

NEWS/ INFORMATION

MSC 627p
MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

January 4, 1990

Source: Rodney G. Johnson
612/589-1834
Writer: Joseph Kurtz
612/625-3168

VETERINARIAN ADVOCATES COST-EFFECTIVE TECHNOLOGIES

Not every new technology in swine production will consistently create enough income to pay for itself. However, the most profitable operations use technologies that have been proven cost effective, according to Rodney G. Johnson.

Johnson, a veterinarian from Morris, Minn., discussed cost-effective technologies recently at the Southern Minnesota Swine Health Clinic in Fairmont. Some 500 producers attended the clinic, which was sponsored by the University of Minnesota's Extension Service.

Johnson said the following technologies are cost effective:

Sizing the operation for efficient pig flow. "Many operations contain 'bottlenecks' to efficient pig flow, thus hampering productivity," Johnson said. "Each swine unit should have a coordinated plan for pig flow from breeding to market."

All-in, all-out pig flow. Records show it's not uncommon for this to improve both average daily gain and feed efficiency 7-10 percent, according to Johnson.

Reefer van nurseries. "You can often buy a refrigerated trailer van that has been retired from service for around \$2,000 at auction," said Johnson. "You may be able to get around \$500 for the running gear. These vans have been converted to single-, double- or triple-

decked nursery units at costs of \$30-\$50 per pig, compared with \$100 per pig for commercial units."

Breeding pen mats. Several companies manufacture rubber mats which, when placed over concrete slats or other floor surfaces, will enhance footing. Johnson said using these mats will result in longer matings and improved reproductive performance, with less chance of injury to animals.

Crossing two pure, unrelated lines. "Heterosis results in heavier birth weights and more vigorous piglets that are heavier at weaning with lower mortality," Johnson said.

Records. Johnson recommended using one of several available computerized records systems for production. Such records show where improvements need to be made. Financial accounting to know cost of production is vital to financial success, he added.

Scales. "Start with a scale to weigh sow feed; follow with one to get birth and weaning weights," Johnson said. "The \$500 you spend will give you a payback in six months or less."

Feed particle size analysis. "Generally, you want swine feed to have the same particle size as soybean meal," Johnson said. "Particle size can alter feed efficiency by .2-.3 pounds of feed per pound of gain. Your veterinarian or feed representative can do a particle size analysis for you."

Reducing human exposure to potential health hazards. Johnson advocated using dust control measures, wearing face masks and rotating workers within a unit.

Consultants. "It is simply not possible to stay abreast of rapidly changing technology without seeking outside help," said

Johnson. "Develop a team of people you can draw information from, including a veterinarian, a nutritionist, an engineer and a financial advisor. Often, the dollars to access such a team are already leaving the farm in the form of excess profits to feed companies and others."

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AEA,BSS,CEO,V1,V2,P1

NAGR3302

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**NEWS/
 INFORMATION**

January 4, 1990

Source: Leland Hardman
 612/625-6226
 Writer: Larry A. Etkin
 612/625-4272

1990 VARIETAL TRIALS PUBLICATION AVAILABLE

It's eagerly awaited around every new year by Minnesota farmers, seed suppliers and extension agents. It's the Minnesota Agricultural Experiment Station's "Varietal Trials of Farm Crops." The 1990 edition is now available.

A 46-page annual report on crop performance in Minnesota, "Varietal Trials" presents the latest results from the Minnesota Agricultural Experiment Station's testing program. That program evaluates the performance of varieties of 32 crops.

New to this year's publication is a major change to the disease data presentation for alfalfa. Comparisons between varieties are simplified. The "highest best value" scores for resistance to three very common diseases are now replaced by letter designations for resistant, high resistance, moderate resistance, or susceptible. An explanation of the interaction between disease and cold tolerance on winter injury has also been added for alfalfa.

The hard red spring wheat section includes information on two new 1989 releases from the University of Minnesota; high yielding Minnpro and Vance.

A new formula has been added to the soybean section. It should help growers compare crop potential of various varieties on the basis of protein and oil content.

And a pair of minor crops have been deleted from this year's pulse crop section: fababean and tangierpea.

Hundreds of varieties of various crops are grown by Experiment Station researchers for evaluations of yield, resistance to lodging and pathogens, and relative maturity. Many are grown annually and reported in the publication's listings and tables. Crops which are not grown every year are represented in tables presenting long term performance data for past trials.

University agronomists grow the test crops at 13 sites across Minnesota, covering the range of Minnesota conditions, from Roseau in the north to Fairmont in the south. Their results are compiled annually and, along with planting recommendations for many crops, are published in "Varietal Trials."

"Varietal Trials of Farm Crops" is available to Minnesota farmers through county extension offices. Copies may also be ordered from the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108 (please include \$1 per copy ordered, and Minnesota residents add 6% sales tax). Request publication number AD-MR-1953. Requests for more than one copy or from outside Minnesota should be directed to the Distribution Center. Make checks payable to the University of Minnesota.

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NEWS/ INFORMATION

January 4, 1990

Source: Rhoda Burrows
 612/625-5747
 Writer: Jack Sperbeck
 612/625-1794

EXTENSION OFFICES HAVE NEW MANUAL ON ALTERNATIVE CROPS

Canola, buckwheat, lupine and flax are some of the crops highlighted in a new "Alternative Field Crops Manual" available at county offices of the Minnesota Extension Service.

Other crops included in the manual are amaranth, adzuki bean, fababean, popcorn, grain sorghum, and triticale. For any of these crops, growers need to consider market availability and production costs; resources such as soil, labor and capital; personal goals and interests; and specific crop requirements.

The manual is intended as a quick reference, but sources for additional information are included in the articles. Eventually, 30 to 40 crops will be included in the manual, which was produced by the University of Minnesota and University of Wisconsin.

Minnesotans can ask their county extension agents for single copies of articles they're interested in. A limited number of the manuals will be available for purchase through the Center for Alternative Plant and Animal Products, 340 Alderman Hall, University of Minnesota, St. Paul, MN 55108 (telephone 612/625-5747).

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AEA,BSS,CEO,V1,V2,A1,F1,L3

NAGR3300

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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St. Paul, Minnesota 55108

January 11, 1990

Source: Alan Dexter
701/237-7973
Editor: Sam Brungardt
612/625-6797

RED RIVER VALLEY SUGAR BEET SEMINARS SET FOR JANUARY

During January, free seminars for sugar beet growers will be offered at three Red River Valley locations: Jan. 25 at the Holiday Inn, Fargo, N.D.; Jan. 30 at the Ramada Inn, Grand Forks, N.D., and Jan. 31 at the Old Legion Club, Grafton, N.D.

The programs will run from 9:30 a.m. until 3:30 p.m.

Alan Dexter, extension sugar beet weed specialist with the University of Minnesota and North Dakota State University (NDSU), will speak about 1990 recommendations, herbicide carryover, and about Stinger and Stinger combinations for weed control.

Larry Smith, superintendent of the University of Minnesota's Northwest Experiment Station, Crookston, will discuss uniform and non-uniform spacing of beet stands, scalping versus flailing and speed of defoliation.

John Lamb, also from the Northwest Experiment Station, will discuss phosphorus and zinc use for sugar beets.

Roger Jones, plant pathologist with the Minnesota Extension Service, will talk about soil-borne diseases, more effective use of the Cercospora prediction model and a new sugar beet disease in the Red River Valley.

Joe Giles of NDSU's Soil Science Department will discuss the effect of multiple-row cultivations on sugar beet yield and quality.

Albin Anderson of NDSU's Entomology Department will talk about root maggots and grasshoppers.

The seminars are being sponsored by the extension services of the University of Minnesota and North Dakota State University, the Sugarbeet Research and Education Board of Minnesota and North Dakota and the U.S. Department of Agriculture.

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AEA,BSS,CEO,V2M,F1M

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Msc 19827p

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405 Coffey Hall
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St. Paul, Minnesota 55108

NEWS/ INFORMATION

January 11, 1990

Source: George Rehm
612/625-6210

Editor: Mary Kay O'Hearn
612/625-2728

BEWARE OF "MAGICAL" FARM PRODUCTS

It's that time of year again when traveling salespeople sweep across the country trying to sell products that supposedly work wonders with crops.

One of the come-ons, warns George Rehm, soil scientist with the University of Minnesota's Extension Service, is that the products "are supposed to be so new that they haven't yet been tested by any university." There are sales brochures with testimonials from users and some products are even described as magical.

"There may be increased sales activity for those products in 1990 because those who sell them think that they fit ideally with the 'sustainable agriculture' concept," Rehm says.

Many of these nonconventional, nontraditional products have been evaluated by a Land Grant university in the North Central region. If there is sales activity for a product new to your area, ask questions before you buy. "We have information on many of these products at county extension offices and at the Soil Science Department at the University," Rehm concludes.

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AEA, BSS, CEO, VIM, V2M, A1M

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NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
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January 11, 1990

Source: Dan Putnam
612/624-1211
Writer: Sam Brungardt
612/625-6797

U OF M SEMINARS TO CONSIDER UTILIZATION OF AGRONOMIC CROPS

Scientists, people involved in economic development, educators, entrepreneurs, farmers and other interested persons are invited to attend a series of seminars on the utilization of agronomic crops which the University of Minnesota's Department of Agronomy and Plant Genetics is sponsoring.

The one-hour seminars, which will be presented by persons who work in various aspects of crop utilization, will be held at 4 p.m. in 335 Borlaug Hall on the St. Paul campus.

At the first of the seminars on Jan. 10, Virgil Smail, director of the Greater Minnesota Corporation's Agricultural Utilization Research Institute (AURI) at Crookston, spoke on "Research and Development Possibilities Through the AURI".

Dates, topics and presenters for the remaining seminars are:

Jan. 24--"Identification of Quality Traits in Cereals" by Gary Fulcher, holder of the General Mills Land Grant Chair in Cereal Chemistry and Technology in the University of Minnesota's Department of Food Science and Nutrition.

Feb. 14--"The Ethanol Question" by Larry Johnson, the farmer who serves as the Minnesota Department of Agriculture's roving "ethanol answer man".

Feb. 21--"New Horizons in Oilseed Utilization" by Navam Hettiarachchy, director of the Food Science Program at North Dakota State University, Fargo.

Feb. 28--"Potential Use of Starch Polymers in Plastic Materials" by Charles Swanson, a USDA research chemist with the Agricultural Research Service's Northern Regional Research Center, Peoria, Ill.

March 7--"New Industrial Oilseed Crops" by Robert Kleiman, USDA research chemist with the Agricultural Research Service's Northern Regional Research Center, Peoria, Ill.

"The time's past when we could just produce without thinking about how what we produce is going to be utilized," says Dan Putnam, University of Minnesota agronomist who conducts research on uncommon, new and little-researched crops for the Minnesota Agricultural Experiment Station and serves on the advisory board for the University's Center for Alternative Plant and Animal Products.

"There may be many new opportunities because of changes in technology and markets, and we need to continually keep abreast of these developments so we can plan for the future. These seminars give us an opportunity to do that."

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AEA,BSS,CEO,V2,A1,H2,F1,N2

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NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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January 18, 1990

Source: William Rempel
612/624-1267
Writer: Sam Brungardt
612/625-6797

Editor: Call Carl Walker (612/624-3708) to obtain 35mm color transparencies or black-and-white prints to use with this story.

SCIENTIST URGES EVERYONE TO CONTEMPLATE ISSUE OF ANIMAL RIGHTS

It's not that Bill Rempel isn't concerned about personal freedom and rights; he is, after all, director of the Minnesota Civil Liberties Union. He just doesn't believe that animals have the same rights as humans.

Rempel, a University of Minnesota animal scientist who conducts research for the Minnesota Agricultural Experiment Station, says people like himself, who use animals in research, as well as farmers must be wary of animal rightists' attempts to force their beliefs on others through legislation.

At the same time, he's quick to point out that animal rightists--like everyone else--are entitled to believe as they choose. He says because this issue is a matter of beliefs, of philosophy, there is no right or wrong position. And, he concedes that animal rightists have done some good, such as getting companies to quit using animals to test cosmetics.

Why is Rempel concerned about the animal rights movement?

He explains, "Animal rights imputes innate rights to animals the same as to humans. Which would mean--if we take that to the extreme--the death knell for animal research and animal agriculture.

"Extreme animal rightists believe it's wrong to exploit animals for

any reason, to use them for anything that's not for the animals' own benefit. They say it's wrong to keep animals for food, fiber or as a source of power; to use them in any kind of research; to hunt them; even to keep them as pets. They believe it's wrong to eat flesh and would have everyone be vegetarian.

"They say animals should have a rich environment. They should have choices the same as we have choices and not be restricted in any way; they should have complete freedom of movement and be able to socialize with others of their kind on a free-choice basis.

"Animal rightists believe that animals have intrinsic value, of and in themselves. It's not a relative thing; if we're born with that, then animal rightists say animals are too."

Rempel says the movement encompasses a wide spectrum of beliefs. Not everyone believes everything the extremists do. For example, some animal rightists object mainly to the raising of fur animals. Others, to hunting. Some think it's alright to eat poultry. Others eat only fish. Some say insects do not have the same rights as mammals. Some are antivivisectionists. Others say it's okay to use animals in medical research if there's no other way to get the needed information. Some see nothing wrong in keeping pets. And, many in the movement are not so much concerned about animal rights as about animal welfare.

However, Rempel says, since all the people in the movement are working in concert to win the minds of people and get legislation passed, animal rightists are a force to be reckoned with.

As proof, he says it's already illegal to keep hens in cages in some European countries. He points to a Swedish law that severely restricts how farm animals may be raised. He says Massachusetts voters rejected similar legislation only after a massive campaign by farm interests. And, he recalls a bill introduced in Congress last year that would have

given people the right to bring suit on behalf of animals. Then, there's the Washington march planned for next June, which animal rightists hope will influence legislators.

To Rempel, it's inconceivable that a farmer or a scientist would treat animals inhumanely. Too bad, he says, that few Americans have first-hand exposure to animal agriculture, which makes the average person susceptible to believing charges that farmers mistreat animals. He says, "Years ago, people either had experience handling animals or had a relative who farmed whom they knew would not knowingly be cruel to an animal."

What galvanized Rempel is the prospect that animal rightists might succeed in getting laws passed that would restrict his freedom to act in accordance with his beliefs, that they could legally force their beliefs upon him.

"Right now," he says, "animal rightists are working to get regulations and restrictions passed in those areas which they think they can win--raising veal calves for slaughter, confining sows in gestation stalls and keeping laying hens in cages. These practices either appeal to the emotions, affect few people or appear discomfoting. For them, it's a matter of changing one thing at a time."

Rempel says people who have a stake in being able to utilize animals need to sort out their beliefs and to know how they stand on animal rights. They also need to understand what animal rightists believe and the consequences of those beliefs. If the consequences are such that scientists or farmers need to take action--such as lobbying--to protect their beliefs, how can they go about doing that? Surprisingly few researchers and farmers, he adds, have taken the time to consider the issue in depth.

Another reason Rempel keeps abreast of the issue is because he helps

teach a course, "Perspectives: Relationship of Humans, Animals and Environment." This has also given him the knowledge he needs to advise those who have a stake in animal research and animal agriculture. He has presented seminars on the issue for farmers and 4-H'ers, and serves as a resource for the Minnesota Farm Forum for Agriculture, an organization which includes such groups as the Minnesota Farm Bureau Federation, the Minnesota Turkey Growers Association and the Ramsey County Humane Society.

To keep on top of things, Rempel monitors (and, in many cases, belongs to) many organizations--the local animal rights coalition, the Coalition of Faculty and Students for Animal Research, People for the Ethical Treatment of Animals, the Incurably Ill for Animal Research and the Humane Society of the United States, to name a few.

To help people explore their beliefs about animal rights, he has designed two indexes or inventories that pose some soul-searching questions. These indexes are available by writing to William Rempel, Department of Animal Science, 125 Peters Hall, University of Minnesota, St. Paul, MN 55108.

Animal rights--where do you stand?

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AEA,BSS,CEO,A1,A2,B1,D,K,N1,N2,N3,P1

NAGR3314

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**NEWS/
INFORMATION**

January 18, 1990

Source: Jane Gilgun
612/624-0082
Writer: Jennifer Obst
612/625-2741

Editor: Call Carl Walker (612/624-3708) to obtain 35mm color transparency or black-and-white print to use with this story.

WHAT MAKES VICTIMS OF CHILD ABUSE BECOME ABUSERS?

