider big changes. One farmer in the survey suggested shifting to rotational grazing to save time in the field. Or hire help. Changes like these don't mean you're wimping out. They mean you are smart enough to own a business without having the business own you.

--Schedule your time. Plan appointments in a single block so you're not stopping what you're doing to talk to sales reps and others. You can save time if you don't have to keep starting a job over due to interruptions.

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--Get enough sleep. Sometimes when you're too busy you don't get the rest you need to function well. You may be working longer, but you're probably working a lot less efficiently, too.

--Consult a management specialist who can help you find ways to work smart as well as hard, so you can get the same job done in far less time.

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Web,DTN,V2,A4,A2

NEXT5374

Source: Madge Alberts, (612) 624-9730

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

November 13, 1996

1996 Minnesota Cattle Feeder Days will be at Crookston, Morris, Slayton

Strategies to produce more efficient weight gain in feedlot cattle will be a main topic at the upcoming 1996 Minnesota Cattle Feeder Days.

These events will take place at three locations across Minnesota. The program will run from 10 a.m. to 3 p.m. and is similar at each location. The Cattle Feeder Days will be December 3 at Crookston at the Northwest Experiment Station, December 4 at Morris at Edson Hall at the University of Minnesota--Morris, and December 5 at Slayton at the VFW. Sponsors are the University of Minnesota, the Minnesota Beef Council and the Minnesota State Cattlemen's Association.

Topics and speakers will be:

- Strategies to improve efficiency of gain in the feedlot, Tom Peters, DeKalb Feeds.
- Economics of corn silage, Dave Kesteloot, Vigorena Feeds.
- Fine-tuning protein nutrition, Alfredo DiCostanzo, extension beef cattle scientist, University of Minnesota.
- Implanting strategies, Gary Sides, Hoechst-Roussel Vet.
- National Beef Quality Audit, Ron Eustice, Minnesota Beef Council;
- Hazard analysis and critical control points (HACCP), Keith Belk, Colorado State University.

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There will be a modest registration fee at each location. For further information call Larry Smith at Crookston at (218) 281-8602, Bill Zimmerman at Morris at (320) 589-7423, or Bob Koehler at Slayton at (507) 836-6927.

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Web,DTN,V2MN,B1,X1,51,80

NAGR5377

Source: Alfredo DiCostanzo, (612) 624-1272

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

November 15, 1996

As temperatures fall, stay warm by keeping covered, dry, layered

Doing three things will help you deal with Minnesota's very cold weather, says Sherri Gahring, textiles and apparel specialist with the University of Minnesota's Extension Service. She says to cover all parts of your body, dress in layers and keep dry.

"Heat escaping from your body takes the path of least resistance," says Gahring, "so you lose a high percentage of your heat through uncovered areas when you're outside in the cold. Up to 70 percent of heat loss is through the head, so hats are especially important. Exposed skin can also suffer frostbite."

Two or three layers of clothing provide more warmth than one thick one because air trapped between layers is a good insulator. Wet clothes lose 90 percent of their insulating value, so staying dry is vital. Gahring says, "Dressing in layers allows people to take something off when they're indoors and begin to perspire."

While the elderly and very young are most vulnerable to cold, babies require special care because they can get almost too hot when overdressed. Gahring says that babies who are cold have mottled or paler skin or a bluish hue inside the lower lip. Sweat and rosy skin are signs of being too warm. Here are tips for dressing babies in winter:

- * Change wet clothes and diapers immediately.

(over)



- * One-piece sleepers are warmer than two-piece sleepers.
- * Keep shirt cuffs dry.
- * Put older infants to bed in blanket-weight sleepers.
- * Babies' heads, hands and feet must be covered when they're outdoors.
- * Use at least two blankets--one heavy--when carrying newborns outside.
- * Protect babies' faces from windburn with a loose blanket or scarf.
- * Remove snowsuits or blankets when young children are in any warm place for an extended period.

Cold weather dressing tips for children and adults include:

- * Indoors--Wear two or three thin layers and keep arms and legs covered. Wear shoes, heavy socks and sweaters or shawls. Long underwear shouldn't fit too snugly. Thick and fuzzy fabrics such as Polar Fleece are warmest.
- * Outdoors--Keep your head and ears covered. Lined mittens are warmer than gloves. Wear warm, waterproof boots and wrap scarves around your neck. Avoid metal jewelry next to the skin.
- * Jackets--Winter jackets should have hoods. Look for jackets made of fiberfill with a high insulation value such as down or Thinsulate. Below-waist length is warmest. Adjustable cuffs and overlapping fabric covering front zippers or snaps provide added protection from the cold.

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Web,C2,V4,V8,V9

NHEC5379

Source: Sherri Gahring, (612) 624-1708
Writer: Jim Bohan, (612) 625-3168, news@mes.umn.edu

November 15, 1996

University of Minnesota Swine Health Clinics set in Marshall, New Ulm

An array of pork production techniques for improving profitability will receive attention at two upcoming University of Minnesota Swine Health Clinics. The clinics will be Dec. 4 at Marshall at the Best Western Hotel and Dec. 5 at New Ulm at the Holiday Inn. They are sponsored by the university's College of Veterinary Medicine.

The program will be similar at each location; University of Minnesota faculty members will be joined by local veterinarians, producers, and out-of-state speakers. Registration at each site begins at 8 a.m. and the program runs from 9 a.m. to 4 p.m.

There will be a general session in the morning at both sites. Topics and speakers include:

--Issues affecting the Minnesota swine industry, Dave Priesler, Minnesota Pork Producers Association.

--Common mistakes made in a breeding herd, Tim Loula, veterinarian, St. Peter.

--Achieving high health independent of herd size, Carlos Pijoan, U of M veterinarian.

--Producing safe pork, Thomas Blaha, U of M veterinarian.

The afternoon schedules include three concurrent sessions at both sites, and a fourth session at New Ulm. One session will be on using records to evaluate and optimize performance. Presenters will be Loula and Gary Dial, U of M veterinarian.

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Another session will be on making money with 200 or fewer sows. Topics include breeding and pig flow schedules; all in, all out; split sex feeding; and hoop housing. Speakers include Steve Pohl, South Dakota State University ag engineer; Mike Brumm, University of Nebraska swine scientist; and local producers Jerry Blankers of Lake Wilson (at Marshall) and Mark Longenecker of Minnesota Lake (at New Ulm).

A third session will be on odor and manure management and will feature U of M ag engineers Larry Jacobson and Dick Nicolai.

There will be a fourth session on nutrition at New Ulm only. It will center on micronutrients and feed additives, including phytase, chromium, acidifiers, and chelated minerals. Jerry Shurson and Jim Pettigrew, U of M swine nutritionists, will be presenters.

Registration fee for the swine health clinics is \$40; additional persons from the same farm may register for \$25. To obtain a registration brochure or additional information, call Peg Naumann at (800) 380-8636 or (612) 624-3434.

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Web,V2,S2,X5

NAGR5378

Source: Peg Naumann, (612) 624-3434

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
9/27/96

November 18, 1996

Survey provides ideas on how to make life on the farm even better

Dairy farming is a great way of life, say dairy farmers and spouses surveyed by a team of extension educators with the University of Minnesota's Extension Service in 1994. But comments from the survey also show there is room to make life on the farm even better.

Madge Alberts was a member of the survey team and is now a program leader for Extension's children, youth, and families initiative. Based on the survey, Alberts and her colleagues offer the following ideas for building on the positives and minimizing the negatives:

--Make a list of what you like about farming. Look at it when things get you down.

--Find a good financial consultant and do a financial (enterprise) analysis of your farm. Set up a good farm record system, and develop short- and long-term goals.

--Develop interests outside of farming. Do something fun with your family on a regular basis. Take a vacation at least once a year.

--If you involve your children in the farm, give them jobs that are appropriate for their ages and don't expect them to perform perfectly when they're learning. Remember that schoolwork and extracurricular activities are important, too.

(over)



--Share household chores as well as farm chores.

--If more than one generation is involved in the farm, clearly establish your various roles. Make concrete plans well in advance for transferring the farm to the younger generation to help prevent the possibility of having to make important business decisions in a crisis time.

--Talk with your spouse about how well you are balancing farm and family. Seek others' advice on finding a good balance.

--Keep the lines of communication open with your banker, veterinarian, seed supplier and other people you work with. Bring them together as a team once a year to get a balanced perspective on how you can make your farm better.

--Take time each day to talk--and listen--to your spouse and children.

--If you have children, remember that your job includes parenting as well as farming. Don't just assume that your spouse is raising the kids. Talk over and agree on how you will share the responsibilities.

--Take pride in your strong work ethic, but don't get carried away with it. Take at least an afternoon off a month to do something away from the farm.

--Try not to be a perfectionist. Let others help you even if they don't do things exactly your way.

--If you have hired help, formalize the relationship with a job description, performance manual, business meetings and so on. Take time to find good help and treat them right.

--Consider your health and your family as important as your farm. Include them in your business plan.

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--Be sure to cultivate a love and concern for the people in your life that's at least as great as what you feel and show towards the farm.