Listening is hardest. The stories abused and neglected children carry into adulthood are painful. And abusers' stories are even more so. But Jane Gilgun, a researcher in the University of Minnesota's School of Social Work, has been listening, trying to find clues to answer difficult but important questions.

Questions like, why do some victims become abusers while others don't? And, what can society do to help stop the abuse cycle?

Gilgun's research, partly funded by the University's Agricultural Experiment Station, uses intensive interviews with 51 adult victims of childhood abuse and neglect. The victims include male perpetrators of child sexual abuse as well as men and women who have not become abusers.

Gilgun is mining their life stories for patterns and clues she hopes parents, teachers and clinicians can use to intervene and prevent child abuse. There are patterns of vulnerability that may predict who is most at risk, and there are patterns of protective mechanisms that can help them reduce their risk.

Most who experience childhood maltreatment somehow work it out. Even if they carry emotional scars, they don't endanger society. But certain risk factors increase the vulnerability of victims.

Gilgun's nationally recognized work has identified these risk factors:

having parents who don't get along, having an alcoholic parent, living in a town with few resources or--and Gilgun says this is a major one--being ostracized by others in the community. Protective mechanisms can help counteract the damage potential of these risks. Gilgun says, "Signs of these protective mechanisms are the ability to articulate feelings, the ability to laugh at yourself and be in touch with the feelings of other people, the ability to love and form relationships with other people."

A major protective mechanism, Gilgun found, was the ability to confide. Its importance came to her while interviewing married couples, both of whom had been abused as children. Their experiences were no different, but only the men had become abusers. "Consistently," Gilgun says, "I found that the women had talked about it with a girlfriend or confidant. But the men would say they never told anybody."

"The next group I looked at were men who were abused and neglected in childhood but who weren't perpetrators. They, just like the women, had someone to confide in, but not about the abuse."

Society's norms exact a terrible price. Gilgun says, "Our culture says a man is not a man if he cries. It puts men and boys in a double-bind. Their manhood is at stake because they were abused in the first place. Then, if they talk about it, their manhood is even more at stake, so they become more and more isolated in pain."

Gilgun says she was struck by their isolation. "The people who don't ever find confidants are the ones that get really out of touch with their own thoughts and feelings. As a result, they have no understanding that other people have thoughts and feelings."

This lets them view others as objects to manipulate. "For the child

molester," Gilgun says, "the child is like a puppet, there to satisfy him."

When life pressures cause stress, Gilgun says these men don't have enough protective mechanisms. Like a thermometer in boiling water, their mercury quickly rises to a danger point.

"For a child molester, it takes almost nothing to reach the boiling point," Gilgun says. "As one man told me, 'I would have a fight with my wife and the first thing that I would think of is to go molest my daughter.' And other abusers I have interviewed are so constantly at the boiling point, it is a normal condition for them."

And when the temperature rises, these abusers choose children as their victims because of their power over them and for the sex. Gilgun explains, "Together, that is a tremendous high for them. Because the level of their pain is so extreme, the high is an oasis in a desert of pain. Just as chemical abuse is a form of self-medication, somehow sexual abuse, too, is a palliative."

Human development education in schools is critically important, Gilgun maintains. She asks, "How do we help these hurt children overcome the hurt? Because that's the key. We still need many more services for all victims. Many women who were molested and mistreated in childhood live very painful lives.

"Hurt boys need help in expressing feelings because those who don't can become dangerous. The combination of being abused and neglected in childhood and being isolated is very dangerous."

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AEA,BSS,CEO,A3,E5,E7,N2,Y

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NEWS/ INFORMATION

January 18, 1990

Source: Lee Johnston
 612/589-1711
 Writer: Joseph Kurtz
 612/625-3168

DIET FORMULATION, PARTICLE SIZE AFFECT SWINE FEED COSTS

Many pork producers are able to hold down feed costs by formulating, grinding and mixing feed on the farm. But to get maximum savings, it is essential to formulate the diet accurately and grind to the correct particle size.

"The best way to formulate a diet accurately is to get a laboratory analysis of ingredients," says Lee Johnston, University of Minnesota extension swine scientist. "Nutrient concentrations of feed ingredients can vary a great deal from average values published in nutrient composition tables."

Johnson, who is stationed at the West Central Experiment Station at Morris, says it is important to follow feed recipes exactly. He notes that deviating from recipes will change nutrient content of the feed and may hurt pig performance.

"Use supplements and premixes that have been formulated specifically for swine," Johnston advises. "Don't use a trace mineral premix designed for beef cows in a sow diet. Don't mix premixes and supplements from different suppliers. For example, don't use company A supplement with company B booster pack. Products from different companies are not made to go together in a diet."

It is best to grind hog feed to a medium degree of fineness, says Johnston. Using a 1/4- to 3/8-inch screen in a hammermill operated at the recommended speed should produce the correct particle size.

"Very finely ground feed may improve feed efficiency, but may also increase the incidence of gastric ulcers," says Johnston. "Bridging of feed in bulk bins may also occur. But if the feed is too course, pigs won't grow as efficiently."

Johnston recommends that producers not comfortable with the calculations involved in formulating a ration consult with a professional in swine nutrition.

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AES,BSS,CEO,P1

NAGR3311

Ms. 9/23p

NEWS/ INFORMATION

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Source: Marna Butler-Fasteland
218/879-4528
Writer: David Hansen
612/625-7290

Editor: Call Carl Walker (612/624-3708) to obtain a 35mm color transparency or black-and-white print to use with this story.

SAFE, EFFECTIVE FOREST WEED CONTROL CHALLENGES COOPERATIVE

Controlling weeds in a yard often seems a losing battle. Contrast that with Marna Butler-Fasteland's job. She leads a regional effort to develop more effective and safer weed control methods for forests. A forester with the University of Minnesota's College of Natural Resources, Butler-Fasteland directs the work of the Forest Vegetation Management Cooperative.

The challenge, she says, is that "controlling weeds on forested sites often involves more complex vegetation and larger weeds than on agricultural sites. The establishment period for ag crops is generally a few weeks in the spring, whereas for forest crops, it can take up to 10 years."

The Cooperative, begun in 1984, is a joint venture of the University's Agricultural Experiment Station and Department of Forest Resources, the Minnesota Department of Natural Resources and the Blandin Foundation. It's also supported by other organizations in Minnesota and Wisconsin concerned with safe and effective forest management practices.

Butler-Fasteland and the Cooperative are housed at the Cloquet Forestry Center, the College's field facility 20 miles south of Duluth, Minn. She conducts her research both at the Center and on

other public and industrial forests.

"Forest weeds compete with crop trees for limited resources," Butler-Fasteland explains. "These resources include sunlight, water, nutrients and growing space. By controlling, but not necessarily eliminating, competing vegetation during the early years of a plantation, the seedlings will start off healthier and more vigorous."

One of Butler-Fasteland's projects is looking at site preparation; how to best prepare land for the establishment of a new stand of trees. Either heavy equipment, prescribed burning or herbicides are commonly used to prepare sites for reforestation. But, quite often a combination of the three is necessary, Butler-Fasteland says.

A second project is looking at alternative ways to "release" young crop trees from competition. "Several methods of release are available," she says. "They include mulching, grazing, hand-cutting and spraying with herbicides."

The Cooperative both sponsors studies and collects information from other sources through an annual survey of forest vegetation managers. "The information collected is used to supplement data gathered from our field studies," Butler-Fasteland says.

A. Scott Reed, coordinator of the Cloquet Forestry Center, says, "The Cooperative is a unique joint venture of public agencies, private industry and an educational institution. It is a good example of a regional effort of applied research combined

with technology transfer. Through demonstration and workshops, the information gets to the land managers who need it."

Another of the Cooperative's projects compares the growth of trees started under favorable conditions with a control group subjected to intense competition with other forest vegetation. The questions they're trying to answer, says Butler-Fasteland, is "what are the effects of management activities on the survival and growth of seedlings during the first 10, 15 or 20 years after establishment?"

This is primarily long-term research, much of it aimed at effective use of herbicides. But for the shorter term, the Cooperative and Butler-Fasteland are providing forest managers and workers with information on personal and environmental safety.

To promote the safe use of forest herbicides, Butler-Fasteland conducts workshops and other educational activities. Audiences range from Christmas tree growers to employees of large forest product companies and public agencies. The Cooperative's audiences, like its support, come from many sectors.

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AEA,BSS,CEO,H4,RM,Z2

NNRD3315

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Source: Marna Butler-Fasteland
218/879-4528
Writer: David Hansen
612/625-7290

Editor: Call Carl Walker (612/624-3708) to obtain a 35mm color transparency or black-and-white print to use with this story.

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Another of the Cooperative's projects compares the growth of trees started under favorable conditions with a control group subjected to intense competition with other forest vegetation. The questions they're trying to answer, says Butler-Fasteland, is "what are the effects of management activities on the survival and growth of seedlings during the first 10, 15 or 20 years after establishment?"

This is primarily long-term research, much of it aimed at effective use of herbicides. But for the shorter term, the Cooperative and Butler-Fasteland are providing forest managers and workers with information on personal and environmental safety.

To promote the safe use of forest herbicides, Butler-Fasteland conducts workshops and other educational activities. Audiences range from Christmas tree growers to employees of large forest product companies and public agencies. The Cooperative's audiences, like its support, come from many sectors.

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AEA,BSS,CEO,H4,RM,Z2

NNRD3315

NEWS/ INFORMATION

January 19, 1990

Source: Vern Oraskovich
612/442-4496

Writer: Joseph Kurtz
612/625-3168

Note to news persons: This meeting was originally announced in a Nov. 13, 1990 release from this office headlined "Minnesota Extension Service Plans Meetings on BST".

DATE, PLACE OF BST MEETING IN SHAKOPEE IS CHANGED

The Minnesota Extension Service-sponsored meeting on BST (bovine somatotropin) originally scheduled for Jan. 24 at the Canterbury Inn in Shakopee, Minn., has been rescheduled.

Both the date and site have been changed; the meeting will be held at 11 a.m. on Thursday, Feb. 8, at the Knights of Columbus Hall in Shakopee.

The meeting will focus on both consumer and producer concerns relating to BST, a protein hormone that has been shown to increase milk production in dairy cows by 10 to 15 percent.

The program for the meeting is as follows:

10:30-11:00 a.m.--Registration

11:00 a.m.-12:00 noon--"BST Research, Safety" (presented by Brian A. Crooker, University of Minnesota nutritional physiologist)

12:30-1:30 p.m.--"Consumer Issues, Concerns" (Peter Tallas, University of Minnesota extension nutritionist, and Betty Tisher, Ramsey County extension home economics agent)

1:30-2:30 p.m.--"Production Response, BST Administration" (Vern Oraskovich, Carver County extension agriculture agent)

2:00-2:30 p.m.--"Economics" (Crooker)

2:30-3:00 p.m.--Question-answer session.

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NEWS/ INFORMATION

January 22, 1990

Sources: C. Eugene Allen
612/624-4777
Roy Thompson
612/625-4211
David D. Walgenback
605/688-4593
Writer: Larry A. Etkin
612/625-4272

WALGENBACK TO BE SUPERINTENDENT OF SOUTHERN EXPERIMENT STATION

C. Eugene Allen, acting director of the Minnesota Agricultural Experiment Station, has announced that David Walgenback will be the next superintendent of the University of Minnesota's Southern Experiment Station at Waseca, pending approval by the Board of Regents.

In late March, Walgenback (pronounced WALL-jen-bahk) is scheduled to replace Richard Anderson, who is retiring.

Walgenback will leave a research administration and teaching position at South Dakota State University, where he has been on the faculty since 1974. Before that, he worked in several research positions in the agricultural chemical industry.

In announcing the selection, Allen said, "Dr. Walgenback's background in many areas makes him uniquely suited to provide the leadership for research programs and related areas as we look to the future."

Walgenback holds master's and doctoral degrees in entomology from the University of Wisconsin at Madison.

His industry experience includes field evaluation and development of rootworm insecticides, and broad research

formulation and administration related to corn production for the Chevron Chemical Co. His work for Chevron resulted in the granting of five patents to that firm.

At South Dakota State University, Walgenback has raised more than \$2.5 million in grants and gifts to help support insect control research. He has widely disseminated the results of his research through the publication of more than 50 papers and the presentation of 75 others at professional meetings.

Walgenback is already known as a researcher in Minnesota, where he has delivered dozens of papers at major agricultural meetings and for production agriculture short courses.

His teaching experience includes graduate and undergraduate classes in crop pest management and pesticide use. He has also been responsible for formulating control recommendations for grasshoppers and for insect pests of corn, wheat and sunflower.

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AEA,BSS,CEO,V2,A1M,Z4,Z5

NEXP3322

NEWS/ INFORMATION

MS 6627p
MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM

405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

January 22, 1990

Source: Brian Harron
218/281-6510
Writer: Jon Groth
612/625-4706

WORKSHOP TO CONSIDER TIPS, TRAPS IN BUYING, SELLING RESTAURANTS

"How to Buy or Sell a Restaurant Business," a workshop for people interested in the restaurant business, will be held on Monday, Feb. 19, at the Earle Brown Continuing Education Center on the University of Minnesota's St. Paul campus.

Preregistration for the workshop, which will run from 9 a.m. to 4:30 p.m., is required. The \$95 fee covers course materials and lunch.

According to workshop leader Brian Harron, the program will help attendees develop the expertise needed to enter or exit the restaurant business or to expand their restaurant ownership. Among the topics to be covered will be rules of thumb for business valuation, real estate and sales contract principles, techniques for interacting with real estate brokers, and negotiating tactics and other factors affecting the salability or purchase potential of a restaurant business.

Harron, who is director of the Tourism Center at the University of Minnesota, Crookston, and a restaurant consultant, knows his subject thoroughly. Before joining the University staff in 1988, he was a partner in United Restaurant Properties, a Phoenix, Ariz., firm which specialized in restaurant real estate services.

Major financial, emotional and negotiating considerations are involved in a restaurant sale or purchase, says Harron. For people entering the business, this can be one of their most expensive short- or long-term decisions. Sellers want to be sure to get the best price. For most persons, buying or selling a restaurant is an infrequent event for which one needs to be as prepared as possible. This workshop is designed to provide answers, solutions and techniques to create a satisfying restaurant purchase or sale.

"How to Buy or Sell a Restaurant Business" is the first in a series of 13 one-day workshops that will be held this spring on the St. Paul campus. From Feb. 19 through May 3, the Minnesota Extension Service's Tourism Center will conduct the workshops, which are designed to sharpen the skills of people in the food service industry. The workshops will cover such diverse subjects as supervision, marketing, troubleshooting, cash control, computerization and other trends in the restaurant business.

More information and registration materials can be obtained by calling (612) 625-7057.

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AEA,BSS,CEO,E1,H1,P2,Se1Media

NCED3320

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

January 22, 1990

Source: David Schuelke
612/624-3445
Writer: Jennifer Obst
612/625-2741

MANAGING CONFLICT: IS IT DIFFERENT IN NONPROFIT ORGANIZATIONS?

So many books are written on business management that it seems you could pave a highway with them, from Minnesota to the Harvard Business School. However, all these books talk about good management in terms of for-profit businesses.

Despite the fact that ever more people are working for nonprofits, "You can count on one hand the studies done on management of nonprofit organizations," says David Schuelke, a University of Minnesota professor of rhetoric who studies organizational communication for the University's Agricultural Experiment Station.

Is nonprofit management really any different? Schuelke discovered one significant difference in a study he did with the University's Humphrey Institute: there's a wide gap in adopting new technologies.

He found that for-profit organizations had more computers, more telephones, and in general were making much more extensive use of information technology while many of the nonprofits were still trying to get one computer.

And, while having fewer resources makes it more difficult to manage nonprofits, that difficulty may be multiplied by basic problems with conflict management.

According to Schuelke, conflict is handled easier in a for-profit company. "In a for-profit organization," he explains, "people can always

make a decision and resolve conflict based on whether or not that action will be profitable. Nonprofit organizations don't have that same bottom line. Their mission is something more elusive than profits, which makes resolving conflict more complicated.

"Another difficulty in resolving conflict in nonprofit organizations is that people often work in them for altruistic motives central to their value system. Conflict touching on firmly held altruistic values doesn't lend itself to easy conflict management."

Schuelke says that, in some nonprofit organizations, it's not acceptable to even acknowledge conflict. "Competition is an accepted daily norm for profit organizations," he says "But in nonprofit organizations, we don't talk about that.

"Churches are sometimes the least able to deal with conflict. There's a misapprehension that conflict somehow is evil."

Nonprofit managers may also be less prepared to manage conflict. "There frequently isn't a career ladder to management in nonprofit organizations," Schuelke says. "For example, in educational institutions, you get to a management position by teaching for several years. There's very little training for the role."

To improve his picture of Minnesota nonprofit organizations, Schuelke is looking closely at three of them, studying their management training and their skills in dealing with conflict. Conflict is necessary for change, he says, and for Minnesota nonprofits to thrive, they need the skills to handle conflict. "An organization will never be effective, will die on the vine unless it can incorporate the needs, the perspectives and the values of all the people in the organization," Schuelke says, "and that involves recognition and management of conflict."

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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

January 22, 1990

Source: Brian Harron
218/281-6510
Writer: Sam Brungardt
612/625-6797

TOURISM CENTER TO HOLD RESTAURANT MANAGEMENT WORKSHOPS

A series of 13 one-day workshops for people in the food service and lodging industry will be held from Feb. 19 through May 3 on the University of Minnesota's St. Paul campus.

The Tourism Center of the Minnesota Extension Service will conduct the workshops, which are designed to improve the management skills of restaurant, hotel, resort and institutional foodservice owners, managers and supervisors.

Here are the dates, titles and brief explanations of the workshops' content:

Feb. 19--"How to Buy or Sell a Restaurant Business," will help attendees understand learn how business worth is determined and give tips for negotiating a transaction, making it useful for would-be owners as well as experienced owners desiring to expand or reduce their restaurant concepts.

March 8--In "Restaurant Marketing," attendees will learn how to build sales through a comprehensive approach to marketing.

March 14--"Foodservice Management and Supervision" will stress the skills of leadership, responsibility delegating, decision making, meeting management and team building.

March 21--"Service Management" will help attendees develop and manage a service program. The program will include service

training and suggestive selling skills.

March 22--In "Managerial Leadership," attendees will learn skills that will make them more effective leaders of their teams.

March 27--"Cash Controls and Security" will help attendees stop theft and increase security and cash controls. It will teach them how to hire to prevent employee theft.

March 28--"Computers in Foodservice" will teach the basics and the applications of computers for foodservice operators. Enrollment for this workshop will be limited to 20 persons.

April 5--"Troubleshooting Restaurant Operations" will highlight critical areas of restaurant operations and demonstrate proven success methods. Attendees may bring problems they would like solved to this workshop.

April 11--"Food and Beverage Controls" will deal with control systems, which are the key to profits. Cash control and the security of merchandise will be covered also.

April 19--The instructor for "Current Trends in Restaurant Cuisine" is a restaurant owner, cookbook author and consultant. The program will include food tastings and demonstrations.

April 25--"In Search of Restaurant Excellence" will show attendees how to apply the principles of excellence to their businesses. It will highlight service, service skills, service management and a customer-oriented approach to marketing.

May 2--"Financial Management" will teach professional financial management techniques that will help attendees maximize their businesses' profits and cash flows.

May 3--"Train the Trainer" will help attendees increase the effectiveness of their human resources programs by showing them how to be a better trainer.

All of the workshops will be held at the University's Earle Brown Continuing Education Center and will run from 9:30 a.m. to 4:30 p.m. The registration fee for each workshop (including lunch) is \$95 per person, with a \$30 savings for persons who register for both the March 21 and March 22 workshops.

More information and registration materials can be obtained by calling (612) 625-7057.

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AEA,BSS,CEO,E1,H1,P2,Se1Media

NCED3319

UNIVERSITY OF MINNESOTA
 EDUCATIONAL
 DEVELOPMENT SYSTEM
 405 Coffey Hall
 1420 Eckles Avenue
 St. Paul, Minnesota 55108

MEDIA ADVISORY

January 22, 1990

Source: B. J. Conlin
 612/624-4995
 Writer: Joseph Kurtz
 612/625-3168

COST, QUALITY ARE FACTORS IN DAIRY HERD REPLACEMENT RATE

What does it cost to raise replacements? How much better are the replacements than cows already in the herd? These are the key questions to consider in looking at dairy herd replacement rates, according to B. J. Conlin, extension dairy scientist at the University of Minnesota.

"There is not a fixed replacement rate that is best for everyone," says Conlin. "For high-producing herds with a high genetic level, it is much harder to make large milk production increases by replacing animals. On the other hand, there is opportunity to make rapid gains by replacing low-producing cows with daughters of superior sires available through artificial insemination."

Conlin points out that periods of high feed prices increase the cost of raising replacements, which would make a manager want to lower the replacement rate. High slaughter cow prices or the opportunity to sell cows to another producer for premium prices encourage higher replacement rates.

"With current feed and milk prices, a replacement rate of 30 to 35 percent should be about right for herds that are average or above," he says.

There are always cows that have to be replaced because of

mastitis and reproduction problems. Managing these problems to keep them to a minimum increases opportunities to cull cows that are the lowest producers, notes Conlin.

A study of Dairy Herd Improvement Association records shows it costs about 20 cents per hundredweight less to produce milk when the herd replacement rate is 30 percent than when it is 45 percent. The savings comes from a lower investment in raising young stock. The savings means a difference of about \$1,500 a year in return to labor and management for a 50-cow herd producing an average of 17,000 pounds of milk per cow per year, says Conlin.

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AEA,BSS,CEO,V1,V2,D

NAGR3318

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

January 25, 1990

Source: Larry D. Jacobson
612/625-9733
Writer: Mary Kay O'Hearn
612/625-2728

MINNKOTA AGRI-BUILDERS TO MEET IN ALEXANDRIA FEB. 15, 16

A group that promotes high-quality agricultural buildings and equipment systems, the Minnkota Agri-Builders and Equipment Association, will hold its annual meeting and seminar Thursday and Friday, Feb. 15 and 16, at the Park Inn International, Alexandria, Minn.

Registration fee (if received before Feb. 10) is \$50 per person for members and \$75 for nonmembers. A \$20 fee will be added for those who register by mail after that date or at the meeting. Advance registration should be sent to the association at 210 Agricultural Engineering, University of Minnesota, 1390 Eckles Ave., St. Paul, MN 55108.

Following 11 a.m. registration and a noon luncheon on Feb. 15, the program will open with a discussion of systems planning approach by Kenny Kuehl, Morton Buildings, Redwood Falls, Minn.; Blair Gades, Dealers Livestock Equipment, Glenwood, Minn.; Dennis Schmidgall, a producer from Morris, Minn.; and John Brach, Soil Conservation Service, St. Paul, Minn.

In the afternoon, Darrell Hoyle, Northwestern Farm Management Co., Marshall, Minn., and Steve Hull, Minnwest Bank, Montevideo, Minn., will discuss farm and fiscal management. John Evelo of Midwest Livestock Systems, Aberdeen, S.D., will then present a new

product session.

On Friday morning, Howard Person, extension agricultural engineer from Michigan State University; Ken Martens, Distributing Inc., Courtland, Minn.; Jay Johnsrud, Berg Equipment Co., Albert Lea, Minn.; and a representative from the Minnesota Pollution Control Agency will discuss waste-handling concerns.

Daryl Delzer of Butler Rural Systems, Montevideo, Minn., will preside at the 11 a.m. business meeting. During the meeting, "Rural Builder" magazine will award a free registration certificate to the 1990 National Rural Builders Show March 7-10 in Orlando, Fla. The event will end with a noon lunch.

Minnkota-Agri-Builders and Equipment Association membership is open to persons who are owners, partners or members of corporations that design, market or construct buildings; manufacturers and merchandisers of components or equipment used in buildings; and representatives of the Land Grant universities of Minnesota, North Dakota and South Dakota.

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AEA,BSS,CEO,A1M,E4M,SelMedia

NAGR3327

NEWS/ INFORMATION

January 25, 1990

Sources: Jim Luby
612/624-3453
Dave Wildung
218/327-4490
Writer: Sam Brungardt
612/625-6797

Editors: This release is intended for the gardening public. To obtain a 35-mm color slide or b/w print of Luby with St. Cloud or a close-up of St. Cloud, call Carl Walker at (612) 624-3708.

NEW U OF M BLUEBERRY IS EASIER TO HARVEST, EXTENDS SEASON

The Minnesota Agricultural Experiment Station has released a cold-hardy, half-high blueberry named St. Cloud. Plants will be available this spring in very limited quantities at Minnesota garden centers and nurseries and more widely available in 1991.

According to James Luby, the University of Minnesota horticultural scientist who heads the Experiment Station's blueberry breeding program, St. Cloud should be useful in cold regions for residential plantings and home gardens as well as for commercial plantings. The new cultivar was named after the city of St. Cloud, in central Minnesota, where it has performed very well.

St. Cloud has a more upright growth habit than Northblue (which is grown commercially in some of the colder regions of the United States and in Canada), Northsky and Northcountry--the half-high cultivars previously released by the Minnesota Agricultural Experiment Station. Plants grow about 4 feet tall and 3 to 4 feet in diameter. "While their greater height allows

for easier harvesting," says Luby, "it may predispose them to more winter injury in extremely cold regions or during seasons with inadequate snow cover."

Nevertheless, yields have been similar to those of Northblue, indicating that St. Cloud has considerable hardiness. Mature plants have averaged 7 pounds of fruit over the last six years at Becker, in south-central Minnesota.

St. Cloud ripens four to six days earlier than Northblue--a definite plus. With the other cultivars developed at the University of Minnesota, St. Cloud will extend the picking season for cultivated blueberries in Minnesota to about one month.

The fruit size of St. Cloud is about three-fourths as large as that of Northblue. In firmness and flavor, the fruit is superior to Northblue. When frozen, the quality usually has been superior to Northblue and similar to Northcountry.

"I'm impressed with everything that I see of St. Cloud," says David Wildung, a horticultural scientist at the University's North Central Experiment Station, Grand Rapids. "In terms of commercial potential, it will be an ideal companion for Northblue and it will probably eclipse Northcountry and Northsky, although those cultivars should continue to have some appeal for landscaping and for home gardens."

Wildung cautions that St. Cloud must be pollinated by another blueberry cultivar to set fruit. It is compatible, he says, with Northblue, Northcountry and Northsky.

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NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

January 25, 1990

Source: Wanda Olson
612/624-3780
Writer: Pam Barnard
612/625-4730

THOROUGHNESS IS KEY IN PROTECTION FOR PESTICIDE APPLICATORS

Pesticides should always be handled with care to reduce the chance of exposure, and wearing protective clothing is a very important safety measure for pesticide applicators. The Minnesota Extension Service offers several guidelines on protective clothing in a new publication titled "Buying and Wearing Protective Clothing for Applying Pesticides."

According to Wanda Olson, extension housing technology specialist, the importance of wearing even the smallest piece of protective clothing should never be overlooked. Also, it is not only what is worn, but how it is worn and cleaned.

For example, pant legs should go over the boot, and gloves, as well as boots, should be washed off before they are removed.

Even though many pesticide labels provide information on protective clothing, Olson points out that the type of clothing is not always specified. "In those cases," she says, "applicators should follow the signal words, precautionary statements and product formulations as guidelines."

A helpful chart in this publication summarizes the equipment and clothing that are needed when they are not specified on the label.

The publication also discusses ways to increase the protection

of everyday work clothing by applying finishes. Comparisons are made between the protective qualities of treated clothing versus specialized protective clothing.

A color photo illustrates how the risk of poisoning is greatest when handling, mixing or loading undiluted products. Outlets where specialized protective clothing may be purchased are listed, as well as references for further reading.

Olson coauthored the publication with Sherri Gahring, extension textiles and apparel specialist, and Dean Herzfeld, with the Pesticide Applicators Training Program.

Single copies of "Buying and Wearing Protective Clothing for Applying Pesticides" (item HE-F0-3877) are available through Minnesota county extension offices. When ordered in multiple copies or from outside Minnesota, the publication costs 50 cents a copy. Such orders should be directed to the Distribution Center, 3 Coffey Hall, University of Minnesota, St. Paul, MN 55108 (phone 612/625-8173), and checks should be made payable to the University of Minnesota.

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AEA,BSS,CEO,V2,A1,E5,F1,H4,L1

NHEC3323

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108**NEWS/
INFORMATION**

January 25, 1990

Sources: Roger Becker
612/625-5753
Neil Anderson
612/624-3208
Writer: Sam Brungardt
612/625-6797

Editors: Call Carl Walker (612/624-3708) to obtain a 35mm color transparency to use with this story.

U OF M RESEARCHERS SEEK WAYS TO CONTROL PURPLE LOOSESTRIFE

Each summer, more and more wetlands are painted magenta with the blooms of purple loosestrife (Lythrum salicaria). Although this would seem a happy development, enough is known now about this aggressive Eurasian immigrant to cause Minnesota and several other states to consider it a noxious weed.

Despite its beauty, purple loosestrife is no friend of native plants or animals. Once established in a cattail marsh, sedge meadow, bog or ditch or along a streambank or lakeshore, it shades and displaces native vegetation that provides food for wildlife. Left unchecked, this invasive perennial turns the wetland into a loosestrife monoculture with little diversity of plant or animal life.

With a grant from the Legislative Commission on Minnesota Resources, University of Minnesota scientists are working on the loosestrife problem with Minnesota Department of Natural Resources personnel. Members of the University research team, include botanist Iris Charvet, Minnesota Agricultural Experiment Station weed control scientists Roger Becker and Charles Welling, extension wildlife specialist Jim Kitts and horticultural

scientist Neil Anderson. Ellen Fuge is the DNR's project coordinator.

Purple loosestrife spreads by seeds and it produces a lot of them--as many as 1.2 million per square meter in an established stand. So, Charvet's research on seedbank dynamics is important. Among the aspects she is studying are seed dispersal, germination and the effect mycorrhizal bacteria have on seedling growth.

Becker and Welling are also looking at the dynamics of seed reserves; how long the seed persists, how many seeds are in the soil and how loosestrife seedlings get the upper hand in competing with seedlings of other plant species.

Kitts is studying loosestrife's impact on nutrient recycling, trying to find out how it affects a wetland's ability to cleanse runoff water.

Loosestrife plants may bear three types of flowers, and Anderson is trying to determine whether these differ in their ability to produce seed and to hybridize with lythrum (L. virgatum), a related garden flower. One ongoing debate concerns the possible threat that lythrum poses to wetlands. Anderson is trying to find out whether lythrum cultivars, such as Dropmore Purple, Morden Pink, Morden Gleam and Morden Rose, are sterile or do they have the ability to hybridize with purple loosestrife or otherwise evolve into this weed.

Becker and Welling are also working with both Lythrum species. Part of their research involves trying to find an enzyme characteristic of each species. "This isozyme," Becker explains,

"would be an easy way to ascertain lineages of both nursery stocks and weedy infestations."

They are also conducting trials in Stevens and Ramsey Counties to find herbicides that will control purple loosestrife without harming desirable vegetation. Although two herbicides-- glyphosate and 2,4-D--are labeled for loosestrife control, both have limitations in the ways they can be used. Based on his trials, Becker says the herbicide Garlon 3A looks promising: "It can be as effective on loosestrife as Rodeo (a commercial glyphosate formulation), but has fewer detrimental effects on desirable aquatic plants, such as cattails, sedges, rushes and grasses.

"The use of herbicides is currently one of the few management tools available, but the goal of the group is to enhance other options, such as biological control and desirable plant competition."

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AEA,BSS,CEO,I2,R

NNRD3324

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 1, 1990

Source: Lee Johnston
612/589-1711
Writer: Joseph Kurtz
612/625-3168

ACCURACY IS IMPORTANT WHEN MIXING SWINE FEED

The way a pork producer adds ingredients to a swine ration can make a noticeable difference in feed cost. And that means a difference in the profit margin, notes Lee Johnston, University of Minnesota extension swine scientist.

Johnston says calibration is the critical factor for producers with a continuous flow feed mill (sometimes called a mix-mill, volumetric or meter mill). "Continuous flow mills add ingredients based on volume," says Johnston, who is stationed at the West Central Experiment Station at Morris. "This assumes each ingredient has a constant bulk density, or weight of ingredient per given volume."

When the bulk density of an ingredient changes, the mill continues to add a given volume of the ingredient. However, that volume no longer contains the same amount, in terms of pounds.

"That is why it is important to check the calibration of a continuous flow mill and make needed adjustments at least once a month for all diets," says Johnston. "Also check calibration every time you buy a new batch of ingredients."

In operations with a batch processing mixer, such as a portable grinder-mixer, each ingredient goes in separately. "With this type of mixer, add ingredients by weight, not volume,"

Johnston advises. "A scale for the grinder-mixer is a good investment, because it increases the accuracy of feed manufacturing."