--Create times when the farm isn't hanging over your head. You should be able to enjoy your family without thinking about that heifer that's due to freshen or what to plant north of the house.

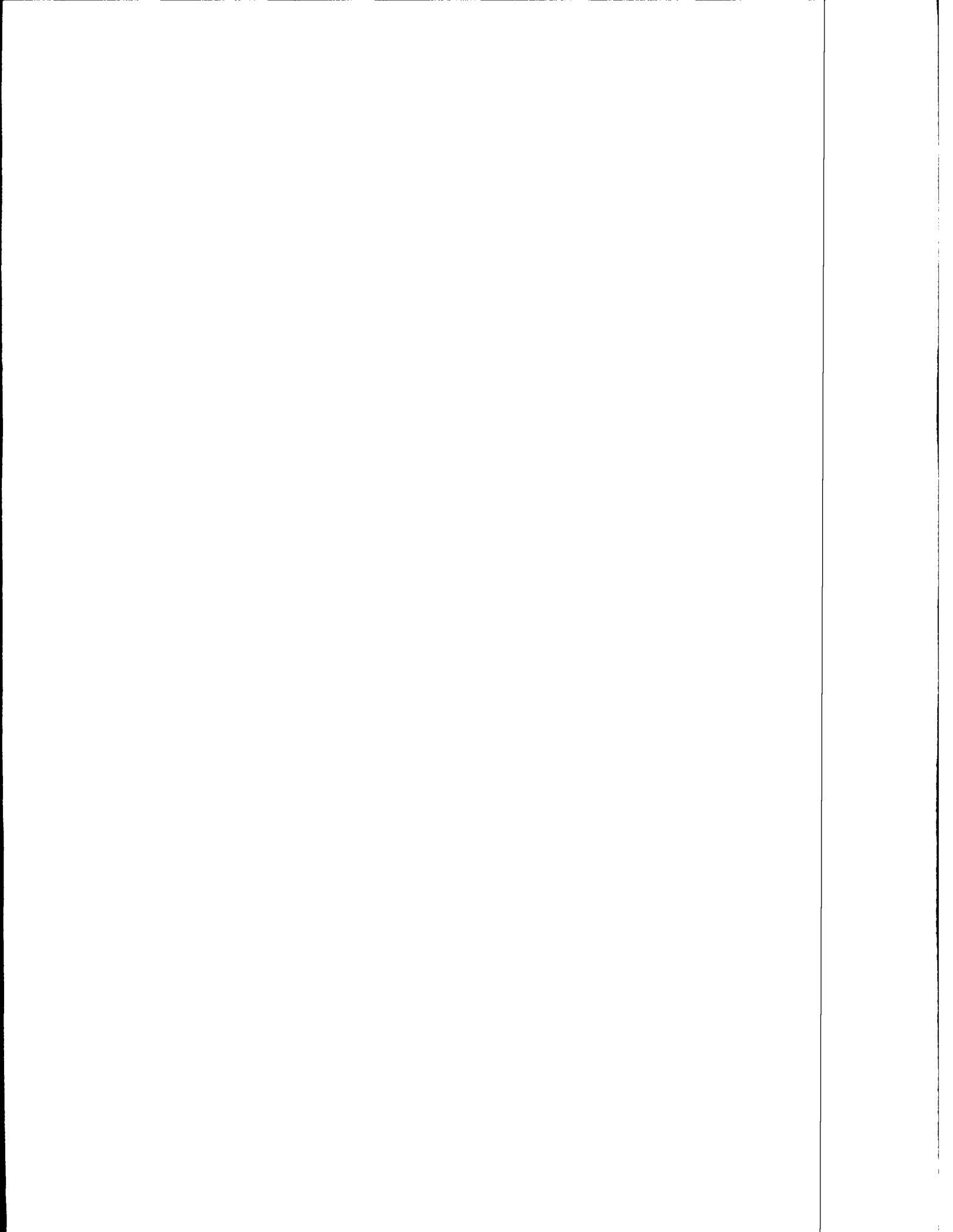
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Web,DTN,V2,V4,D1,F1,F2

NAGR5381

Source: Madge Alberts, (612) 624-9730

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu



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November 18, 1996

Dairy farmers report advantages, disadvantages of their way of life

Independence and raising families in a healthy environment are two things dairy farmers said they like most about their jobs in a 1994 Minnesota survey. A team of extension educators with the University of Minnesota's Extension Service interviewed 30 dairy farmers and spouses chosen randomly from the more than 1,000 dairy farms in southeastern Minnesota.

"Dairy farmers interviewed liked being able to blend their work and family lives," says Madge Alberts, a member of the survey team who is now a Minnesota Extension Service program leader. "They appreciated being able to share work and rewards alike with spouses and children. They also cited being able to set their own routine and hours and not having to commute to work as advantages of dairy farming. In addition, many talked about being attached to their cows. Watching and being a part of the life cycle, such as when a cow has a calf, was important to them."

On the other side of the coin, farmers interviewed readily admitted that they get little quality time with their spouses and children. For many, family relationships are as much business relationships as anything else. "Many commented on the long work hours and the fact that the farm and its worries are always there," Alberts reports.

She says one farmer who called his herd "the girls" was very honest about how his wife fit into the picture. "On the farm, I'm married to those girls first and she comes

(over)



second," he said. His wife, who also was interviewed, was not thrilled with this placing on his priority list.

Alberts says financial issues and worries were common among those interviewed. "Half the wives in the study worked off the farm, adding income but also challenges to the family," she says. "Many farmers disliked the uncertainties involved in growing crops, selling milk, borrowing money, and buying medical insurance."

Finding and keeping good hired help was mentioned as another difficulty. Passing the farm from one generation to the next was also a source of stress. Some parents questioned their adult children's choice to make changes in the operation.

"The balance of work between husband and wife was mentioned frequently as a source of conflict," says Alberts. "Many women felt that parenting and homemaking rested largely on their shoulders even though they might be sharing the farm chores or working off the farm, too."

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Web,DTN,V2,V4,D1,F1,F2

NAGR5380

Source: Madge Alberts, (612) 624-9730

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

November 26, 1996

Study finds safest way to zap a burger

How well do E. coli bacteria, which can cause serious illness, survive microwave cooking? After conducting the most exhaustive study of this question, University of Minnesota food safety expert Ed Zottola says, "Our results clearly show that the power of the microwave oven and the configuration of the heating pattern markedly affect the thermal destruction properties." Zottola offers this advice to consumers: For safety's sake, "base your cooking on the time it takes in the coldest spot in your oven."

This advice may seem backward. Wouldn't the hottest part of the microwave oven get the cooking done quickly? The problem is that the highly irregular heating patterns of most microwave ovens can leave part of the food undercooked. Research assistant Sophia Czechowicz explains that the microwave heating process is different from conventional oven heating. Microwave heating is somewhat uncontrollable because there isn't a constant temperature--the power pulses on and off--and the heat distribution is very uneven, extremely so in some brands of ovens. It's better to cook slowly and safely.

Zottola and Czechowicz should know. They cooked and analyzed over 1,000 hamburgers in their laboratory. The food scientists began by determining how much microwave energy it takes to destroy E. coli bacteria, which can cause painful intestinal disorders. They inoculated ground beef with the pathogen, prepared uniform patties,

(over)



cooked them and looked for surviving organisms. The search was exhaustive, with samples of each cooked burger incubated for 4 days, then analyzed again for bacteria.

Then they compared different brands of microwave ovens to see how effective different heating patterns were in destroying *E. coli*. In full-size ovens with power ratings over 800 watts, quarter-pound burgers were free of the bacteria after 2.5 minutes on high power. In the ovens with power ratings less than 800 watts, longer cooking times were needed. An industrial oven was also tested and took only one minute to destroy the bacteria.

The researchers used a unique but simple method to find the cold spot in each oven. They covered the entire bottom of the oven with thermal fax paper and cooked it on high power for five minutes. Since the paper is heat sensitive, hot spots turn the paper dark and the cold areas leave the paper white. The result is a map of hot and cold areas. (Caution: If you try this in your own microwave, do not heat the fax paper for longer than five minutes or it may catch fire.)

During the burger tests the temperature was monitored by probes placed in the coolest locations within each patty. And, as anyone who has watched food being zapped in a microwave knows, the edges heat up first. The study showed that the center, top surface of the hamburger was the last area to cook. To speed up the cooking and eliminate the center cool spot, the researchers developed and tested a burger with a hole in the middle. "The donut-shaped burger reduced cooking times by 15 to 20 percent," Zottola notes.

From a safety standpoint, "what you want to do is cook in the cold spot of your oven," Zottola summarizes. It will take a little longer, but it ensures that all parts of the

(more)

food will be thoroughly and safely cooked. In addition to being useful to individual consumers, the methods can be adapted by the fast food industry to improve preparation of hamburgers.