Johnston suggests making a list of ingredient names and amounts for each swine diet, then checking off each ingredient as it goes into the mixer. This helps guard against forgetting an ingredient or adding one ingredient twice. For ingredients that make up less than one or two percent of the diet, a good strategy is to premix them with the cereal grain and add in the mixture in amounts not less than 40 pounds per ton. Johnston says a clean cement mixer works well for premixing.

The order that ingredients go into the mixer will affect the mixing time necessary to disperse all ingredients evenly throughout the feed, says Johnston. "Add at least half the grain first, then all the pre-mixed ingredients," he advises. "Then add all the protein supplement and finish by adding the rest of the grain. A good rule of thumb is to mix feed 15 minutes from the time the last ingredient goes in. However, follow the manufacturer's recommendations on mixing time for the size and style of your mixer."

Johnston adds that is important not to overfill mixers, since this lowers the efficiency of mixing.

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AEA,BSS,CEO,P1

NAGR3328

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 1, 1990

Source: Larry Johnson
612/644-3363
Writer: Sam Brungardt
612/625-6797

Reporters: Call Daniel Putnam at (612) 624-1211 if you wish to interview Johnson on Feb. 14.

'ETHANOL ANSWER MAN' TO PRESENT SEMINAR AT UNIVERSITY OF MINNESOTA

Larry Johnson, the Minnesota Department of Agriculture's "Ethanol Answer Man," will speak Feb. 14 at the University of Minnesota.

The public is invited to attend the seminar, titled "The Ethanol Question," which Johnson will present at 4 p.m. in 335 Borlaug Hall, on the St. Paul campus.

Johnson, who used to farm near Cologne, Minn., will talk about the economics, marketing and politics of fuel ethanol as it relates to agriculture, the environment and the United States' energy security.

The seminar will be the third in a series on the utilization of agronomic crops sponsored by the University's Department of Agronomy and Plant Genetics.

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AEA,BSS,CEO,V2M,V4M,F1M

NAGR3310

UNIVERSITY OF MINNESOTA
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 405 Coffey Hall
 1420 Eckles Avenue
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NEWS/ INFORMATION

February 1, 1990

Source: Jane Stevenson
 612/625-6232
 Editor: Nancy Goodman
 612/625-7057

SEMINAR TO CONSIDER ROLE OF LEGISLATORS, LENDERS IN DEVELOPMENT

"Lenders and Legislators: Fielding a New Rural Development Team" is the title of a symposium on rural economic development policy that will be held Wednesday, February 14, at the World Trade Center in St. Paul.

Sponsored by the University of Minnesota's Department of Agricultural and Applied Economics and the Humphrey Institute's Regional Issues Forum, the symposium is part of a three-year public policy program funded by the W. K. Kellogg Foundation.

The symposium will be the first event to bring together legislators and local bankers to discuss how state economic development policy affects lending institutions, and the role of lenders in economic development.

"Local bankers are often left out of the deliberations when state policy makers are designing rural economic development programs," says Jane Stevenson, program director for public policy at the University, who is coordinating the symposium. "We hope that this symposium will provide the opportunity for lenders and legislators to talk to each other, to learn each other's perspective and ultimately work together to improve the economic development policy-making process at the state level."

The program will feature David Morris, a St. Paul-based

columnist and economic development consultant; Roger Vaughan, nationally known economist and author; John Ingebrand, chairman of Kanabec State Bank in Mora; Neal Nathanson, president of the National Rural Development and Finance Corp. of Washington, D.C.; and Bob Burk, director of the Minnesota Bankers Association's Enterprise Network. The symposium will conclude with a debate between economists Michael Stutzer and Julia Friedman on the accessibility of capital in rural areas. Ed Schuh, dean of the Humphrey Institute of Public Affairs, will be the moderator. Local bankers, local officials and legislators and their staffs are expected to attend the symposium, which will start at 9 a.m. The registration fee of \$95 includes two meals and breaks. For more information, contact Nancy Goodman at (612) 625-7057.

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AEA,BSS,CEO,V4M,E1M,V8M

NCED3329

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
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1420 Eckles Avenue
St. Paul, Minnesota 55108

February 5, 1990

Source: Joe Conlin
612/624-4995
Writer: Joseph Kurtz
612/625-3168**CALVING INTERVAL AFFECTS DAIRY PROFITABILITY**

One of the keys to profitability in a dairy herd is to get each cow in the herd to have a calf every 12 to 13 months. Extending calving intervals beyond that is costly, says Joe Conlin, extension dairy scientist at the University of Minnesota.

"Extended calving intervals increase cash outlays for dry cow care, semen, breeding and veterinary care," he points out. "These are expenses that are easy to see. But the biggest cost is the hidden cost of reduced income from lower milk production, the culling of good cows and fewer calves being born in a year."

Conlin says a study of DHIA figures showed it cost an extra 50 to 75 cents per hundredweight to produce milk when the calving interval was 14 months instead of 13 months. In a 50-cow herd, this means a difference in net cash income per year of approximately \$5,000.

The optimum calving interval for a lower-producing herd is 12 months, according to Conlin. For a high-producing herd, it's closer to 13 months. Conlin says cows producing over 18,000 pounds of milk per year remain at a profitable level longer, thus making a slightly longer lactation profitable.

He says that even if a cow is milking well, it's important for her to have a dry period of 50-60 days before calving. "If the dry period is shorter than 45 days, the cow will produce less milk in the next

lactation," Conlin says. "But there is no benefit to the next lactation in having a dry period longer than 60 days."

Not only are extended calving intervals costly, Conlin adds, but the cost per day increases as the interval becomes longer.

Doing a good job of heat detection is a key to keeping calving intervals where they should be. "With extremely good heat detection, the average number of days from calving to first breeding should be between 60 and 75," says Conlin. "Missing a heat delays breeding 21 days and extends the calving interval 21 days."

Conlin says catching cows in heat is a major management challenge that requires close observation. Lack of solid footing due to such factors as slippery, icy concrete will reduce heat-revealing activities. Also, high-producing cows in early lactation are often difficult to find in heat because it is hard for them to eat enough to meet their nutritional needs.

Some producers are improving their heat detection efficiency by using such aids as heat mount patches, pedometers or progesterone tests, Conlin notes.

He says poor conception rates also lengthen calving intervals. "Conception rates of 55 to 65 percent are considered normal," he says. "Conception rate problems are frequently due to mistakes in heat detection, cow reproductive problems, improper insemination techniques and low-fertility semen."

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UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
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NEWS/ INFORMATION

February 5, 1990

Source: Joe Conlin
612/624-4995
Writer: Joseph Kurtz
612/625-3168

Editors, broadcasters: Contact Dairy Science Extension at the University of Wisconsin-Madison or Animal Science Extension at Iowa State University or the University of Illinois for registration information for this seminar in those states.

4-STATE DAIRY SEMINAR WILL FOCUS ON FEEDING FOR PROFIT

"Feeding for Profit...in the '90s" will be the theme of the annual four-state dairy seminar that will take place in March in Minnesota, Illinois, Iowa and Wisconsin.

The seminar, which will feature extension dairy scientists from the four states, will be held in Minnesota on Friday, March 9, at the Earle Brown Center on the University of Minnesota's St. Paul campus.

The same program will be presented in Breese, Ill., on March 6; in Dubuque, Iowa, on March 7; and in Arlington, Wis., on March 8.

"Feeding costs represent 60-70 percent of the variable cost of producing milk," says Joe Conlin, extension dairy scientist at the University of Minnesota. "The most important step dairy managers can take to increase profits is to improve feeding and feed management."

Registration for the seminar, which is designed for dairy producers, feed industry personnel and agribusiness professionals, will begin at 10 a.m. The program will begin at 10:30 a.m. and conclude at 3 p.m.

Mike Hutjens, extension dairy specialist at the University of

Illinois, will open the program with a presentation on "Balancing Carbohydrates for High-Producing Dairy Cow Rations." He will review relationships between various fiber forms and levels as they relate to energy and dry matter intake. He will also look at the role of starch and sugars in digestion.

Randy Shaver, extension dairy specialist at the University of Wisconsin, will discuss "Fat and Animal Protein Byproducts in Dairy Cattle Feeding Programs." He will include information on the economics of various fat and protein sources.

In the afternoon, Lee Kilmer, extension dairy specialist at Iowa State University, will give a presentation on "Feeding Systems for the '90s." A discussion of performance expectations and economic return on investment will be part of his presentation.

The final speaker will be Conlin, who will discuss "Managing Profitability in the '90s." He will focus on control of key management factors that affect profitability. He will also discuss trade-offs between productivity and profitability.

Fee for the seminar, including lunch and materials, is \$15. Preregistration is encouraged, but not required. Registration forms are available from county extension offices in Minnesota or from Animal Science Extension, 101 Haecker Hall, University of Minnesota, 1364 Eckles Ave., St. Paul, MN 55108. Registration must include the fee, with checks payable to the University of Minnesota.

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NAGR3333

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 8, 1990

Sources: Laura McCann
612/625-5747
Richard Epley
612/624-1735
Writer: Joseph Kurtz
612/625-3168**UNIVERSITY OF MINNESOTA TO HOLD "ORGANIC" MEAT SYMPOSIUM**

A symposium focusing on "organic" meat will take place July 9-10 in Minneapolis, Minn. The University of Minnesota's Center for Alternative Plant and Animal Products is sponsoring the event, which will be at the Hilton Inn-Minneapolis, 1330 Industrial Blvd.

The symposium should interest livestock producers, meat processors, extension personnel, government regulators, scientists, nutritionists, and food retailers and wholesalers.

"At this time, the U.S. Department of Agriculture will not allow the word 'organic' on a meat label," says Richard Epley, University of Minnesota extension meat scientist. "But the Minnesota Department of Agriculture has regulations about organic meat. Some producers are selling what they call 'organically grown' animals to consumers, who can then have the animals custom processed."

The symposium will focus on federal and state regulations concerning "organic" meat. It will also review conventional and organic production methods, present marketing and pricing strategies for "organic" meat, and serve as a general forum for discussion of the topic. The schedule of speakers and topics for the symposium is still being developed.

Presentations will deal with a variety of meat species, including cattle, swine and poultry. There will also be presentations on human health and nutrition.

For more information, contact Laura McCann, Center for Alternative Plant and Animal Products, 305 Alderman Hall, University of Minnesota, St. Paul, MN 55108; telephone (612) 625-5747.

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AEA,BSS,CEO,V2,V7,A2,H1,I1,L3,N1,N3,P1

NAGR3335

**NEWS/
INFORMATION**

February 8, 1990

Source: Jerry Wagner
612/625-1978
Writer: Joseph Kurtz
612/625-3168**DAIRY POLICY CONFERENCE SET AT UNIVERSITY OF MINNESOTA**

How the government affects the dairy industry will be the subject of a Dairy Policy Conference on Tuesday, April 3, at the University of Minnesota.

The conference will be in the Earle Brown Center on the St. Paul campus. It is intended for those interested in dairy policy issues, including farmers, directors and officials of dairy cooperatives, officials of farm organizations involved with making dairy policy and members of the news media.

Registration for the conference will begin at 8:30 a.m. The program will start at 9 a.m. and conclude at 3:30 p.m.

There will be three presentations during the morning: "The Changing Structure of the U.S. Food Marketing System--Antitrust Implications" by John Connor, professor of agricultural economics at Purdue University; "Factors Affecting the Financial Performance of Agricultural Cooperatives" by Claudia Parliament, assistant professor of agricultural and applied economics at the University of Minnesota, and "Factors Affecting Adoption of BST" by Peter Nowak, professor of rural sociology at the University of Wisconsin.

Topics and speakers in the afternoon will be "International Trade Issues and Domestic Farm Policy" by C. Ford Runge, associate

professor of agricultural and applied economics, University of Minnesota; "What is a Surplus--Implications for Milk Price Supports and Milk Markets" by Larry Hamm, professor of agricultural economics, Michigan State University, and "Legal Challenges to Federal Milk Marketing Orders" by Lynn Hayes, St. Paul attorney representing the Minnesota Milk Producers Association.

Registration fee for the conference is \$30, and includes lunch and materials. Registration and program information is available from county extension offices in Minnesota or from the Educational Development System, 405 Coffey Hall, University of Minnesota, St. Paul, MN 55108 (telephone 612/625-1214 or 800/367-5363).

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AEA,BSS,CEO,V2,A1,D

NAGR3334

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 8, 1990

Source: Brian Harron
218/281-6510
Editor: Nancy Goodman
612/625-7057

WORKSHOP TO FOCUS ON MARKETING IN FOODSERVICE, LODGING INDUSTRIES

"Marketing for the 90s," a workshop for the foodservice and lodging industry, will be presented on Thursday, March 8, by the University of Minnesota's Tourism Center.

The workshop will be held from 9 a.m. to 4:30 p.m. at the Earle Brown Center on the University's St. Paul campus. The program will cover many aspects of marketing important to hotel, restaurant and resort operators. Cost is \$95 per person for registrations received before Feb. 22 and \$105 thereafter.

The workshop instructor will be Barbara Conner, Minneapolis. A graduate of Cornell University's School of Hotel Administration, she operates a business specializing in marketing and sales development programs.

"Marketing for the 90s" will help hospitality business operators and owners identify, develop and implement marketing plans. The workshop will cover marketing's unique role in today's competitive marketplace, the elements of marketing, how to create a marketing plan and how to integrate marketing into every aspect of a hotel, restaurant or resort operation.

More information and registration materials can be obtained by calling (612)625-7057.

The University of Minnesota Tourism Center was created in 1988

to assist Minnesota's \$5.5 billion tourism industry. Its educational and research activities include more than 50 public and private workshops for the foodservice and lodging industry, one of which is "Marketing for the 90s."

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AEA,BSS,CEO,V4,E1,P2,Se1Media

NCED3336

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 8, 1990

Source: Brian Harron
218/281-6510
Editor: Nancy Goodman
612/625-7057

U OF M TOURISM CENTER TO OFFER FOODSERVICE MANAGEMENT WORKSHOP

"Foodservice Management and Supervision," a one-day workshop, will be offered on Wednesday, March 14, by the University of Minnesota's Tourism Center.

The 9 a.m. to 4:30 p.m. program will be held at the Earle Brown Center on the University's St. Paul campus. Cost is \$95 per person for registrations received before March 2 and \$105 thereafter.

The workshop will cover management and supervisory techniques, with heavy emphasis on leadership skills and team-building. It is specifically designed to enhance the skills of managers, supervisors and owner-operators of hotels, restaurants and institutional feeding operations.

Kevin Kopischke, assistant director of the Brainerd Technical College, will teach the workshop. Kopischke has headed the highly successful hotel motel restaurant management program at the Alexandria Technical College. He has also held several management positions in the foodservice industry.

More information and registration materials for "Foodservice Management and Supervision" and other workshops can be obtained by calling (612)625-7057.

The University of Minnesota Tourism Center was created in 1988

to serve the needs of Minnesota's \$5.5 billion tourism industry.
It provides more than 50 workshops, seminars and adult continuing
education courses for the foodservice and lodging industry.

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NCED3337

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NEWS/ INFORMATION

February 15, 1990

Source: Lee Johnston
612/589-1711
Writer: Joseph Kurtz
612/625-3168

3 STATES PLAN NORTH CENTRAL SWINE CONFERENCE

Gilt performance and growing-finishing will be key topics at a program in March for pork producers from western Minnesota and eastern North and South Dakota.

The program, the North Central Swine Conference, will be presented at two sites. It will be held on Wednesday, March 14, in Fargo, N.D., at the Holiday Inn, I-29 and 13th Avenue South, and on Thursday, March 15, in Sisseton, S.D., at the Roberts County 4-H Center.

The Cooperative Extension Services of North Dakota State University (NDSU), South Dakota State University (SDSU) and the University of Minnesota are sponsoring the conference. The program will be the same at each location, with registration beginning at 8:30 a.m. and adjournment set for 3 p.m.

Topics and speakers during the morning will be "Swine Facilities: Remodel or Replace?" by Steve Pohl, extension agricultural engineer, SDSU; "Converting Wasted Feed to Pounds of Pork" by Bob Thaler, extension swine specialist, SDSU; "Nontraditional Feeds for Traditional Pigs" by Jerry Hawton, extension swine scientist, University of Minnesota; and "Ractopamine: Can It Fit Your Operation?" by Joe Crenshaw, assistant professor of animal and range sciences, NDSU.