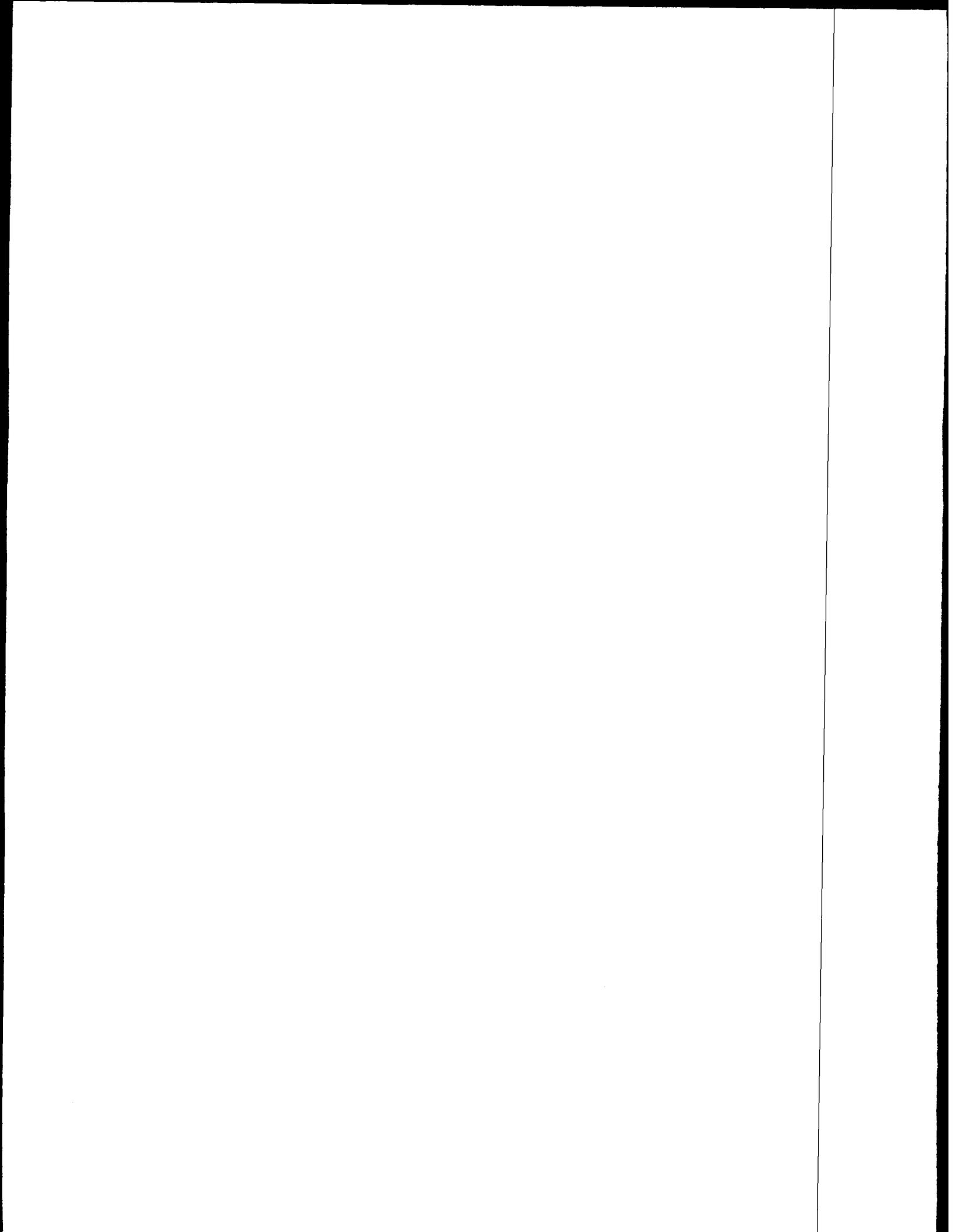
Funding for this University of Minnesota, Agricultural Experiment Station study was provided by the Minnesota Beef Council. "Food safety is the responsibility of everyone in the food chain, from farm to fork," says council executive director Ron Eustice. "Our goal is to eliminate any food pathogen in the food supply, and this research is a major step in that effort."

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Web,V4MN,V5MN,V7,B1,F3,F6,F7,H4

NEXP5388

Source: Ed Zottola, (612) 624-9274, zotto001@maroon.tc.umn.edu
Writer: Dave Hansen, EDS, (612) 625-7290, dhansen@mes.umn.



December 4, 1996

Don't introduce infected cattle into dairy herd

If you plan to bring new animals into your dairy herd, be careful to avoid the introduction of infectious disease. Jerry Olson, veterinarian with the University of Minnesota's Extension Service, suggests the following strategies to prevent the introduction of infected cattle:

- Only purchase cattle from herds with known health status.
- Only purchase animals from herds with a known effective vaccination program.
- Avoid purchasing cattle from unknown sources or from commingled sources.
- Transport purchased animals in farm-owned trucks or require that hired transporters start with a sanitized truck.
- Isolate and monitor purchased cattle for 30 days before allowing contact with the herd.
- Test new herd additions for infectious diseases before introduction to the herd.
- Above all, have a sound vaccination program in place in your resident herd to protect your animals from potential diseases brought into the herd by new arrivals.

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Web,DTN,V2,D1

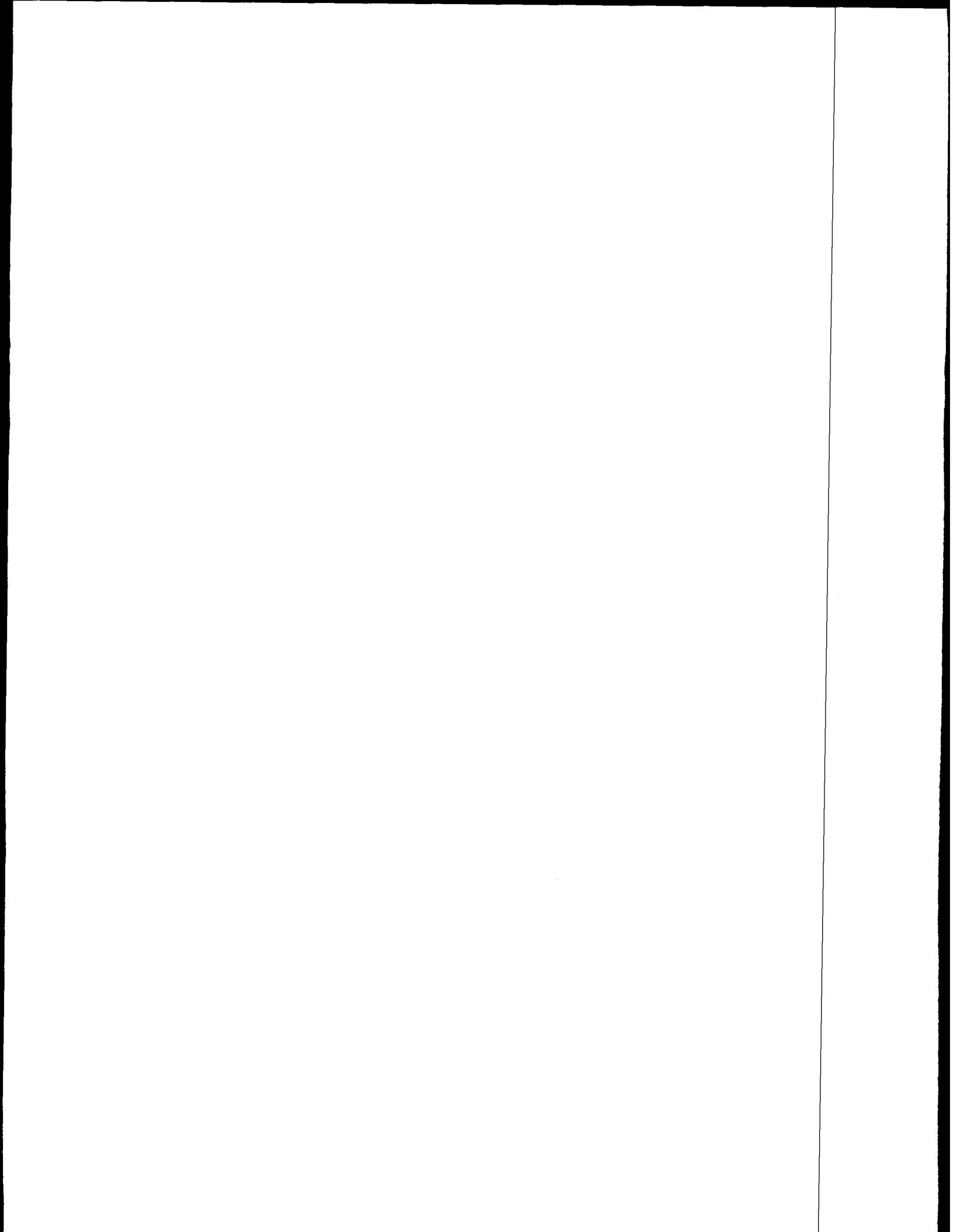
NAGR5391

Source: Jerry Olson, (612) 625-0280

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

(Page 1 of 1)





MSC
2/12/96

December 4, 1996

Minnesota study shows weaning dairy calves early brings added profit

Weaning dairy calves at four weeks of age is more profitable than weaning at eight weeks of age, a recent University of Minnesota study indicates. The study also shows that, with proper management, early weaning has no apparent detrimental effect on the calves.

George Marx, dairy scientist at the university's Northwest Experiment Station at Crookston, conducted the study there. "The Northwest Experiment Station dairy herd has followed a four-week weaning regime successfully for a number of years," says Marx. "However, the average age at which producers wean dairy calves is 7.9 weeks, as reported by the USDA in the National Dairy Heifer Evaluation Project."

The Crookston study involved 40 dairy calves in a comparison of four-week and eight-week weaning. The calves received colostrum for the first three days and then whole milk for the rest of the four-week or eight-week period. After day three, all received an 18 percent protein grain starter, balanced to National Research Council standards, fed free choice. Forage was also fed free choice after four weeks.

The early weaned calves consumed 95 percent more grain starter and 45 percent more forage than the other group. The late weaned calves required twice as much milk

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and gained 27 percent more weight. The early weaned calves had 33 percent lower feed cost (\$42.10 versus \$63.25). No unusual health problems and no deaths occurred in either group.

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Web,DTN,V2,D1

NEXP5392

Source: George Marx, (218) 281-8606

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
9/27/96

December 4, 1996

Farming practices can result in less phosphorus entering lakes, streams

Reducing the amount of phosphorus going into lakes and streams is a key factor in improving the cleanliness of these surface waters. Two farming practices can be very useful in minimizing the amount of phosphorus going into surface waters, says a soil scientist with the University of Minnesota's Extension Service.

"Most of the phosphorus that reaches surface waters is attached to sediment," says George Rehm. "The sediment is carried into the lakes and streams through soil erosion, often coming from farm fields."

Rehm says research has identified two very important practices for minimizing phosphorus losses from farm fields. One is to use tillage systems such as ridge-till and no-till that reduce soil erosion. The other is to apply phosphorus fertilizer below the soil surface.

Rehm says results of a recent Kansas study on tillage systems and phosphate fertilizer placement show the value of these practices. "As might be expected, phosphorus losses were reduced when crop residue remained on the soil surface, as is the case with ridge-till and no-till," he says. "The importance of ridge-till in reducing soil erosion has been recognized in Minnesota for some time. This information supports the use of ridge-till for fields where soil erosion is a major concern."

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He says the Kansas study also showed that phosphorus losses from fields were lower when the phosphorus was applied in subsurface bands rather than broadcast on the soil surface.

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Web,DTN,V2,V4MN,C4,F4

NEXP5393

Source: George Rehm, (612) 625-6210

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

December 5, 1996

Milk price disparity may prove only temporary

Major Twin Cities milk bottlers announced a price increase of 15 cents per gallon on their products in November. This was despite the fact that prices for manufacturing milk have dropped from a record high \$15.37 per hundredweight in September to \$14.13 in October.

Jerry Hammond, economist with the University of Minnesota's Extension Service, says that some Minnesota dairy farmers and consumers are concerned that the recent decline in the farm milk price has been met with an increase in the price of fluid milk. But their alarm may not be justified. "It takes a while for processors to pass on price changes," says Hammond, "and the disparities in prices movements may be short-lived."

Hammond says that the cause for the conflicting price directions is simply a government-administered price program. This program occasionally leads to inconsistent price movements within dairy markets. For example, the industry experienced a major price run-up beginning in January of this year. Such an increase would usually abate by early summer. But low stocks in dairy products early in the year, together with other factors, perpetuated the run-up through the fall. "Over-extension of the market resulted in abnormally high prices by September," says Hammond.

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In October, prices for cheese, butter and milk powder began a precipitous decline, reducing the prices that processors can pay for milk used in these products. However, prices charged to processors for milk used in fluid products is administratively fixed by the government program. This ties their price to the manufacturing milk price, but with a two-month delay.

The November fluid milk prices paid by bottlers were based on the September manufacturing milk price--the record high for the year. Thus, this increased input price was passed on to consumers in November.

Hammond believes that the farm prices have begun to return to more normal levels. He says that the national average for farm milk has stood between \$12.50 and \$13 per hundredweight since 1990. He expects prices to continue to fall in line with this average.

Furthermore, consumers are likely to see retail dairy prices follow suit, but with a delay. Hammond dismisses suggestions that milk bottlers are getting rich at the expense of farmers. "Milk costs to processors will decline in December and January," he remarks, "and, presumably, these will be passed on in the form of retail prices."

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Web,V2MN,V4,V7,A2,D1,X3

NAGR5394

Source: Jerry Hammond, (612) 625-2749

Writer: John Winzenburg, (612) 625-3168, news@mes.umn.edu

December 9, 1996

'97 Minnesota Gardening calendar has raised bed gardening guide

More Americans garden than participate in any other pastime. However, some people find it difficult, if not impossible, to enjoy America's number one hobby because of physical limitations.

That's when raised bed gardening makes sense. This centuries-old technique not only brings the soil level up to a working level, making it possible for the physically disabled and elderly to garden, but also can improve the health and productivity of a garden.

"If they're properly constructed, raised beds can have better soil structure and drainage, which warms the soil earlier in the spring, giving you a head start," says Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

How does one construct a raised bed garden? The answer lies in a one-page guide to raised bed gardening in the "Minnesota Gardening 1997" calendar.

The raised bed gardening guide is only one of the calendar's useful features. The only gardening calendar designed especially for Minnesota, its cover features a full-color photo of Duluth's Leif Erickson Memorial Rose Garden with the Aerial Lift Bridge in the distance.

In addition to a color photo for each month, the spiral-bound calendar features timely tips for yard, garden and houseplant care and a list of helpful publications.

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Other features gardeners will appreciate include a page for notes; USDA plant hardiness zone and average last frost date maps for Minnesota; and a directory of county extension offices and information about horticultural education programs, services, facilities and organizations in Minnesota.

Calendar sales help fund the activities of Minnesota Master Gardeners and the development of new educational materials. The "Minnesota Gardening 1997" calendar is sold at county offices of the Minnesota Extension Service. Or, you can place a credit card order for it by calling (800) 876-8636 or (612) 624-4900 and asking for item MI-5741-NR3. The calendar costs \$7.50 (\$6.75 if you order 5 or more) plus shipping and sales tax (where applicable).

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Source: Deborah Brown, (612) 624-7491, dbrown@mes.umn.edu
Writer: Sam Brungardt, (612) 625-6797, sbrungardt@mes.umn.edu

Web,E2MN,H1MN,SelMedia

NAGR5396

MSC
9 A & 1 p

December 10, 1996

Parents can teach children the spirit of holiday giving

Parents can help instill a sense of holiday giving in their young children by involving them in holiday preparations and by passing on tradition, according to a family sociologist with the University of Minnesota's Extension Service.

Ronald Pitzer says that kids can easily become accustomed to the idea that Christmas is only for receiving. Including them in family traditions is a good way to instill in them the true meaning of the holiday. "I'd like to see parents help their children understand that they're not the only ones to receive," says Pitzer. "They should begin a pattern when the children are very young."

Children respond differently to the holiday season at different ages, according to Pitzer. Christmas means little to kids of pre-language ability. They merely marvel in curiosity at the sight of holiday decorations or tremble with fear at Santa Claus.

But as they begin to acquire language ability, children come to associate Santa Claus and the baby Jesus with all the other playful symbols of the season. Three-year-olds are likely to become excited by the Christmas tree, the colorful wrapping paper, and the jolly man in red. By the time they are four, children are often ecstatic about all the treasures that await them come December. After that, says Pitzer, the holiday increases in significance to kids throughout their elementary school years.

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Pitzer believes it is important to get an early start at teaching the true meaning of Christmas as this process evolves. He encourages parents to start by talking to children about the holiday tradition and reminding them that the season is one of receiving for others as well.

More importantly, you can help your children see themselves as givers. Include them in the giving side of the gift exchange. Children can make simple art pieces for close friends and family members; showing your appreciation for any effort makes them feel it was worthwhile.

Also, let your children participate in the choice of gift purchases. Encourage them to set aside even a little money for purchases you make together. To them, this will be just as significant as your own contribution. "If they can lay aside their own self-centeredness for the short time that they go to the mall," says Pitzer, "then this is a step in the right direction." Pitzer finds it particularly valuable when kids give to someone from whom they won't expect anything back, such as shut-ins or groups that donate gifts to underprivileged children.

As they grow up, children should be aware of the reason we celebrate Christmas. Take time to tell them how rituals are tied to religion, culture and family traditions. Pick out a few of the holiday television specials for the entire family to watch together, especially those that show how past generations celebrated. And look for opportunities to share your own rich memories of past holidays.

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Web,V4,V5,V7,V8,C1,F1,Y1

NHEC5397

Source: Ronald Pitzer, (612) 625-8169

Writer: John Winzenburg, (612) 625-6243, news@mes.umn.edu

MSC
9/27/96

December 17, 1996

Dairy goat conference set for Jan. 18, 1997, on U of M St. Paul campus

If you raise goats or have an interest in the animals, a January 18 program on the University of Minnesota's St. Paul campus is designed for you. The 19th annual Dairy Goat Conference will take place in the lower level of the Classroom Office Building. It's designed for those with an interest in any phase of dairy goat production, including producers, 4-H members, 4-H leaders, veterinarians, veterinary technicians and persons considering whether to raise goats.