Afternoon topics will be "Market Weight to Mating: Feeding and Management Tips for the Gilt Pool" by Lee Johnston, University of Minnesota animal scientist stationed at the West Central Experiment Station, Morris, and "Feeding Gilts to Enhance Lactational Performance" by Crenshaw. A half-hour open discussion session will follow the final presentation.

Registration fee for the conference, including proceedings, coffee and other materials, is \$10. A sponsor will provide lunch. Registration forms are available from county extension offices or from Lee Johnston, West Central Experiment Station, State Highway 329, Morris, MN 56267-9739 (phone 612/589-1711).

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NAGR3351

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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St. Paul, Minnesota 55108

February 15, 1990

Source: John Lawrence
612/625-1273
Writer: Jack Sperbeck
612/625-1794

JOHN LAWRENCE IS NEW U OF M LIVESTOCK MARKETING SPECIALIST

John D. Lawrence has started as a livestock marketing specialist with the University of Minnesota's Extension Service.

"My goal is to help producers make decisions that benefit their operations, and in turn increase the competitiveness of Minnesota's livestock industry," he says.

Areas in which Lawrence will work include:

- Price outlook for hogs and cattle.
- Producer marketing decisions, including location, selling method (live vs. carcass) and market weight.
- Marketing strategies incorporating hedging and options on futures markets.
- Livestock and meat industry trends and changes.

Lawrence received a Ph.D. from the University of Missouri in 1989. His M.S. and B.S. degrees are from Iowa State University. Lawrence was raised on a crop and livestock farm in southwestern Iowa. He's operated his own farm and been a herdsman for a feeder pig operation.

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405 Coffey Hall
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NEWS/ INFORMATION

February 15, 1990

Source: Bill Lazarus
612/625-8150

Writer: Jack Sperbeck
612/625-1794

WHICH WILL IT BE--CROP INSURANCE OR DISASTER RELIEF?

According to the Wall Street Journal, the Bush administration's budget calls for eliminating the federally subsidized crop insurance program. The proposal appears designed to force Congress to choose between federal crop insurance and ad hoc disaster aid.

In the past, the administration's policy has encouraged the use of crop insurance. Multiperil crop insurance has been subsidized since 1980. The idea was to lower the cost and encourage more farmers to buy insurance so they would be cushioned from disasters and not need disaster aid programs. But Congress has still passed disaster relief bills in four out of the past seven years.

Any changes in the administration's policy will not affect farmers' choices until the 1991 crop year, according to Bill Lazarus, farm management economist with the University of Minnesota's Extension Service.

There are two problems with having both crop insurance subsidies and ad hoc disaster aid, Lazarus says:

1. It makes it more difficult to balance the federal budget. The federal government spent about \$18 billion on disaster assistance and protection between 1980 and 1988. The crop

insurance subsidies came to \$4.3 billion, and about \$13.3 billion was spent for direct disaster payments and emergency loans.

2. Many farmers are reluctant to buy insurance if they believe they'll receive payments or loans in the event of a disaster. As a result, crop insurance participation has not been high enough to eliminate the need for other disaster assistance.

Recent disaster bills have tried to encourage use of crop insurance. The 1988 and 1989 bills required farmers with large losses to carry insurance the next year. And, the 1989 bill paid farmers with insurance at a slightly higher rate than those without insurance.

Farmers should expect less generous disaster aid bills due to the federal budget deficit. However, major disasters will probably prompt more disaster aid bills in the future.

"The biggest danger for an individual farmer is a localized disaster that hits the farm, but doesn't hit a wide enough area to generate the public support for aid," Lazarus says. Crop insurance is a good risk management tool to protect against such a disaster.

Other risk management tools for farmers include diversification to several crops, maintaining credit reserves, and marketing tools, such as futures, options and forward contracting.

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**NEWS/
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UNIVERSITY OF MINNESOTA
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February 15, 1990

Source: Lee Johnston
612/589-1711
Writer: Joseph Kurtz
612/625-3168

LAB ANALYSIS SHOWS HOG FEED QUALITY

The quality of feed pork producers provide for their animals has a lot to do with how well the animals perform. An important step in making sure feed quality is high is to periodically have a laboratory analyze the feed and ingredients.

"Laboratory analysis of a representative sample should be part of every feed quality control program," says Lee Johnston, University of Minnesota extension swine scientist. "To get a representative sample, collect numerous samples from a running stream of feed, then mix them and take out a subsample to send to the lab. Keep a portion of the subsample for possible later analysis."

Johnston, who is stationed at the West Central Experiment Station at Morris, says grain tends to vary in nutrient content. He recommends sampling each new batch, then formulating diets based on its nutrient content.

He also suggests sampling soybean meal occasionally. This is not as critical, since soybean processors by law must meet the guaranteed analysis on the feed tag.

"Sample and analyze the final feed at least quarterly," says Johnston. "This will help you monitor quality, and is also the first step in troubleshooting feed manufacturing problems."

But Johnston cautions against changing a feeding program drastically on the basis of a report from just one feed sample. "Labs do make mistakes from time to time, and there is normal variation in lab analyses."

"If the analysis is much different than you would expect, send another sample for analysis. If repeated analyses show a nutrient concentration that isn't what it should be, it is likely an error has occurred in formulating, mixing or sampling the feed. It may be necessary to consult a nutritionist for help in troubleshooting the feed manufacturing process."

Johnston suggests contacting a county agent, state extension specialist, feed dealer or veterinarian for names and addresses of commercial labs. "It is best to call a lab and check on cost, sample size needed, type of analyses available and turnaround time before sending in a feed sample," he says.

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 15, 1990

Sources: Fred Bergsrud
612/625-4756
James Anderson
612/625-8209
Writer: Dani O'Reilly
612/625-6797

ANOKA SAND PLAINS WATER QUALITY PROJECT WINS USDA FUNDING

On Feb. 9, Secretary of Agriculture Clayton Yeutter announced that Minnesota's Anoka Sand Plains Demonstration Project would receive federal funding. The project is a joint effort of the University of Minnesota's Extension Service and the USDA's Soil Conservation Service (SCS).

Fred Bergsrud, water quality coordinator for the Minnesota Extension Service, said Minnesota will receive a large share of the \$3.3 million allocated for the eight states in which projects are being funded. The funding is expected to continue for five years.

Overall goal of the Minnesota project is to demonstrate that, through the use of best management practices, the profitability of the area's agriculture can be improved while minimizing the potential for water contamination.

The Minnesota project was funded because of the leadership of the Minnesota Extension Service, the research base of the University's Agricultural Experiment Station and the excellent cooperation among various state and federal agencies, such as the SCS, the Agricultural Stabilization and Conservation Service and the Minnesota Pollution Control Agency.

The Anoka Sand Plains, which extends through 11 counties (Anoka, Benton, Chisago, Isanti, Mille Lacs, Morrison, Sherburne, Stearns, Todd, Washington and Wright) in east-central and central Minnesota, is representative of the

larger glacial outwash sand plains area. This and the Karst area of southeastern Minnesota are considered the areas in the state most vulnerable to contamination from nonpoint agricultural sources. The sand plains are characterized by sandy soils over shallow, surficial aquifers.

Long-term research projects at the Minnesota Agricultural Experiment Station's Sand Plains Experimental Field near Becker, in Sherburne County, will provide the core of the information needed to develop the best management practices for the area. Findings from those research projects will be supplemented with other Experiment Station research at Staples and by field research at Westport conducted under the auspices of the University's Center for Agricultural Impacts on Water Quality.

Cooperating farmers will also be a very important part of the project; they will help select and implement best management practices appropriate to their farming systems and practices. The farmers selected will represent a variety of producers: some will be dryland farmers, others, irrigators; some will be livestock producers, others will raise only crops; some will grow food crops, while others will raise feed crops.

The project will concentrate on four areas: nutrient (especially nitrogen) management; pest and pesticide management; water management, including irrigation scheduling; and control of wind and water erosion. The project recognizes that each site and situation have different pollution potentials and therefore require different practices to obtain effective control.

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AEA,BSS,CEO,F1M,RM,02,05,13,31,48,49,76,78,82,87,91

NAGR3355

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 15, 1990

Source: Navam Hettiarachchy
701/237-8218
Writer: Sam Brungardt
612/625-6797

Reporters: Call Daniel Putnam (612/624-1211) if you wish to interview Hettiarachchy on Feb. 21.

NDSU FOOD SCIENTIST TO DISCUSS EMERGING USES FOR OILSEED CROPS

On Feb. 21 at the University of Minnesota, the public is invited to hear Navam Hettiarachchy, director of North Dakota State University's food science program, speak about new horizons in oilseed utilization.

Hettiarachchy, a food scientist, will present her one-hour seminar at 4 p.m. in 335 Borlaug Hall on the St. Paul campus.

She will speak about technologies--both those in current use as well as some under development--that use oils from soybeans, sunflowers, cottonseed, safflower, peanuts, flax and crambe.

Among the nonfood uses for oilseeds that Hettiarachchy will discuss are fuels, lubricants, paints and varnishes, coatings, inks, adhesives, perfumes and biodegradable plastics.

Her discussion of food uses will cover oilseeds as sources of natural color enhancers, flavorings and antioxidants. She will also talk about the niches that some oilseeds' physical and chemical properties give them in the processed food industry.

Hettiarachchy's seminar is the fourth in a series on the utilization of agronomic crops sponsored by the University of Minnesota's Department of Agronomy and Plant Genetics.

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AEA, BSS, CEO, V2M, V4, F1M, H2

NAGR3354

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

February 15, 1990

Source: George Rehm
612/625-6210
Writer: Jack Sperbeck
612/625-1794

TAKE ADVANTAGE OF NITROGEN 'CREDITS' FROM LEGUMES

Nitrogen "credits" for corn following legumes improve profits. They also reduce the potential for movement of nitrate-nitrogen to the groundwater, say soil scientists George Rehm and Mike Schmitt of the University of Minnesota's Extension Service.

The amount of nitrogen supplied to corn following legumes in rotation is called the nitrogen credit. "Nitrogen credits for any legume crop should be used to determine the amount of fertilizer nitrogen needed for corn production," Rehm says.

Results of recent research trials conducted in farmers' fields showed that the nitrogen credits for alfalfa could be increased, compared to those used in the past. "With today's farming practices, a good alfalfa stand plowed under before a corn crop should be given a nitrogen credit of 150 pounds per acre," says Schmitt.

Give a poor alfalfa stand a nitrogen credit of 75 pounds of nitrogen per acre. (A good stand of alfalfa has five or more plants per square foot; anything less is a poor stand.)

Alfalfa also contributes some nitrogen to the second year of corn in the rotation. For a previous good stand, this credit is 75 pounds of nitrogen per acre. Other stands provide about 40 pounds of nitrogen per acre to the second year of corn.

"Nitrogen credits are easy to use," Rehm says. The first step is to set a realistic yield goal and determine the rate of nitrogen fertilizer that would be needed for continuous corn production. Just subtract the nitrogen credit from this rate and the remainder is the amount of fertilizer needed.

Soybeans and other legumes also have nitrogen credits. The credit for soybeans is 40 pounds of nitrogen per acre. The credit for red clover, alsike clover and birdsfoot trefoil is 75 pounds of nitrogen per acre.

"It's smart to use nitrogen credits for legumes," Rehm says. "Profits increase and there's less potential for groundwater pollution."

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AEA,BSS,CEO,F1

NAGR3342

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

Feb. 15, 1990

Sources: Patrick Huelman (Univ. of Minn.)
612/624-9219
Chris Gilchrist (MN Dept. of Energy)
612/297-1959
Sharon Boraas (Hans Hagen Homes)
612/483-0801
Writer: Pam Barnard
612/625-4730

MODEL HOME SHOWS PHILOSOPHY OF '90S: BUILD TIGHT, VENTILATE RIGHT

Building homes for cold climates isn't all it used to be-- it's more! Today housing experts know even more about the importance of controlling moisture and providing adequate ventilation when building a tight structure.

On March 10 from 10 a.m. to 4 p.m. and on March 11 from 1 to 4 p.m., the public will get an opportunity to see techniques for moisture reduction and control of indoor air quality problems in a home being built in Burnsville.

The model home under construction by Hans Hagen Homes (at Cedarbridge Bluffs, County Road 30 or Diffley Road and Highway 13) is a cooperative effort of the Professional Builders Association-MetroEast, Builders Insulation Co. of Minneapolis, Shelter Supply Co. of Bloomington, the Energy Division of the Minnesota Department of Public Service and the University of Minnesota's Cold Climate Housing Center.

While the home is under construction, it will be used as a training site for two half-day workshops for builders and subcontractors. Also, many of its features will be videotaped for

a video resource project being developed by the Cold Climate Housing Center.

The open house will let the public see the key features under construction before they are covered up. When completed, the home will be featured in the Spring Preview of Homes, as will a similar home project in Andover, sponsored by the Minneapolis Builders Association.

The phrase "let the house breathe" was appropriate when homes were very leaky, indoor humidities were very low and very little insulation was used. But since today's tighter, better-insulated homes have higher indoor relative humidities, this concept can lead to severe moisture problems. Homeowner complaints on window condensation, attic frost, peeling paint, siding problems, mold and mildew on interior walls and backdrafting of combustion appliances have all increased since the energy crisis of the '70s changed how we build and insulate our homes.

The following questions highlight the need for moisture control through tightly constructed, properly ventilated homes:

First, if you let the house breathe, where does the moisture go?

In many cases, the moisture condenses within the wall cavity, which can reduce insulation effectiveness and lead to siding or paint failure. Or, it may end up in the ceiling or attic as frost, which later melts to cause ceiling stains. If either of these continues very long, they can lead to wood deterioration and

structural failure.

Secondly, if you don't let the moisture go, where will it end up?

For many homes, the moisture levels will become high enough that condensation will begin to form on windows or at the corners of exterior walls and ceilings.

Fortunately, the solution to these two questions is quite simple. First, keep the moisture from escaping through the building walls and ceilings with a continuous air barrier and vapor retarder. Second, provide controlled ventilation to exhaust excess moisture (and other gases) from the home. These two items are readily achievable with small modifications of existing materials and construction practices.

The home project in Burnsville represents a practical approach to designing and constructing a home that provides positive moisture control, energy efficiency and improved air quality for a comfortable and healthy indoor environment.

Three key principles will be used: improved materials and methods to reduce air leakage and moisture flow, a ventilation system to provide appropriate air exchange, and increased levels of insulation. Combined, these improvements can greatly reduce heating and cooling costs as well as moisture and condensation problems.

A special vapor retarder, which is cross-laminated to be more durable than conventional polyethylene, is used on the ceiling, walls and band joist areas. This provides an effective air

barrier to control moisture flow and simultaneously improves insulation performance. A heat recovery ventilation system is installed to provide controlled removal of house air while bringing in fresh outdoor air. While controlling the indoor humidity and ensuring good air quality, this system will recover heat that would have been exhausted to preheat the cold incoming air.

Modified 2x6 wall framing techniques and a special, high R-value insulating material will be used along with extra care in installation to avoid gaps, voids and thermal bridges.

Two important diagnostic tools--a blower door and an infrared camera--are being used to verify the home's airtightness and ensure good insulation performance. The owner of the new home will receive a five-year guarantee against drafts.

The Burnsville home will also feature several other related products. A new type of high-performance window will improve energy efficiency and comfort and reduce window condensation. A special foundation insulation and waterproofing system will reduce heat loss and provide moisture control.

Safety and health are also addressed in the use of sealed combustion appliances that use outside air and avoid potential backdrafting of combustion products into the house. Special materials and methods will be used to minimize the potential for radon entry into the home and to facilitate mitigation, should that be necessary in the future.

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM

405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 15, 1990

Source: Lee Johnston
612/589-1711

Writer: Joseph Kurtz
612/625-3168

UNIVERSITY OF MINNESOTA SHEEP RESEARCH REPORT IS AVAILABLE

An 81-page report providing results and updates on sheep research at the University of Minnesota is available by mail.

The report was compiled in conjunction with the recent 62nd Annual Sheep and Lamb Feeders Day at the University's West Central Experiment Station at Morris.

The report covers energy and protein levels for ewes, nutrition of ewes nursing triplets, protein in lamb creep diets, feeding amaranth grain to sheep, corn silage for feeder lambs, rectal prolapse in feedlot lambs, effects of repartitioning agents on lamb carcass characteristics and reproductive performance of ewes, and other topics.

Copies are available for \$2 each from Lee Johnston, West Central Experiment Station, State Highway 329, Morris, MN 56267-9739. Checks should be made payable to the University of Minnesota.