Registration for the program opens at 8 a.m. Jan. 18, and the program runs from 8:50 a.m. to 4:45 p.m.

Joan Dean Rowe, a professor of veterinary medicine at the University of California--Davis, will be the featured speaker. She will lead off the conference in the morning with a presentation on caprine arthritis-encephalitis (CAE). Later in the morning she will give a presentation on caseous lymphadenitis abscesses. In the afternoon she will give two presentations, one on preventing disease transfer on the farm and one on kidding and obstetrics.

There also will be two concurrent sessions in the morning. Bev Nohr, a dairy goat breeder from Delano, Minn., will talk about 4-H records. Carla Kuehn, a University of Minnesota ruminant nutritionist, will discuss feeding forages to goats.

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Concurrent sessions also will take place in the afternoon. Nohr will discuss 4-H resources for goat keepers, and Jeanne Leger, a commercial goat milk producer from Austin, Minn., will present a photo tour of her farm.

The conference also will include an auction of three goats, donated goat memorabilia, tack and other items. Proceeds will go to the American Dairy Goat Association National Show Fund.

Registration fee for the conference is \$22 for the first adult from a family and \$10 for each additional adult family member. There is no charge for family members under 18. A box lunch is available for \$6. To register, send a check payable to the University of Minnesota to Registrar--1997 Dairy Goat Conference, Extension Special Programs, PO Box 64780, St. Paul, MN 55164-0780. For a conference brochure or additional information, contact Leon Meger at (800) 367-5363 or (612) 625-2722.

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Web,V2,V4,V5,P1,S1

NESP5402

Source: Leon Meger, (612) 625-1214

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

December 13, 1996

Dairy scientists list questions to ask in considering grazing

Using grazing is one option for dairy producers seeking to reach goals for profit, environmental conservation and quality of life. There are important questions to ask in considering the grazing option, two scientists pointed out at a recent four-state dairy conference. University of Minnesota dairy scientist Dennis Johnson and Iowa State University economist Tony Harvey cited the following key questions. The questions were compiled by Cornell University Cooperative Extension:

- (1) Am I willing to invest less in equipment and other purchased inputs and more in management?
- (2) Do I have adequate and accessible pastures for lactating cows, dry cows, and heifers?
- (3) Am I willing to deal with fencing?
- (4) Can I provide an adequate water supply?
- (5) Am I willing to monitor the pastures regularly?
- (6) Will I accept lower milk production per cow?
- (7) Can I live with less gross income and more net income?
- (8) Am I willing to manage animals more closely as far as bloat and parasites are concerned?

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- (9) How much can I expand herd size and still be able to use rotational grazing?
- (10) Am I willing to go through the learning curve?

Johnson says farmers who are considering grazing should join a graziers' circle. That is a group of farmers who meet regularly to look at each other's pastures and share information gained through experience. Information on graziers' circles is available through local extension offices or local chapters of the Sustainable Farming Association.

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Web,V2,A2,D1

NAGR5399

Source: Dennis Johnson, (320) 589-1711
Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
e AD 7 p

December 13, 1996

Growing dairy heifers on contract presents opportunities, pitfalls

Growing dairy heifers on contract can be a successful business in the Upper Midwest, but isn't likely to be a path to easy money. It has been a viable business in the western states for years, says Dave Kjome, southeast Minnesota dairy educator with the University of Minnesota's Extension Service.

"There are a number of very successful contract heifer growers in the Upper Midwest, and more people are interested in getting into the business," says Kjome. "Last winter, four meetings in Minnesota on the subject drew over 440 people."

Kjome says the business requires a person who understands how to manage heifers, control costs, promote the business and deliver good service.

"Currently there's a mentality that says a lot of people have a little spare time, an extra pasture, some stored feed, and some vacant dairy facilities, and could make some easy money growing heifers," says Kjome. "Some of these people may be retired dairy farmers who never had records or an understanding of what it costs to raise heifers. They may tend to underestimate costs, charge too little, and end up delivering inferior heifers or losing money."

As with other businesses, starting a dairy heifer growing business can involve a lot of start-up aches and pains, says Kjome. Lack of established benchmark information

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to use as a guide is a problem. This can lead to a trial-and-error approach, with considerable error in the beginning. Also, potential clients may be wary until the business establishes a successful track record. Since commingling of heifers originating from different farms is a concern, a disciplined and documented herd health plan is crucial.

Kjome says the marginal return per heifer is low. "High stocking rates, probably in the 300 to 800-head range, are necessary if the operator expects to make a decent living," he points out.

Some contract heifer growers specialize in baby calves, others in adolescents, and still others in post-pregnant heifers. Some raise all age groups. Some use pasture, and others use confinement and stored feed.

"People looking at contract heifer raising need to prepare themselves well before entering the business," says Kjome. "They can attend meetings on heifer raising, read the literature and visit successful established operations."

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Web,V2,A2,D1

NAGR5398

Source: Dave Kjome, (507) 280-2872

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

December 13, 1996

Grazing presents opportunities, challenges to dairy producers

Dairy producers who want to add cows to their operation may consider the use of grazing. Grazing presents both opportunities and challenges, say two university scientists. University of Minnesota dairy scientist Dennis Johnson and Iowa State University economist Tony Harvey discussed grazing at a recent four-state dairy conference.

One of the advantages of grazing is the cost for adding a cow. Johnson and Harvey say the cost for adding a cow in a grazing system with no barn housing or with use of existing housing may be as low as \$50 to \$100 per cow, for fencing and water. The cost for a tie stall is at least \$1,500-\$2,500 per stall. The cost in a free stall and feed area with no milking system addition is somewhere in between the cost with the other two systems.

Johnson and Harvey list other opportunities with grazing as follows:

- Reduces the need for forage storage, manure storage, farm equipment and housing.
- Takes greater advantage of ground that is productive, but fragile.
- Adds cows for only the investment cost of the cow and some fence.
- Allows for expanding with a reduced increase in debt.

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Johnson and Harvey list the following challenges with grazing:

--Learning how to replace purchased inputs with new intensive management skills.

--The likelihood of less milk per cow.

--Less control over rations.

--Reducing the fixed cost of producing a hundredweight of milk.

--Higher labor requirements at certain times, such as with calving and moving cattle.

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Web,V2,A2,D1

NAGR5400

Source: Dennis Johnson, (320) 589-1711

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

December 17, 1996

University of Minnesota plans swine days at 3 locations

Boar nutrition and odor research are among topics that will receive attention at three upcoming University of Minnesota Swine Days. The events will be January 7 in Rochester at the Olmsted County Fairgrounds, January 8 in North Mankato at South Central Technical College, and January 9 in Morris at Edson Hall on the University of Minnesota--Morris campus.

The program will be similar at each location. Registration opens at 9 a.m. and the program goes from 9:30 a.m. to 3 p.m. A \$12 registration fee includes lunch and a proceedings booklet.

Topics and speakers in the morning will be:

- Feeding high-producing sows, Jim Pettigrew, U of M swine nutritionist.
- Chelated trace minerals in swine diets, Jerry Shurson, U of M swine nutritionist, or Troy Salzer, graduate student.
- U of M swine research update, Pettigrew.
- What the Lemman Chair will do for pork producers, Thomas Blaha, U of M veterinarian.
- Concerns with outdoor air quality, Dave Nelson or Randy Ellingboe, Minnesota Pollution Control Agency.

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In the afternoon there will be two sets of concurrent sessions. One will be on boar nutrition, genetic evaluation and segregated early weaning. Speakers for that session will be Pettigrew; Chuck Christians, U of M animal scientist; and Roger Walker, U of M animal scientist.

The other set of concurrent sessions will be on swine odor research at the U of M, using PIGNET software to value pigs at various production stages and feeding high-oil corn. Speakers will be Larry Jacobson, U of M agricultural engineer; Bill Lazarus, U of M economist; and Lee Johnston, U of M animal scientist, or Kendall Langseth, Freeborn County extension educator.

For further information on the programs at Rochester or North Mankato, call (507) 835-3620. For further information on the program at Morris, call (320) 589-1711.

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Web,V2MN,S2,X5

NAGR5401

Source: Lee Johnston, (320) 589-1711

Writer: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

December 18, 1996

Now is good time to assess performance of grain drying system

This is a good time of the year to evaluate your grain drying system's performance during the past season. It's also a good time to start thinking about possible changes for next year, says Bill Wilcke, agricultural engineer with the University of Minnesota's Extension Service.

"Many producers have added acres, increased yields, and traded combines two or three times since they bought their last grain dryer," notes Wilcke. "If so, it's no surprise that the old dryer no longer seems to have enough capacity.

"In other cases farmers have joined corn co-ops or signed contracts for specialty grains and their old drying system just doesn't provide the grain quality necessary to meet contract specifications."