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AEA,BSS,CEO,V2,N3

NAGR3339

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 19, 1990

Source: Jim Bowyer
612/624-4292
Editor: Sam Brungardt
612/625-6797

WOOD PRODUCTS SYMPOSIUM TO EXPLORE ENTREPRENEURIAL OPPORTUNITIES

A symposium to introduce potential entrepreneurs and public agencies to methods for producing and marketing a variety of wood products will be held April 4-6 at the Ramada Hotel in St. Paul, Minn.

The symposium, titled Wood-Based Economic Development in the Lake States, will provide information on current market opportunities and processing requirements for specific wood products. Sessions will focus on products and services that are compatible with the forest species grown in Minnesota and surrounding states. Economic and community resource considerations for starting or expanding wood product businesses will be explored also.

The products and services that will be discussed include high-quality furniture, white birch turnings for use in interior construction, treated wood products, white cedar shingles, Scandinavian flooring, secondary wood composite products and small sawmill operations.

The symposium is being held to spur development of wood-based production operations, says Jim Bowyer, head of the

University of Minnesota's Department of Forest Products and a researcher for the University's Agricultural Experiment Station.

"Minnesota has done a good job of developing its wood products industry, but great opportunities remain in the high value-added, secondary products arena," Bowyer says.

"The symposium can show potential investors in small- to medium-sized wood products operations and public agency and community officials exactly what is required in the way of resources, technology and capital. We estimate that most of the business opportunities we'll talk about at the symposium might require an initial investment of \$1-3 million."

The symposium will begin with a look at forest products industry trends, regional wood flow, methods of evaluating potential enterprises and ways communities can attract forest product industries.

Sessions will also explore the present and future marketing of wood products, including existing distribution and marketing channels for various products. The program will also include information on international joint venture marketing opportunities, including a session on potentials for wood products marketing partnerships with Finland.

Minnesota sponsors of the symposium include the University of Minnesota's Department of Forest Products, Center for Alternative Plant and Animal Products, Minnesota Extension Service and Natural Resources Research Institute as well as the Minnesota Departments

of Natural Resources and Trade and Economic Development and the
Minnesota Association of Resource Conservation and Development
Areas.

For registration information, write to the Registrar,
Educational Development System, 405 Coffey Hall, University of
Minnesota, St. Paul, MN 55108-1030 (phone 800/367-5363 or 612/624-
1259).

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AEA,BSS,CEO,E1,H3,H4,SelMedia

NNRD3356

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM

405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 19, 1990

Source: Charles Swanson
309/685-4011 (ext. 432)

Writer: Sam Brungardt
612/625-6797

Reporters: Call Daniel Putnam (612/624-1211) if you wish to interview Swanson on Feb. 28.

USDA CHEMIST TO SPEAK ABOUT USE OF STARCH IN PLASTICS

On Feb. 28 at the University of Minnesota, the public is invited to hear Charles Swanson, a U.S. Department of Agriculture research chemist, talk about the potential use of starch polymers in the production of plastic films.

Swanson, who works at the Agricultural Research Service's Northern Regional Research Center in Peoria, Ill., will present his one-hour seminar at 4 p.m. in 335 Borlaug Hall on the University's St. Paul campus.

According to Swanson, two processes exist for incorporating unmodified starch in plastic films. The first--used commercially for such products as trash bags--uses granular starch as a filler. This, manufacturers claim, makes the plastics biodegradable.

The other process, developed at the lab where Swanson works, uses gelatinized starch. This process would allow industry to put higher levels of starch in plastics, Swanson says, without sacrificing useful film properties. If adopted commercially, it could increase the market for starches manufactured from agricultural commodities such as corn.

Swanson's presentation is the fifth in a series of seminars on the utilization of agronomic crops sponsored by the University of Minnesota's Department of Agronomy and Plant Genetics.

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 22, 1990

Sources: R. Kent Crookston
612/625-0220
Nancy Johnson
612/625-5627
Steven Simmons
612/625-3763
Frank Pflieger
612/625-3771
Writer: Sam Brungardt
612/625-6797

Editor: Call Carl Walker (612/624-3708) or Sam Brungardt (612/625-6797) to obtain a 35mm color slide or black-and-white print to use with this feature.

MYCORRHIZAE MAY ACCOUNT FOR PART OF 'ROTATION EFFECT'

Crop rotation is an idea whose time has come again.

For centuries, farmers the world over have reaped the benefits that result when they rotate crops. Yet, many American farmers abandoned this "sustainable" practice during the 1960s and '70s because it appeared chemicals would allow them to grow the same crops year after year.

However, farmers and scientists alike are now re-evaluating the wisdom of continuous monoculture.

"Benefits from crop rotation include better weed, insect and disease control plus improved soil structure and nutrient levels," explains R. Kent Crookston, the agronomist who coordinates the University of Minnesota's interdisciplinary sustainable agriculture working group. "But even under management designed to eliminate pest and soil problems, rotations provide a yield boost that we've been unable to fully explain."

Crookston refers to the trials he's conducted for a number of years at the Southern Experiment Station at Waseca, Minn., and at the Southwest Experiment Station near Lamberton, Minn.: "On the average," he says,

"first-year corn--that is, corn growing where a different crop grew the year before--yielded 15 percent more than corn grown continuously. And, first-year soybeans yielded 17 percent more than continuous soybeans.

"In either case, it really didn't matter which crop the corn or soybeans were rotated with; it's the interruption of continuous monoculture that gives the yield boost."

Farmers in Minnesota and many other states often grow corn and soybeans in rotation. Crookston's trials have shown that these crops rotated annually yield 10 percent and 8 percent more than continuous corn and continuous soybeans.

"When we began to study the phenomenon," says Crookston, "most people assumed it was due to toxins or growth promotants left by the previous crop. That theory's been pretty well disproved as have a number of others. But recent studies by Philip Copeland and Nancy Johnson may help explain the rotation effect." (Copeland and Johnson are graduate students at the University in agronomy and ecology, respectively.)

In 1988, Copeland took shoot tissue samples from seedlings in Crookston's corn-soybean rotation plots at Waseca and Lamberton to determine differences in their nutrient content.

At the same time, Johnson, who was working with Steve Simmons, an environmental physiologist who conducts agronomic research for the Minnesota Agricultural Experiment Station, took samples of the plants' roots and the soil around them, or "rhizosphere." Her goal was to study the occurrence of a symbiosis between plant roots and certain soil fungi known collectively as vesicular-arbuscular mycorrhizae (VAM).

When a corn or soybean seed sprouts, the hyphae (threadlike body

structures) of mycorrhizal fungi invade the roots of the seedling. Mycorrhizae comprise "pipelines" through which the plant receives water and nutrients that hyphae outside the roots take from the soil. Mycorrhizae help plants obtain some nonmobile elements--such as phosphorus, copper and zinc--that they can't readily take from the soil on their own.

First, Johnson studied the corn and soybean root samples from Waseca and Lamberton and determined the extent to which they'd been infected by VAM. With the help of plant pathologist Frank Pflieger, she identified the VAM species in soil samples from the two locations and determined their relative abundance (each VAM species' spores has one or more distinguishing characteristics).

From her examination, Johnson concluded that some VAM species proliferate when corn is grown and others flourish when soybeans are grown.

And, when she looked at Copeland's data, she found a relationship between the abundance of various VAM species (in terms of number of spores) and the phosphorus, copper and zinc content and yields of corn and soybeans.

For example, in first-year soybeans, she found that the VAM species that had flourished the previous year (as evidenced by high spore numbers), while the plot was in corn, correlated positively with a high phosphorus and copper content in the leaves of the soybean plants. These same VAM species were also associated with the higher yields that result when soybeans follow corn.

The same held in the plots where corn followed soybeans; certain VAM

species predominated, and these species were associated with the higher yields obtained with first-year corn.

The reverse was also true; corn plants growing where corn had the year before had lower phosphorus and copper levels--and lower yields. Ditto for continuous soybeans.

Johnson says--and the other researchers agree--that her observations need to be verified by at least another year of the same field studies. And, she concedes she made one really big assumption: that the VAM species that are most numerous as spores in the rhizosphere are the same ones that infected the roots of the seedlings. To verify that, she says one would have to culture these VAM species on the roots of corn or soybeans to see whether they have a beneficial or detrimental effect on plant growth and yield. In fact, that's the aspect Crookston and Pflieger will look at next.

Although Johnson's data have led her to believe that certain VAM species are not beneficial, Pflieger's more cautious. "We need more information before we can say that," he says. "An adversarial relationship between a plant and a VAM species is not at all common, although it does occur in some situations."

Are soil microflora responsible for the higher yields that result from crop rotation? Much still needs to be learned before that question can be answered. Nevertheless, this hypothesis has opened a new line of interdisciplinary research that could lead to a more sustainable agriculture.

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 22, 1990

Source: Jerry Steuernagel
612/624-4995
Writer: Joseph Kurtz
612/625-3168

AI-SIRED DAIRY COWS ARE MORE PROFITABLE

Using artificial insemination (AI) in a dairy herd results in cows that produce more milk and make more money for their owners. The advantage for AI-sired cows is clear-cut and sizable, according to Jerry Steuernagel, extension dairy scientist at the University of Minnesota.

Steuernagel cites USDA figures comparing the value of milk produced by AI- and non-AI-sired Holsteins. "The advantage for the AI-sired cows was \$150 worth of milk per lactation," he says.

AI sires are about nine years ahead of non-AI-sires in terms of the milk-producing ability they transmit to their daughters, Steuernagel adds.

Another advantage of AI is the opportunity to use a wider variety of bulls. "If you use natural service, you are likely to use the same bull on a lot of cows," says Steuernagel. "If he is poor, the result will be a lot of low-producing cows. If his daughters produce \$100 worth of milk less per lactation than the average non-AI-sired cow, this puts them \$250 below daughters of AI bulls."

Whether using AI or not, it is better to use several bulls, says Steuernagel. This reduces the risk of getting a lot of daughters from a bull that turns out to be poor.

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AEA,BSS,CEO,D

NAGR3357

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 22, 1980

Source: Robert Kleiman
309/685-4011 (ext. 533)
Writer: Sam Brungardt
612/625-6797

Reporters: Call Daniel Putnam at (612) 624-1211 if you wish to interview Kleiman on March 7.

NEW INDUSTRIAL OILSEED CROPS TO BE TOPIC OF SEMINAR AT U OF M

Farmers' ears perk up at the mention of new industrial oilseed crops, and a March 7 seminar at the University of Minnesota in St. Paul will deal with just that topic.

The one-hour-long seminar will be presented at 4 p.m. in 335 Borlaug Hall by Robert Kleiman, a U.S. Department of Agriculture scientist. Kleiman, a research chemist, works with industrial oilseed crops at the Agricultural Research Service's Northern Regional Research Center in Peoria, Ill.

Among the crops that Kleiman will discuss are crambe, high-erucic acid rape, Lesquerella, Cuphea and some Umbelliferae species. Although his comments will be mostly on the chemical development of these crops--new products, meal detoxification and germplasm evaluation, he will also discuss some of the agronomic research being conducted on them.

Kleiman's seminar is open to all interested persons. It is the sixth and last in a series on the utilization of agronomic crops sponsored by the University's Department of Agronomy and Plant Genetics.

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AEA,BSS,CEO,V2,V4M,F1M,L3M

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MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

**NEWS/
INFORMATION**

February 26, 1990

Source: Peter Ascher
612/624-9762
Writer: Sam Brungardt
612/625-6797

Editor: This is intended for a commercial audience, not the general public. Call Carl Walker (612/624-3708) or Sam Brungardt (612/625-6797) to obtain b/w prints or 35mm color slides to use with this story.

MINNESOTA AGRICULTURAL EXPERIMENT STATION RELEASES 2 NEW MUMS

The University of Minnesota's Agricultural Experiment Station has released two new chrysanthemums, 'Snowsota' and 'Maroon Pride.'

Patents for both of these new cultivars have been applied for, and propagation rights have been assigned to two Minnesota firms, Dooley Gardens and Donahue's Lehman Gardens.

'Snowsota', a cross between 'Spartan' and 'Chiquita's Rival', was tested as 82-135-88. It produces an informally mounded plant topped by 1-1/2-inch, full, pompon-type, white flowers with light yellow centers that fade to pure white. The blossoms are resistant to pinking in low temperatures. Clean, medium green foliage clothes the stiff stems of the 15-inch-high, 24-inch-wide plants. 'Snowsota' usually begins to bloom the last week of August, or a week before 'Baby Tears', in the Minneapolis-St. Paul area.

'Maroon Pride' displays its 3- to 3-1/2-inch, fully double, flat, decorative flowers atop uniformly mounded plants. The flowers are a rich, dark red and slow to fade. The plants, which are 18 inches high and 28 inches wide, are clothed with clean,

The University of Minnesota, including the Minnesota Extension Service and the Minnesota Agricultural Experiment Station, is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age, veteran status, or sexual orientation.

semiglossy, medium dark green foliage. In the Twin Cities, 'Maroon Pride' usually begins to flower the last week of August, peaks within several weeks and continues to produce new blooms thereafter. Its flowering time is similar to that of 'Torch Song', or about a month earlier than 'Minngopher' and 'Minnruby'. The parents of 'Maroon Pride', which was tested as 82-A31-12, are 'Ruby Mound' and 'Autumn Fire'.

Although they were selected primarily for their value as garden plants, both of these new mums are adaptable to pot culture as spring-flowering plants in natural days. However, the application of a chemical growth regulator is recommended.

Persons wishing to buy plants of 'Snowsota' or 'Maroon Pride' wholesale should contact Dooley Gardens, Route 1, Box 20, Hutchinson, MN 55350 (phone 612/587-3050) or Donahue's Lehman Gardens, P.O. Box 366, Faribault, MN 55021 (507/334-8404).

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AEA,BSS,CEO,SelMedia

NAGR3361

NEWS/ INFORMATION

15sch/AF3p
MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 26, 1990

Sources: George Rehm
612/625-6210
Mike Schmitt
612/625-7017
Writer: Jack Sperbeck
612/625-1794

DON'T WORRY ABOUT NUTRIENT BALANCE FOR CROPS

Test your soil for nutrient supplies, then apply fertilizer to add nutrients that test low. But don't worry about "balanced fertility" or "nutrient balance," advise soil scientists with the University of Minnesota's Extension Service.

"The terms 'balanced fertility' or 'nutrient balance' sound nice and impress some people. But they're not important for crop production in Minnesota," says George Rehm. In other words, test for and apply nutrients independently of each other, advises Mike Schmitt, Rehm's coworker.

The use of terms like "balanced fertility" or "nutrient balance" implies there's a fine balance among plant nutrients in the soil. These terms also imply that an excess of one nutrient in the root zone may lead to shortages or deficiencies of another nutrient. This is not true, however.

The concept of nutrient balance originated with some limited research in New Jersey in the early 1940s, Rehm says. But research conducted since then has clearly shown that an "ideal" nutrient balance does not exist in soils. The ratio of one nutrient to another can vary over a wide range and still not have an impact on crop yield.

Results from a soil test give the supply of nutrients available for crop production. "If your fields weren't sampled last fall, sample this spring," Rehm advises. "This is a small job that can result in more profit from crop production."

If the soil test is low, add fertilizer. If it is high, additional fertilizer is not profitable.

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AEA,BSS,CEO,F1

NAGR3365

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 26, 1990

Source: Joe Conlin
612/624-4995
Writer: Joseph Kurtz
612/625-3168

HIGHER-PROTEIN MILK CAN INCREASE FARMERS' PROFITS

The value of the protein content of milk is increasing relative to the value of its fat content. Dairy producers should keep this trend in mind as they choose sires, according to Joe Conlin, extension dairy scientist at the University of Minnesota.

"There is increased world and U.S. demand for nonfat dry milk, and less demand for butter and milkfat products," says Conlin. "This suggests a need to emphasize protein content and cheese yield in the milk of daughters as sire selection factors."

It is important to look at protein and cheese yield in terms of total pounds per lactation, and not as a percentage of the milk, says Conlin. He suggests using bulls rated in the upper 25 percent of the breed in terms of the protein and/or cheese yield of their daughters' milk.

"In most cases, cows producing the most pounds of milk will also produce the most pounds of protein, but this isn't always true," he points out.

Conlin says government supplies from commodity purchases have dwindled to nothing for cheese and dry milk, but the government still has a large supply of butter.

Changes in the government price support system for dairy products which began in January 1989 have bolstered the value of

dry milk relative to butter, says Conlin. The government dropped the purchase price per pound of butter by 8 cents and raised the price of dry milk by nearly 7 cents per pound in January 1989. Adjustments last April and last July and also this January added further to the value of dry milk relative to butter.