If drying capacity is insufficient, Wilcke suggests the following potential solutions:

- Replace the old dryer with a new, high-capacity model.
- Add a second dryer in parallel (beside) the old dryer.
- Change cooling methods to get grain out of the dryer sooner, at a higher moisture content. (Unload grain hot and cool it in a cooling bin or in storage.)
- Add a large, aerated wet holding bin ahead of the dryer and adding more automatic controls so the dryer can run more hours per day.

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If grain quality is inadequate, potential solutions Wilcke suggests include:

--Replace the old dryer with a new dryer that gives better grain quality. (Most new dryers are designed to produce better grain quality.)

--Switch to a gentler drying method.

--Change cooling methods. (Slower cooling gives better quality.)

Wilcke says an excellent reference to use when planning changes to your grain system is the "Grain Drying, Handling, and Storage Handbook," MWPS-13. You can order the handbook by contacting Terry Capaul in the university's Biosystems and Agricultural Engineering Department at (612) 625-7024.

After you've studied some planning references and assessed your needs, contact your local extension office and visit elevators and other farmers to get some ideas, says Wilcke. Finally, contact some equipment dealers and start shopping around for the best deals on equipment and service. "You're likely to get a lot better prices and have a lot more options now than you will have if you wait until next fall," Wilcke points out.

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Web,V2,E4,F4

NAGR5406

Source: Bill Wilcke, (612) 625-8205

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

December 18, 1996

Weather has made natural-air corn drying difficult

This has been a tough year for natural-air grain drying in the upper Midwest, says an agricultural engineer with the University of Minnesota's Extension Service.

"In normal years in the upper Midwest, corn producers who use natural-air dryers (no heat) can expect to get a lot of drying done in November," says Bill Wilcke.

"This year, however, November was colder and wetter than normal. Consequently, drying progress was limited. In many cases, the drying front probably did not move all the way through the bin before winter weather arrived."

Wilcke recommends that managers of natural-air grain dryers probe their bins to find the drying front. "Corn below the drying front should be at a moisture content that is in equilibrium with the drying air that moved through the bin," he says. "If the fan ran very much during November, corn below the drying front will probably be in the 15-17 percent moisture range. Corn above the drying front will still be at harvest moisture."

Wilcke says the best way to find the drying front is to pull grain samples from various depths and actually measure the moisture. An alternative is to simply push a long, slender rod down into the corn. If there is very much difference between the corn below the front and that above the front, the rod will suddenly start to move more

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easily when it reaches the drier corn. (Watch for overhead power lines when handling long, metal rods at the top of grain bins, cautions Wilcke.)

"If the drying front has progressed at least halfway through the bin and corn at the top of the bin is not wetter than 22 percent moisture, you should be able to hold corn without spoilage during winter and finish drying in the spring," says Wilcke. "Just aerate as needed to keep the corn cold through the winter (20 to 30 degrees F). Then resume drying some time after mid-March. The wetter the corn is, the earlier you need to start spring drying."

If the drying front has not moved at least halfway through the bin, or there is corn in that bin that is wetter than 22 percent moisture, holding corn for spring natural-air drying is pretty risky, Wilcke points out. He says it would be better to feed or sell this corn during the winter, or pull it out of the bin and dry it in a faster type of dryer.

A publication entitled "Natural-Air Corn Drying in the Upper Midwest," BU-6577, is available from county offices of the Minnesota Extension Service. The publication is also available by credit card from the MES Distribution Center at (800) 876-8636 or (612) 624-4900.

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Web,DTN,V2,E4,F4

NAGR5405

Source: Bill Wilcke, (612) 625-8205

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

MSC
9A27p

December 18, 1996

Ask questions before becoming part of joint venture

If you're looking at becoming part of a joint venture in some phase of your farming operation, keep the human side in mind. It's likely to be the make-or-break factor, says Erlin Weness, extension educator in farm management with the University of Minnesota's Extension Service.

"Working with others requires cooperation, communication, and lots of give and take," notes Weness. "The more compatible you are with your partner and the more similar your goals, the more likely your joint venture will succeed. Striving for fair compensation for all inputs from partners is a must. Perceived unfairness can break up a joint venture fast."

Following is a list of questions Weness recommends considering before entering a joint venture:

1. Can I trust, respect, and work with the people with whom I'm going into business?
2. Are profit and return projections realistic and positive?
3. What added financial or liability risk will this bring to my business?
4. What will be the increases or decreases in my labor and time if I become involved?

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5. Am I improving my overall business efficiency and returns by entering this agreement?

6. Do I completely understand the type of business organizational structure, including its tax and legal implications?

7. If I want out of the joint arrangement, is it clearly stated how this can occur? Will anyone want to buy my shares if I want out?

8. Is my agreement written? It should be clearly and comprehensively written so all parties understand operations and termination options.

9. What is the worst case scenario? How much money or sleep can I lose if I enter this joint venture and the worst happens? It may be good advice to have at least a third of the original investment available to put into the venture. If I have to borrow every cent, can I really afford the added risk?

10. How will it be organized for tax purposes? Will I have a taxable gain or loss and how and when will it be reported on my tax return?

11. How will that tax organization impact my present income tax situation? Will I have passive losses that are not deductible?

12. What type of financial reports will be prepared and distributed and how often will they be available? Are they reliable?

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Web,DTN,V2,A2

NAGR5404

Source: Erlin Weness, (507) 372-8210

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

December 18, 1996

Consider financial risks when getting involved in value-added venture

More and more Minnesota farmers are looking at the idea of adding value to the products they grow through some type of joint venture. Joint ventures in ethanol, soybean processing, alfalfa and sugar refining, poultry, hogs and dairy are currently operating in the state.

"These are farmer efforts to get a little farther up the farmer-to-grocer food chain and capture more revenue," says Erlin Weness, extension educator in farm management with the University of Minnesota's Extension Service.

Weness says that while value-added is a noble concept, it's important to keep in mind that there is heavy financial risk with any new venture. "Sometimes the risk can exceed your original cash contribution," he points out. "A 'value-added' venture can soon become a 'value-subtracted' financial disaster if things don't go as expected."

When evaluating value-added ventures, be sure to look at worst case scenarios, says Weness. Project what happens to you if things go badly for the venture. Prices, market conditions, production and management difficulties, construction delays and regulation roadblocks can cause major problems for beginning businesses.

"Make sure the value-added venture has sufficient capital," advises Weness. "Undercapitalized businesses have no flexibility, and shortfalls will come back to haunt

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you. Ask to see the business plan. If the promoters are shooting from the hip, think twice. Determine the qualifications of the management staff. Is a farmer with no off-farm business background heading up the project, or are trained, experienced personnel in place as managers?"

Don't underestimate the complexity of government regulations in value-added ventures, says Weness. The time and cost of complying and the liability from not complying can be enormous. If asked to serve on the board of directors, understand that you may be taken to court personally for your actions and that your personal finances may be at stake. If you hire an employee who makes a mistake, you may be held liable.

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Web,DTN,V2,A2

NAGR5403

Source: Erlin Weness, (507) 372-8210

Editor: Joseph Kurtz, EDS, (612) 625-3168, pkurtz@mes.umn.edu

December 23, 1996

Current rash of grain bin deaths in Minnesota continues

A 38-year-old Becker County, Minn., farmer died inside a grain bin Dec. 12 while unlogging a running auger jammed with icy, caked grain. This tragedy was the seventh grain bin fatality in Minnesota so far in 1996. In contrast, the average number of grain-related fatalities in the state has been just over one per year over the past 15 years, according to an analysis of farm fatality data by the Farm Safety and Health program of the University of Minnesota's Extension Service.

Why the current epidemic of grain bin deaths? There are several possible explanations, says John Shutske, U of M extension farm safety specialist. "A tremendous amount of grain was moved early this year as prices climbed during the summer," he points out. "Three of the deaths occurred prior to this fall's harvest."

"Also, the recent harvest was generally good, resulting in a large amount of grain going into storage again. However, in many cases the quality is not high, so farmers have found themselves in bins more often to check grain quality and to unload bins. Further, with the early onset of winter, it's been tougher to get grain dried and cooled down. Management of the stored grain has been more difficult."

Shutske says another possible factor in the jump in grain-bin deaths is that farmers are more likely to be working alone than in the past. There are more farm

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spouses working off the farm, and hired farm labor is in short supply in many areas. "Farmers performing any dangerous job alone are at higher risk," Shutske points out.

Shutske is also concerned that farmers may not be serious enough about preventing farm deaths and injuries. "Nearly every Minnesota farmer knows it's dangerous to be inside a bin when equipment is running," he says. "Yet people still take the risk, thinking, 'It will never happen to me.' It's similar to parents allowing young children to ride on a tractor fender. This results in the death of children every year, but we continue to see it happen."

Nearly one of every 10,000 farms has been the site of a grain bin fatality this year, says Shutske. "If one of every 10,000 Minnesota households had a family member who drowned in a swimming pool, there would be a huge public outcry," he says.