"These price adjustments have not yet had a major influence on the prices dairy farmers receive, because milk prices have been well above support price levels," says Conlin. "However, the price differential for butterfat in most farm-level milk checks either changed very little or declined in the face of increasing milk prices during 1989. As milk prices drop to the support level, the influence of the differential will be much more noticeable."

Conlin says many milk processors are already paying a premium for high-protein milk. He predicts that in the near future there will be legislative efforts in Minnesota and other states to allow price discounts when protein is below a certain level.

"Price differentials based on protein content are likely to be incorporated into federal milk marketing orders within the next three or four years," he adds.

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AEA,BSS,CEO,V2,A1,D

NAGR3364

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 26, 1990

Source: Jerry Hawton
612/624-2270
Writer: Joseph Kurtz
612/625-3168

HOGS TREATED WITH PST GROW MORE MUSCLE TISSUE

Some new compounds resulting from biotechnology may soon enable pork producers to turn out a leaner product at a lower cost. One such compound that has received a lot of attention is porcine somatotropin, or PST.

"PST is one of the compounds commonly referred to as a 'repartitioning agent,'" says Jerry Hawton, extension swine scientist at the University of Minnesota. "These compounds partition or divert some of the animal's nutrient intake away from growing fat tissue and into growing more muscle tissue."

Hawton emphasizes that PST is still being tested by the Food and Drug Administration and has not yet been approved for commercial use. "The FDA must determine that PST is safe from the human health standpoint," he points out. "It is only right that any potential for unsafe residue in meat receive major attention."

Hawton says PST is a naturally occurring protein, and like other proteins, is composed of various amino acids. "The indication is that somatotropin is species specific," he says. "In other words, the somatotropin from one species does not seem to be active in a different species. Likewise, if eaten, PST would be broken down and inactivated by digestive enzymes because it is a protein."

How much can PST influence the growth and carcass characteristics of pigs? Hawton says research has shown that daily injections of PST to finishing hogs have increased the rate of gain 10 to 25 percent, while improving feed efficiency 10 to 35 percent. Reported improvements in carcass characteristics (such as reduced backfat and larger loin eye area) have been as high as 30 percent.

Hawton says it may be two years or longer before PST is available to pork producers. But he predicts that this compound or other repartitioning agents will cause dramatic changes in the U.S. swine industry. "Feeding programs and many other aspects of management will require modification," he says.

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AEA,BSS,CEO,V2,N2,P1

NAGR3358

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

February 26, 1990

Source: Pete Anderson
612/624-4995
Writer: Joseph Kurtz
612/625-3168

CALVING-TIME PREPARATION, MANAGEMENT ARE KEY TO PROFITS

Getting a live, healthy calf from every cow is the goal of beef producers. Preparation and management at calving time are keys to achieving this goal, notes Pete Anderson, extension beef scientist at the University of Minnesota.

Preparation, he says, means having the following items available at calving time:

- Shelter for calving cows.
- A chill box or warming area for calves that need it.
- Calving assistance equipment, including soap disinfectant.
- Iodine solution for dipping navels.
- A record book in which to record birth dates.
- Ear tags and tattooing equipment for calf identification.
- A scale for determining birth weights.
- Frozen colostrum.
- Dehorning and castrating equipment.
- Growth implants for steer calves and nonreplacement heifers.
- Selenium for injections in selenium-deficient areas.
- Vitamin A for injections for cows and calves if forage quality is low.
- Health products and electrolytes to treat calves with scours.

--Health products to treat respiratory problems.

"Prior to calving, clean and disinfect the calving pen or area," says Anderson. "Observe cows regularly at calving time, especially first-calf heifers. Watch for abnormal presentations, such as a backward calf, and take corrective action quickly. Dry or warm calves if they need it, and dip navels with iodine solution. Be sure each calf nurses soon after birth. Give any that do not 1 to 2 quarts of colostrum."

Anderson recommends calling a veterinarian to treat any cow that retains the placenta for 48 hours.

"Keep a close eye on young calves for signs of scours and pneumonia," Anderson adds. "Separating cows with calves from those that have not calved will reduce the chance of scours."

Anderson notes that management practices, such as ear tagging, tattooing, castrating, dehorning and implanting, are easiest to perform when calves are young.

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AEA,BSS,CEO,V2,A2

NAGR3363

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 1, 1990

Source: Bill Lueschen
507/835-3620
Editor: Sam Brungardt
612/625-6797

SCIENTIST URGES CORN GROWERS TO USE NEW SEED SAFENER CAUTIOUSLY

Corn growers should use the seed safener Advantage (naphthalic anhydride) cautiously until additional field trials provide more information on its advantages and disadvantages, says University of Minnesota agronomic scientist Bill Lueschen.

The seed safener, which is commercially available this year for the first time, is based on technology that's been around since the 1970s. "It works by increasing the ability of the plant to metabolize the herbicide," explains Lueschen, who conducts research at the Southern Experiment Station, Waseca.

Although 1989 trials showed that Advantage reduced stand loss and injury and prevented yield loss in plots of corn treated with some popular herbicides, Lueschen says growers should not consider it a cure-all for herbicide misuse.

He's concerned that some farmers, lulled by the feeling that Advantage will provide safety from misapplied herbicides, might not use herbicides as carefully they should. "We're concerned about growers' attitudes toward herbicides," he says. "Even though we have a seed safener that seems to work well, growers still need to select the right herbicide, calibrate their applicators properly and apply the herbicide correctly."

Last summer, Advantage was evaluated on two corn hybrids in

plots treated with Command (applied at 1.25 and 0.62 pounds per acre), Pursuit (0.016 and 0.031 pound per acre) and Scepter (0.031 pound per acre. The Command was applied with atrazine, used at a rate of 1.25 pounds per acre. The safener was used on part of each plot, and all plots were treated preemergence with Lasso at 3.5 pounds per acre.

In plots treated with either rate of Command, there was stand loss where Advantage was not applied. The use of the safener in Command-treated plots also reduced herbicide injury symptoms by at least 50 percent. The safener decreased injury approximately 40 percent in the plots where Scepter and Pursuit were applied. Perhaps most important, yields were significantly higher where the safener had been used compared to untreated areas. Nevertheless, Lueschen says some questions remain: "There's a possible problem with low germination in seeds treated with the safener. We also don't know how consistent the safener is and we need to know the range of herbicides it protects corn from."

Should farmers use Advantage?

Lueschen says, "If a grower overapplied a herbicide and if he is locked into growing corn, he definitely ought to consider using it. However, it probably wouldn't be very effective with small grains or with soybeans or other broadleaves."

Before buying the safener or pretreated seed, Lueschen cautions that growers should check with the maker of the herbicide they intend to use. He says, "If a farmer is concerned about carryover, he should find out what the manufacturer says about

backing up a herbicide if injury occurs when the grower is using the safener in addition to the herbicide.

"The safener will probably be more beneficial used under dry conditions, when there's more potential for herbicide carryover."

There's been a last-minute development in the marketing of Advantage for 1990. Cargill had planned to market nine corn hybrids pretreated with the safener. However, because of concerns about seed quality, Cargill will not market pretreated seed this spring. FMC will market Advantage, and farmers can use a planter box treatment for about \$3 an acre.

Lueschen says growers may want to use the planter box method to find out how effective the safener is. "Leave one or two planter boxes untreated and then if there is injury, you can tell whether its from the safener or from the herbicide carryover," he advises.

Field trials with Advantage will continue this summer.

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AEA,BSS,CEO,F1

NAGR3370

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 1, 1990

Sources: Han S. Joo
612/625-0235
William Christianson
612/625-9792
Editor: Sam Brungardt
612/625-6797

VETS SUGGEST WAYS TO PREVENT, MINIMIZE MYSTERY SWINE DISEASE

During the last two years, a mysterious swine disease has caused devastating losses on farms in Minnesota and elsewhere in the United States.

Han S. Joo and William Christianson, veterinary researchers for the University of Minnesota's Agricultural Experiment Station, have been trying to pinpoint the cause of the disease. Until the disease is positively identified, the scientists are advising swine producers to take precautionary measures to prevent and deal with the disease, which affects both pregnant sows and newborn piglets.

Often, the disease first becomes evident when pregnant sows lose their appetites and farrow or abort early (at 106 to 112 days of gestation), Christianson says. The disease, which Joo and Christianson strongly suspect is caused by a mutation of the encephalomyocarditis (EMC) virus, results in greatly increased rates of stillborn pigs and mummified fetuses as well as very high (as great as 80 percent) preweaning mortality.

Affected piglets often have rapid breathing (called "thumping"), according to Joo. In addition, diseased sows may

have smaller-than-usual litters for an extended time. "It's wiping out production for two to three months before it runs its course," Christianson says.

The disease has cost producers a lot. A recent study of two Minnesota farms hit by the disease, according to Joo and Christianson, showed that profits were markedly less (\$21,035 for the 230-sow operation and \$32,764 for the other, which had 340 sows) than for the previous year, before the disease struck.

Although Joo and Christianson have reproduced the disease in fetal and baby pigs, they have not been able to reproduce it in sows. Until that's done, they have no definitive proof that the EMC virus is the culprit, nor can they work on a definitive cure.

Until the cause of the disease is found, Christianson encourages farmers to try to prevent its occurrence by buying disease-free animals, preferably from a single, reliable source. He also advises isolating new animals, whenever possible, for 30 days. It's also important to change boots and coveralls and to wash vehicles used in marketing hogs. Producers should control rodents, he adds, which may be carriers of the virus, and wildlife, including stray cats and dogs, should be kept from the operation. Finally, traffic through the facility should be kept to a minimum.

Although Joo has worked with a local company to develop an EMC vaccine, it is still only conditionally approved by the USDA and results of its use have been inconclusive. In any case, until EMC is definitely proved to be the cause of the mystery swine disease,

the vaccine should not be assumed to be the cure.

Once a swine operation acquires the mystery syndrome, Christianson says, treatment is limited and it's important to work with a veterinarian to rule out other diseases that may resemble the mystery disease.

Once the existence of the mystery disease is established, it may help to give the animals antibiotics to control secondary bacterial infections. Some producers, Christianson says, believe that feedback may help shorten the course of the disease, but there is no proof of this. The vaccine Joo developed can be given, Christianson says, but its effectiveness is still not proven. However, he adds, it will not adversely affect swine.

Christianson recommends that producers on affected farms breed more gilts to recoup some of their financial losses. Those with farrow-to-finish operations should use the enforced break in the system to assess and clean up diseased animals.

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AEA,BSS,CEO,P1

NAGR3366

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 1, 1990

Source: Pete Anderson
612/624-4995
Writer: Joseph Kurtz
612/625-3168**CHECK BEEF COW NUTRITION, GENETICS DURING CALVING SEASON**

The calving season is a good time to evaluate both nutrition and genetics in a beef cow herd. Making needed adjustments will pay off in the long run, says Pete Anderson, extension beef scientist at the University of Minnesota.

"To get cows rebred quickly after calving, they need to be on a high plane of nutrition and gaining weight from a few weeks before calving through the breeding season," says Anderson.

Possible cow diets Anderson suggests are: a full feed of mixed legume-grass hay; 15-20 pounds of legume hay plus 30-35 pounds of corn silage per day; or 60-80 pounds of corn silage plus .5-1.0 pound of protein per day.

"Test feedstuffs if forage quality is low," says Anderson. "And be sure that cows are receiving adequate mineral nutrition."

If too many calves require assistance at birth, consider measuring the pelvic area on replacement heifers, says Anderson. Cull those with a pelvic area of less than 160 square centimeters at a year of age. Also, breed heifers and small cows to bulls with low birth weight Expected Progeny Differences (EPDs).

Anderson also suggests weighing replacement heifers, and adjusting nutrition so that at breeding time, all heifers will weigh at least 65 percent of their expected mature weight.

"Now is also a good time to buy bulls," says Anderson. "Many purebred breeders and bull test stations have their sales in March and April. Select the right breed of bull to work in your crossbreeding program. Then use EPDs and visual appraisal to choose the right bull from within that breed. Pay for good bulls; the others should go to slaughter."

Finally, the calving season is a good time to semen-check herd bulls, or if you use artificial insemination, to place semen orders.

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AEA,BSS,CEO,V2,A2

NAGR3371

NEWS/ INFORMATION

March 1, 1990

Source: Jeff Reneau
612/624-4995
Writer: Joseph Kurtz
612/625-3168

USING OXYTOCIN TO INCREASE MILK PRODUCTION IS ILLEGAL

Dairy producers should not inject lactating cows with oxytocin to increase milk production. Such use of this compound is illegal, says Jeff Reneau, extension dairy scientist at the University of Minnesota.

Oxytocin is a natural protein hormone that causes cows to "let down" their milk. All lactating cows have some oxytocin in their bloodstream at milking time.

"Two years ago, researchers at Cornell University in New York presented preliminary findings of a study on oxytocin," says Reneau. "This preliminary report indicated injections of oxytocin at each milking increased milk production 10-12 percent in one herd of 73 cows. Their final report on the study is still in the review process and has not been officially reported in the Journal of Dairy Science."

Reneau says the study has not addressed some important questions, including how or why the oxytocin increased milk production. Previous studies using oxytocin injections at each milking have not resulted in the positive results found in the Cornell study.

He cites the following problems with using oxytocin to increase milk production:

--Such use is, in the strictest sense, illegal. Oxytocin is a prescription drug approved for therapeutic use only. "The Food and Drug Administration has made it clear that it is illegal to prescribe oxytocin for routine use as a production aid," Reneau points out. "This is mainly because the appropriate studies necessary to get FDA clearance for this usage have not yet been conducted."

--There have not been any studies of the long-term side effects of oxytocin. Reneau says, "We know, for example, that under certain circumstances unwise use of this compound can impair reproductive performance. There also is some question about how routine injections might affect the cow's ability to produce and respond to her own oxytocin. The potential exists that a cow might become dependent on injected oxytocin to achieve efficient milk letdown."

--Oxytocin would have to be injected at every milking, which is an obvious inconvenience.

"Clearly, much more work is necessary before use of oxytocin as a production enhancement aid can be either confidently or legally recommended," says Reneau.

He adds that veterinarians should prescribe oxytocin only according to its label instructions and should carefully consider the legal implications of prescribing the compound for any other use.

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 1, 1990

Source: Charles Christians
612/624-0766
Writer: Joseph Kurtz
612/625-3168

UNIVERSITY OF MINNESOTA SWINE RESEARCH REPORT IS AVAILABLE

"The 1990 Minnesota Swine Research Reports," a 66-page booklet containing results and updates of University of Minnesota swine research, is available by mail from the University.

The booklet, published by the Department of Animal Science in cooperation with the Minnesota Extension Service and the Minnesota Agricultural Experiment Station, contains reports on a wide variety of topics, including repartitioning agents, dietary fat and lysine, on-farm feed manufacturing, dietary fat, grow-finish problems and marketing quality pork.

Copies of the booklet are available for \$5 each from Charles Christians, Department of Animal Science, 101 Peters Hall, 1404 Gortner Ave., University of Minnesota, St. Paul, MN 55108-1098. Checks should be made payable to the University of Minnesota.

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AES,BSS,CEO,P1

NAGR3367

MSO/AED-30

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 1, 1990

Source: Larry Jacobson
612/625-9733
Editor: Mary Kay O'Hearn
612/625-2728

PUBLICATION ADVISES WHEN TO USE PRESERVATIVE-TREATED WOOD

A new pamphlet, written by the Midwest Plan Service, suggests proper uses for preservative-treated wood in production agriculture, residential and commercial building.

"Preservative Treated Wood for Farm and Home," AED-30, explains the factors that cause wood decay and the preservatives to combat it, according to Larry Jacobson, an agricultural engineer with the University of Minnesota's Extension Service. "Selecting the preservative-treated wood best suited to the particular project is easier with the information in this pamphlet," Jacobson says.

The cost of the pamphlet is \$1.50 (Minnesota residents add 6 percent sales tax). To order, send a check, made payable to the University of Minnesota, to Extension Agricultural Engineering, 201 Agricultural Engineering Bldg., University of Minnesota, St. Paul, MN 55108.

This publication focuses on the chemicals used to pressure treat lumber--a process of forcing chemicals deep into the wood for increased penetration and retention of the preservatives. Jacobson cautions, "The chemicals are restricted use pesticides and are potentially harmful to humans and animals if not used properly. Selecting the lumber according to its intended use

minimizes human and animal exposure to the treatment chemicals."