The Minnesota specialist says grain bins absolutely must be treated as potentially deadly confined spaces. This means understanding the risks and following the appropriate steps to avoid becoming a victim. Simply "being aware" will not prevent tragedy. Shutske makes the following recommendations, based on research in Minnesota and other states:

- * Work with at least one partner if there is grain in the bin. Bins are considered "confined spaces" that require special procedures for safe entry. These procedures include the use of lifelines and harnesses to keep people from being engulfed.
- * Never enter a grain bin or wagon when grain is caked or spoiled without first breaking up grain crusts and masses from outside the bin. When you do enter a bin, turn off all unloading equipment and use a padlock to lock-out switches so they cannot be accidentally activated. This includes sweep augers used for unloading.

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December 23, 1996

Current rash of grain bin deaths in Minnesota continues

A 38-year-old Becker County, Minn., farmer died inside a grain bin Dec. 12 while unclogging a running auger jammed with icy, caked grain. This tragedy was the seventh grain bin fatality in Minnesota so far in 1996. In contrast, the average number of grain-related fatalities in the state has been just over one per year over the past 15 years, according to an analysis of farm fatality data by the Farm Safety and Health program of the University of Minnesota's Extension Service.

Why the current epidemic of grain bin deaths? There are several possible explanations, says John Shutske, U of M extension farm safety specialist. "A tremendous amount of grain was moved early this year as prices climbed during the summer," he points out. "Three of the deaths occurred prior to this fall's harvest.

"Also, the recent harvest was generally good, resulting in a large amount of grain going into storage again. However, in many cases the quality is not high, so farmers have found themselves in bins more often to check grain quality and to unload bins. Further, with the early onset of winter, it's been tougher to get grain dried and cooled down. Management of the stored grain has been more difficult."

Shutske says another possible factor in the jump in grain-bin deaths is that farmers are more likely to be working alone than in the past. There are more farm

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spouses working off the farm, and hired farm labor is in short supply in many areas.

"Farmers performing any dangerous job alone are at higher risk," Shutske points out.

Shutske is also concerned that farmers may not be serious enough about preventing farm deaths and injuries. "Nearly every Minnesota farmer knows it's dangerous to be inside a bin when equipment is running," he says. "Yet people still take the risk, thinking, 'It will never happen to me.' It's similar to parents allowing young children to ride on a tractor fender. This results in the death of children every year, but we continue to see it happen."

Nearly one of every 10,000 farms has been the site of a grain bin fatality this year, says Shutske. "If one of every 10,000 Minnesota households had a family member who drowned in a swimming pool, there would be a huge public outcry," he says.

The Minnesota specialist says grain bins absolutely must be treated as potentially deadly confined spaces. This means understanding the risks and following the appropriate steps to avoid becoming a victim. Simply "being aware" will not prevent tragedy. Shutske makes the following recommendations, based on research in Minnesota and other states:

- * Work with at least one partner if there is grain in the bin. Bins are considered "confined spaces" that require special procedures for safe entry. These procedures include the use of lifelines and harnesses to keep people from being engulfed.
- * Never enter a grain bin or wagon when grain is caked or spoiled without first breaking up grain crusts and masses from outside the bin. When you do enter a bin, turn off all unloading equipment and use a padlock to lock-out switches so they cannot be accidentally activated. This includes sweep augers used for unloading.

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- * Even if you have access to a rope or ladder, don't "assume" you can pull yourself out alone if a dangerous situation arises. Research studies show that flowing grain around the human body exerts several hundred pounds of downward force, making it virtually impossible to pull yourself out of a flowing grain situation.
- * Even if the grain is not flowing, you can still suffocate, especially when grain is in poor condition. Grain that's moldy or wet will often clump together in the upper layers. As the bin is unloaded, a large air pocket may form just below the surface. If you walk over the crusted surface, you'll break through and be buried alive under thousands of pounds of grain. Use a long wooden pole to break up clumped grain from above, but be extremely careful not to contact overhead electrical lines.
- * If you do find yourself in a bin where flow has started, don't panic. Try to walk to the outer bin wall where flow is slower. You may be able to "walk the bin down." If you're being submerged, use your hands to cover your mouth and nose.
- * If someone on your farm has become trapped in flowing grain, shut off powered unloading equipment immediately. Then turn on the aeration fan and call your local rescue squad. The best way to rescue a victim is to rapidly remove the grain by cutting open the bin with special rescue tools.
- * Never let children play or ride on grain wagons or trucks. If the vehicle's unloading gate opens accidentally, the child will be pulled into the flowing mass, and will likely suffocate if wedged in the opening. Also, bin ladders should start high enough off the ground to keep young children out of bins.

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- * Take every step possible to manage stored grain wisely to prevent problems that might increase the need to enter the bin frequently. Grain quality management begins at harvest, but includes close monitoring and supervision throughout the storage period. For more information on stored grain management, contact your local Minnesota Extension Service office.

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Web,DTN,V2,V4MN,V5MN,E4,F2,F4

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December 23, 1996

Entomologist summarizes 1996 Bt corn hybrid performance

Research on corn borer-resistant Bt corn hybrids took place at four University of Minnesota Agricultural Experiment Station locations in 1996. Researchers tested Bt hybrids at Lamberton, Waseca, Morris, and Rosemount. The Bt hybrids were from Ciba Seeds and Northrup King, and were compared with several standard hybrids.

Ken Ostlie, entomologist with the University of Minnesota's Extension Service, summarizes Bt hybrid performance as follows:

--Bt hybrids provided dramatic reduction in first-generation corn borer infestations.

--Bt hybrid performance differed against second generation. Some larvae survived, and tunneling was observed in Ciba hybrids.

--Yields varied markedly. Presence of Bt was not a guarantee of higher yields, with some non-BT hybrids having higher yields even when infested by corn borer.

--Bt hybrids from Northrup King outperformed their unprotected counterparts by an average of 5 to 12.5 bushels per acre.

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Web,DTN,V2,F4

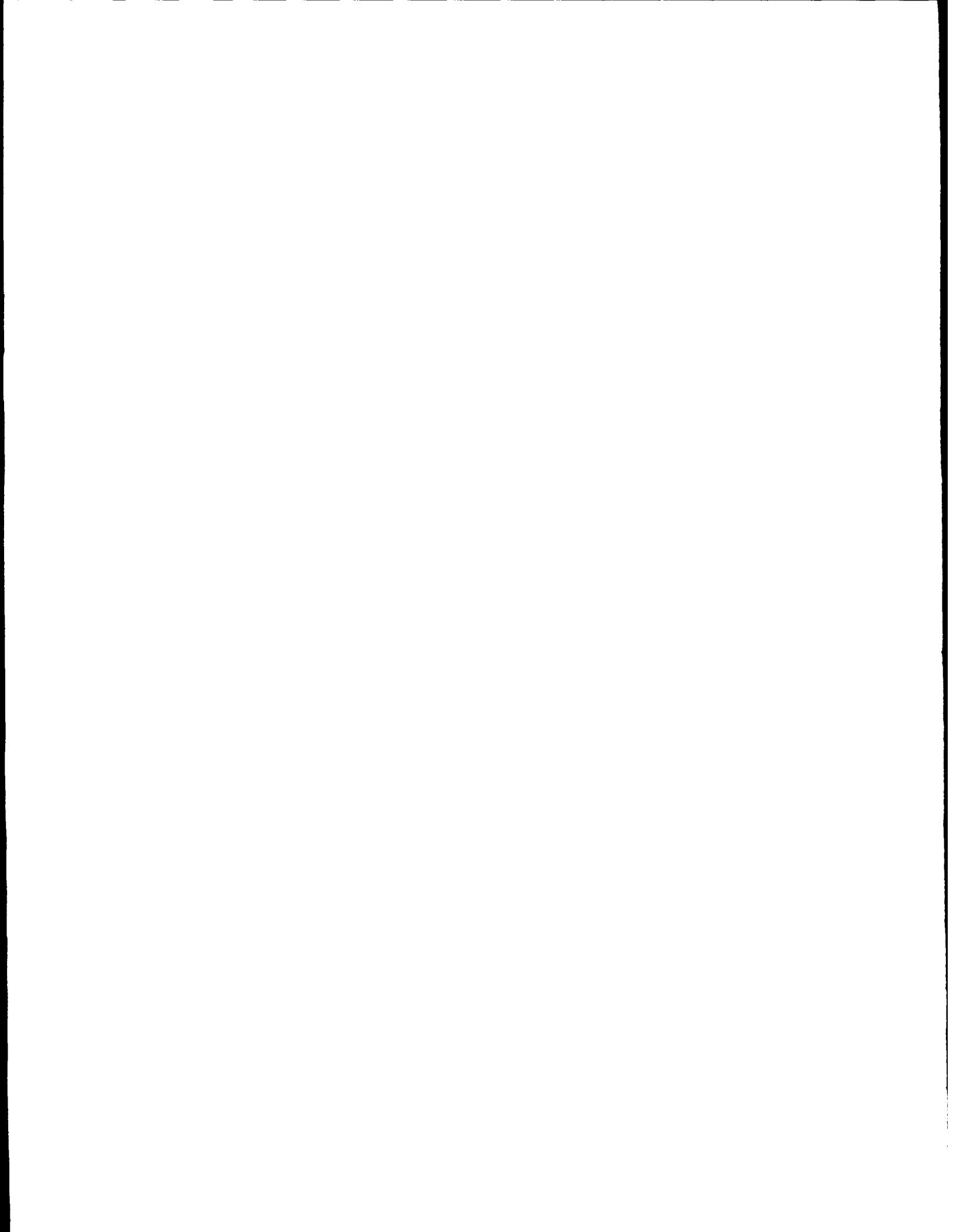
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(Page 1 of 1)





December 23, 1996

Entomologist lists corn borer management considerations for 1997

After reviewing the impact of corn borers on the 1996 corn growing season, an entomologist with the University of Minnesota's Extension Service is looking ahead to implications for 1997. Ken Ostlie has compiled the following list of management considerations for 1997:

--Corn borer populations will continue to decline. The possible exception is in areas with the one-generation-per year ecotype (west central and northwest Minnesota).

--Early-planted fields will be at greatest risk, especially if weather creates a planting gap.

--Select Bt hybrids carefully. Look at yield performance in the absence of corn borer. Remember, yield data from the last two years is not typical of low-corn borer years such as we are likely to experience next year.

--Protect non-Bt corn with insecticides if scouting indicates infestations exceed economic thresholds.

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Web,DTN,V2,F4

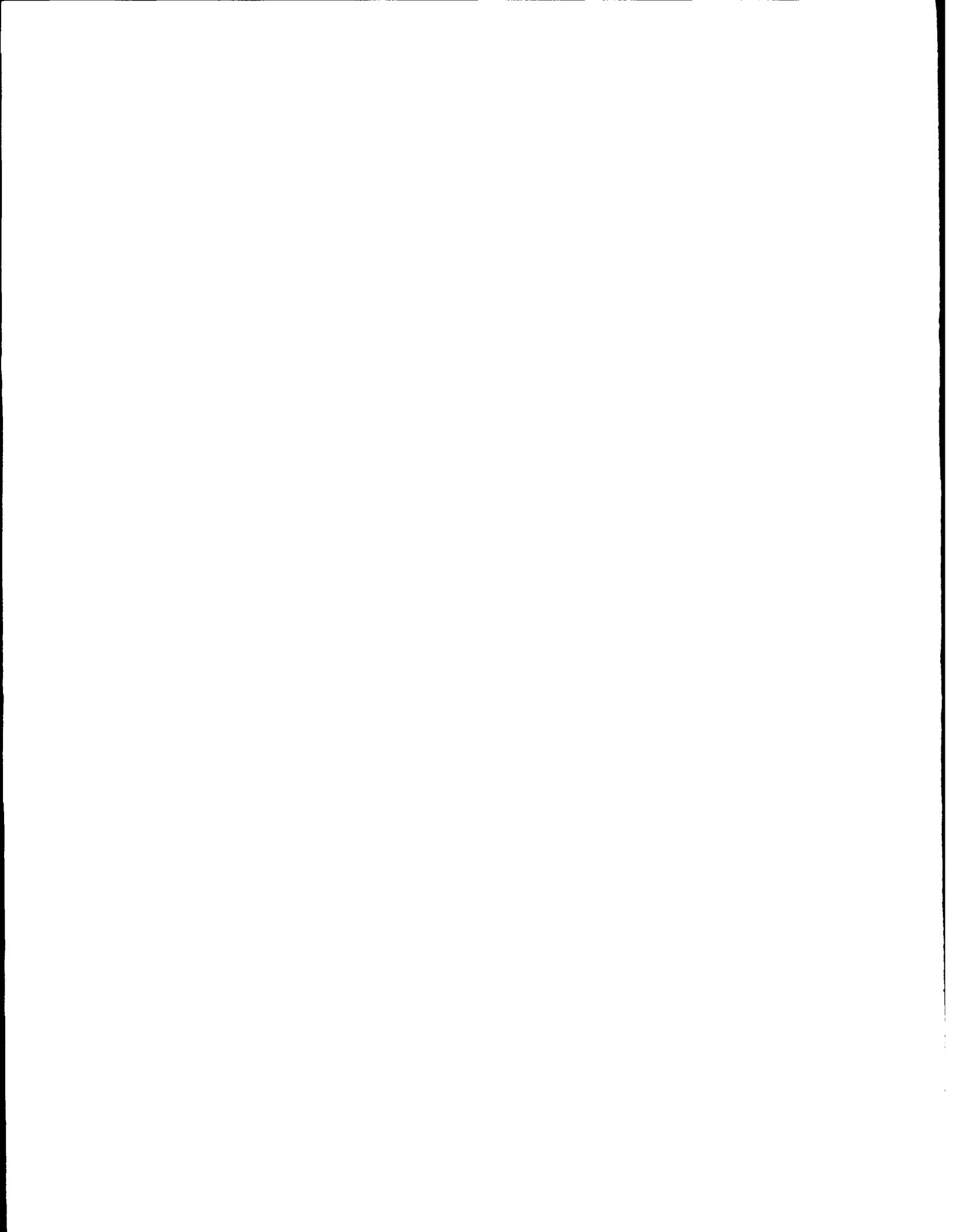
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December 23, 1996

Entomologist reviews 1996 corn borer situation

The battle against corn borers during the 1996 corn growing season was the subject of a recent review by Ken Ostlie, entomologist with the University of Minnesota's Extension Service. Ostlie cited the following points:

--There was a large overwintering corn borer population heading into the growing season, with few overt signs of parasitism or disease.

--Projections were for severe first-generation infestations and a decline in populations during second generations.

--Despite delayed planting, corn and corn borer development were generally well-synchronized.

--Treatable first-generation infestations were widespread, with some reprieve in areas with heavier June rainfall.

--There were record levels of scouting and insecticide use.

--Shortages of insecticides developed in some localized areas.

--The one-generation-per-year ecotype complicated the situation in west central and northwest Minnesota.

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--Second-generation infestations were spotty.

--It was another excellent year to test borer-resistant Bt corn hybrids.

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December 24, 1996

Management necessary to counter corn borer resistance to Bt hybrids

Bt seed corn appears to be an exciting new weapon corn growers can use in their battle against destructive, yield-robbing European corn borers (ECB). Bt corn hybrids offer such potential benefits as higher yields and less need for crop scouting and insecticide use. But the benefits of Bt corn could be short-lived if the technology is misused, says an entomologist with the University of Minnesota's Extension Service.

"Results were promising with the limited amount of Bt corn grown in 1996," says Bill Hutchison. "Growers now appear ready to adopt Bt corn on a much larger scale. But when this happens, there's a danger that corn borers resistant to the Bt toxin will also develop on a large scale."

"Laboratory studies show there are some corn borers carrying genes for resistance to Bt in field populations in Minnesota, Iowa, and Kansas," Hutchison continues. Some corn borer strains resistant to Bt are currently maintained in Hutchison's laboratory and at Kansas State University. Furthermore, field populations of other insects susceptible to Bt in other parts of the world have developed resistance.

Hutchison says integrated pest management (IPM), using a variety of weapons against corn borers and other destructive insects, is still the best approach. "Bt is one management tool within the IPM arsenal, and it's effective against corn borers only," he

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says. "Scouting and IPM are still necessary for other pests such as cutworms and stalkborers."

Hutchison recommends that corn growers eventually adopt a management plan to counter Bt resistance in corn borers. A key aspect of such a management plan is a refuge area planted to a non-Bt crop that can serve as a host for corn borers.

"The refuge is essential," says Hutchison. "The goal is to have at least 25 percent of any given ECB population not be exposed to Bt corn, so that moths emerging from the non-Bt corn can mate with any potential resistant moths surviving from Bt corn. Therefore, the refuge area should be equal to about 25 percent of the total corn area on each farm. The refuge area could be planted to any non-Bt host for ECB, including non-Bt corn, potatoes or cotton (in the South). The refuge should also not be treated with foliar or granular Bt insecticides. During an outbreak year for ECB, it would be possible to treat the non-Bt corn with an insecticide to minimize economic loss, yet still provide an adequate supply of moths susceptible to Bt."

Hutchison says there should be a refuge in each half-section (320-acre) area. He says in the Midwest, the refuge area should equal 20-40 percent of the total corn acreage.

"The goal of the Bt resistance management plan is to combine effective Bt acreage with a supply of ECB moths not exposed to Bt," he explains. "This would mean moths susceptible to Bt would be available to mate with those that may survive from Bt corn. This would suppress the frequency of Bt-resistant individuals in any given location."

Another key component of the Bt resistance management plan is to plant Bt hybrids early and/or late, targeting first or second-generation ECB, respectively. Also,

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Hutchison advocates planting Bt hybrids primarily in areas known to have a history of severe ECB infestations. "This also increases the odds of a positive net return on the investment in higher-cost Bt seed," he points out.

Monitoring for both first and second-generation corn borers in Bt corn is an additional component of the management plan. "This will verify control," he says. "The presence of late-instar ECB larvae within the interior of Bt corn fields may indicate resistance to Bt. Producers who suspect resistance should notify seed company representatives and extension personnel immediately. Presently, the only way to verify Bt resistance is to collect ECB larvae."

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Web,V2,V4,F4

NAGR5412

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