Penta (pentachlorophenol), creosote, chromated copper arsenate (CCA), ammonia copper arsenate (AMA) and ammoniacal copper zinc arsenate (ACZA) are all wood preservatives. Precautions for handling pressure-treated wood are included. The publication also gives tips on design, fasteners, field treatments and sealers.

Midwest Plan Service, Ames, Iowa, originated the publication together with 12 north central Land Grant universities and the U.S. Department of Agriculture.

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AEA,BSS,CEO,A1,E4,I4

NAGR3372

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

March 5, 1990

Source: George Rehm
612/625-6210
Writer: Jack Sperbeck
612/625-1794

ANHYDROUS AMMONIA IS GETTING UNDESERVED BAD REPUTATION

Anhydrous ammonia fertilizer is getting a bum rap--it does not kill soil bacteria, make soil hard or burn up soil organic matter.

"Testimonials that say these things are nothing more than hearsay," says George Rehm, soil scientist with the University of Minnesota's Extension Service. "Anhydrous ammonia has been severely criticized by those who would like to see the use of nitrogen fertilizer and agricultural chemicals eliminated."

Detailed microbiological studies have clearly shown that bacterial populations increase--not decrease--when anhydrous ammonia is used. Other trials in Kansas also showed that 10 years of repeated anhydrous ammonia use did not increase bulk density (a measure of soil compaction). In addition, there was no change in the soil's organic matter content.

Several nitrogen sources can be used for crop production in Minnesota. Anhydrous ammonia has been the most widely used one for several years. "When properly applied, a pound of nitrogen is a pound of nitrogen--regardless of source," Rehm says.

"The negative testimonials are nothing more than someone's imagination. Anhydrous ammonia continues to be a very cost-effective nitrogen source for crop production in Minnesota."

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 5, 1990

Source: Mike Schmitt
612/625-7017
Writer: Jack Sperbeck
612/625-1794

DON'T WASTE MONEY ON SOIL FERTILITY 'BUILD-UP'

Stop adding extra fertilizer under soil fertility "build-up" programs once phosphate and potassium levels reach the medium to high range, advises Mike Schmitt, soil scientist with the University of Minnesota's Extension Service.

Schmitt says it can make sense to build low soil fertility levels up. But when it's overdone, the extra fertilizer applied won't be profitable. And some farmers don't realize how much of their fertilizer recommendation from private testing labs is due to the "build-up" factor.

Fertilizer recommendations from some private laboratories can be significantly less profitable, compared to public laboratories, like the University of Minnesota's. "If you have a question about the recommendations, take the nutrient tests and plug them into the University of Minnesota's formula, which is available at county extension offices," Schmitt advises.

"If there's a big difference between recommendations you have a large 'build-up' factor in the higher one." The University of Minnesota's Soil Testing Laboratory now is on a parts per million basis so nutrient tests can be easily compared to private laboratories.

The key factor is learning what you're putting on and why,

Schmitt says. He recently had a call from a farmer he describes as a good farmer and good steward of the land.

"He told me his soil tests were in the very high range. But he was still on a build-up program and no one told him to stop. There's no point in building higher and higher levels. For example, if you're on a four-year program to build levels up, you should be able to quit the build-up program after the fourth year."

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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

March 5, 1990

Source: C. Eugene Allen
612/624-4777

Writer: Dani O'Reilly
612/625-4715

U OF M INSTITUTE OF AG, FORESTRY, HOME EC ELECTS ADVISORY LEADERS

The Advisory Council to the University of Minnesota's Institute of Agriculture, Forestry and Home Economics has elected Pat Henderson as its chairwoman and Sandy Ludeman, Jr., as its vice-chairman.

Henderson was vice president of public relations at the Minneapolis Grain Exchange from 1981 to 1988. In 1988, she formed an independent marketing and public relations firm working primarily for agribusiness clients.

Ludeman operates SanMarBo Farms, a family farming operation in Tracy. He is active in community activities and has served as chairman of the Minnesota Soybean Development Foundation. He is the current past president of the national board of the Outstanding Farmers of America.

The 45-member Advisory Council provides public input to the vice president and the deans within the Institute of Agriculture, Forestry and Home Economics. Statewide representation within the Council assures broad-based feedback on the work and progress of the Institute. In addition to the University of Minnesota's St. Paul campus-based colleges, the Institute includes the Minnesota Agricultural Experiment Station, the Minnesota Extension Service and the technical colleges in Crookston and Waseca.

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V2,V4,A1M,17,42,51,67

NEXT3375

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 5, 1990

Source: Juanita Reed-Boniface
612/625-9231
Writer: Pam Barnard
612/625-4730**20 SCHOLARSHIPS AWARDED TO 4-H VOLUNTEERS FOR LEADERSHIP FORUM**

Twenty 4-H adult volunteers have been awarded scholarships to attend the fifth Annual Minnesota Adult Volunteers Association (MAVA) Forum in Alexandria, Minn., on March 23-25. The \$50 scholarships are part of a \$1,000 grant from NJR Nabisco, Inc. to support 4-H leadership development.

Lorna Rockstad, a 4-H volunteer in Norman County, developed the grant proposal for the scholarships in her role as Minnesota delegate to the Salute to Excellence Program conducted by the National 4-H Council in Washington, D.C., last March.

Volunteers awarded scholarships had to be first-time attendees of the state leader forum, and selections were made from applications. The 20 recipients are, by county: Ann M. Zick (Becker); Londa and Loren Ingebretson (Clay); Jill Illies and Gerianne Nienow (Clearwater); Marcia Stevens (Crow Wing); Lauryne M. Stern (Fairbault); Maxine Hamer (Freeborn); Dianne Linngren (Isanti); LaDonna Truedson (Kittson); Linda M. Hass and Darlene M. Johnson (Mille Lacs); Solveig Kitchell (Norman); Marlene and Jerry Stein (Pope); Kam Dzwonkowski (St. Louis); Carol J. Bong and Ron Gaskin (Scott); Jane S. Thielke (Swift); Debra and Delvin Durheim and Lorraine Johnson (Todd); and Yvonne Williams (Watonwan).

The theme of this year's MAVA Forum will be "Believe to Achieve." The forum will feature both skill development and swap sessions, as well as social activities. Keynote speakers will be Alan C. Page, a University of Minnesota regent and former pro football player, and Richard J. Sauer, president and chief executive officer of the National 4-H Council. All 4-H volunteers are invited to attend, and they should contact their county extension offices for further details.

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CEO,03,14,15,18,22,24,30,35,48,54,63,72,75,81,82,88,YM N4-H3378

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

March 5, 1990

Source: Cynthia Wolf
612/625-1780
Writer: Joseph Kurtz
612/625-3168

CHECK YOUNG LAMBS WHILE FEEDING EWES

Sheep producers can save more young lambs by checking the lambs carefully while feeding their mothers. It's a good idea to get every lamb up while feeding the ewes, says Cynthia Wolf, extension veterinarian at the University of Minnesota.

"Upon rising, each lamb should stretch and then nurse," says Wolf. "Take the temperature of any lethargic lamb. You will be surprised how many cold lambs still have warm mouths."

Wolf says cold, weak lambs need immediate attention. They should be given warm milk with a stomach tube, then warmed up to 100-102 degrees F with a warming box or hot sink. A heat lamp won't be enough for a really cold lamb.

If a lamb is so cold it appears lifeless or cannot hold its head up, getting milk into it may not be enough to save it. The lamb may be unable to digest the milk to generate the calories it needs to warm up. In such a case, Wolf says the lamb should get an injection of intraperitoneal glucose. Most producers will need to get a veterinarian to provide this injection, although some may be able to do it themselves.

"Even if you have to warm just one twin or triplet, you should remove all littermates," says Wolf. "Then return the lambs to the ewe together to prevent rejection."

It's important to investigate why a lamb was cold in the first place, adds Wolf. "You need to find out if the lamb wasn't getting enough milk because of a poor-producing ewe, and therefore couldn't generate enough body heat," she says. "Or was the lamb wet and exposed to the weather, making it cold and lethargic and causing it to lose the strength to nurse?"

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AEA,BSS,CEO,V2,N3

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 7, 1990

Source: Philip Raup
612/625-8241
Writer: Sam Brungardt
612/625-6797

VALUE OF MOST MINNESOTA FARMLAND CONTINUED TO RISE IN 1989

The estimated statewide average value of Minnesota farmland as of July 1989 was \$581, or 11 percent higher than a year earlier, a University of Minnesota study shows.

The increase continues an upward trend first noted in 1988, after the sharp declines observed between 1981 and 1987, according to the study, conducted for the University's Agricultural Experiment Station by Philip Raup and Kumaresan Govindan. Raup, professor emeritus of agricultural and applied economics, and Govindan, a research assistant, reported their findings in the March 1990 issue of the Minnesota Agricultural Economist.

Farmland in all districts of the state except the Northeast district showed an increase in estimated average value, the researchers reported. The Southwest district led the increase, with an estimated average per acre value of \$902, up 15 percent from a year earlier. The second largest increase was in the Southeast district, where the estimated average value increased 11 percent, to \$719 an acre. This was followed by the West Central and Northwest districts, with increases of 9 and 8 percent, respectively, to \$544 and \$421 an acre. The East Central district registered the smallest increase--up 2 percent, to \$273 an acre.

In the Northeast district, the downward trend that began several years ago continued; the estimated average value of farmland was down 2 percent, to \$246 an acre.

"In contrast to the 11 percent increase in estimated values," the researchers said, "the survey of actual farmland sales in 1989 resulted in an average reported sales price per acre of \$815 for the state as a whole. This was 18 percent higher than the figure of \$691, reported for 1988. In general, there was an increase in sales prices in all districts, but the increase was greatest in the Southeast and the Southwest districts."

According to the report, average reported sales prices per acre (adjusted for inflation) by district in 1989 and in 1988 (in parentheses) were: Southeast, \$938 (\$797); Southwest, \$1,074 (\$911); West Central, \$620 (\$571); East Central, \$407 (\$395); Northwest, \$461 (\$411); and Northeast, \$189 (\$184).

In 1989, the average sales price per acre in the seven-county Twin Cities Metro area increased, as it did in the South Metro Fringe counties (Goodhue, McLeod, LeSueur, Rice and Sibley). However, the average sales price declined in the North Metro Fringe (which includes Chisago, Isanti, Sherburne and Wright counties). The researchers said, "It should be noted that the North Metro Fringe includes counties in which dairying is prominent, and which suffered severely in the drought of 1988. With limited areas in cash grains, they did not participate as fully in farm disaster relief and income maintenance programs as did the more southern counties."

Raup and Govindan also found that the Conservation Reserve Program (CRP) had an effect on farmland values: "Since 1986-87, an additional reason for the differences between estimated values and sales prices has been the relatively heavy enrollment of lower-priced lands in the Conservation Reserve Program."

According to Raup, the less productive farmland enrolled in the CRP has been sold only infrequently, and this has skewed the market, resulting in higher reported sales prices than would otherwise have been the case.

Why did Minnesotans sell farmland in 1989?

"Retirement," the researchers reported, "has re-emerged after 1985 as the primary reason for farmland sales, accounting for 29 percent of the total sales made in 1989. Financial difficulties were cited as the second most important reason...contributing 20 percent of total sales. 'Leaving farming' (5 percent) and 'reduce size of farming' (11 percent) were additional reasons for sale, totaling 36 percent of sales that might have been influenced by financial difficulties."

The researchers also found a change in the methods buyers used to finance purchases of farmland. "The methods of financing sales...showed a slight reversal of trends that had prevailed since farmland prices began to fall after 1981," they noted. "Most significantly, 1989 was the first year in which financing by contract for deed had increased since 1981. Cash sales and contracts for deed each accounted for 40 percent of total sales, and mortgages for 20 percent."

And, who bought Minnesota farmland in 1989?

"Expansion buyers continued to dominate the rural real estate market in 1989," Raup and Govindan reported, "purchasing 73 percent of total tracts sold. Investors and sole-tract operators accounted for 14 and 13 percent, respectively." ("Sole-tract operators" are farmers who plan to manage the farms they buy and are not using the purchases to expand existing land holdings.)

Copies of the March 1990 Minnesota Agricultural Economist are available from the Department of Agricultural and Applied Economics, 337A Classroom-Office Building, University of Minnesota, St. Paul, MN 55108 (phone 612/625-6291).

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NAGR3386

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 8, 1990

Source: Jerry Wright
612/589-1711
Editor: Mary Kay O'Hearn
612/625-2728

INVEST IN IRRIGATION ONLY AFTER YOU'VE DONE HOMEWORK

Spending for irrigation equipment because there have been a few dry years isn't the sole reason to make such an investment.

"In dry years, irrigation equipment may look appealing, but investing in irrigation to save a crop for one year is not economically sound," says Jerry Wright, agricultural engineer at the Minnesota Extension Service's district office in Morris.

Irrigation is a long-term crop management practice. An irrigation investment may mean \$300 to over \$600 an acre. And that will require an additional \$30 to \$50 annual cash costs per acre, depending on the location of the water supply. Some high-value specialty crops might pay for the investment in one dry year, but most crops will take five to 10 years even on sandy soils, Wright says.

Before deciding whether irrigating a field is a good idea, there needs to be plenty of investigation about soil drainage, availability and quality of the water supply, potential crop yield increase over the next five to 10 years, equipment costs and overall cash flow and long-term economics.

"Determining whether or not to irrigate a field takes lots more time than the 20 to 40 days to install the irrigation system," Wright warns. He suggests starting your investigation

early. Consult widely before making a decision; talk to an irrigation supplier, a well driller, a Minnesota Department of Natural Resources hydrologist, a county extension agent, a Soil Conservation Service technician and neighbors who already irrigate.

These are the three key questions that Wright says need answering immediately:

1. Is there an adequate water supply to meet crops' water needs and manage the land to its best production potential?

Farmer experience and past research suggest a sprinkler irrigation system operating 24 hours daily during peak water use periods needs 5.5 to 7.0 gallons of water per minute per irrigated acre for loamy sandy to loamy textured soils. For a 130-acre pivot, this is 750 to 900 gallons a minute. To determine whether there is an adequate water supply, a well should be test pumped for at least 24 hours and sometimes as long as 72 hours by a well driller. This information is needed to apply for a water appropriation permit from the Minnesota Department of Natural Resources which is required by law.

2. What is the long-term crop yield increase that can be expected over average dryland conditions?

Central Minnesota irrigators usually average these per acre yields: 130-150 bushels of corn, 35-45 bushels of soybeans and 5-6 tons of alfalfa. "Higher yields are obtained by some veteran irrigators," Wright says, "but it usually takes a new irrigator

two, three or more years growing and learning to obtain the higher yields."

3. Will increased yields cover all the costs of operating and the investment? How does the investment fit into the present farm cash flow and long-term financial plan?

"These questions can only be answered after the water supply has been investigated, costs for the proposed irrigation system and additional production inputs have been determined and the projected increased returns have been estimated," Wright says.

Farmers wanting more information on irrigation feasibility should contact the agricultural agent at their local county extension office or call Jerry Wright at the District Extension Office in Morris at (612) 589-1711.

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NAGR3384

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
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DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 8, 1990

Source: Jerry Wright
612/589-1711Editor: Mary Kay O'Hearn
612/625-2728**NEW EXTENSION PUBLICATION DISCUSSES IRRIGATION MANAGEMENT**

Regular monitoring of the field's soil water status and irrigating when the soil water approaches the crop's critical soil water deficit level: these are two keys to an effective irrigation management program.

A new Minnesota Extension Service publication, Irrigation Water Management Considerations for Sandy Soils in Minnesota, discusses research-based, water scheduling strategy options for several crops. The publication was written by Jerry Wright, University of Minnesota extension agricultural engineer.

Applying too much irrigation water means increased pumping costs, reduced water use efficiency and increased potential for nitrates and certain pesticides to leach from the root zone into the groundwater, according to Wright.

He says, "An irrigator can maximize the efficiency of the crop's production inputs, prevent economic yield losses due to moisture stress, minimize leaching potential of agrichemicals and conserve the water resources by using a research-based irrigation water scheduling program."

For a copy of the new publication, ask your local county extension office for item AG-F0-3875. The publication is also available for 50 cents a copy (plus 6 percent sales tax on Minnesota orders) from the Distribution Center, 3 Coffey Hall, 1420 Eckles Ave., University of Minnesota, St. Paul, MN 55108. Checks should be made payable to the University of Minnesota.

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NAGR3385

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 8, 1990

Sources: Richard Widmer
612/645-3388
Peter Ascher
612/624-9762
Writer: Sam Brungardt
612/625-6797

Editors: Call Carl Walker (612/624-3708) or Sam Brungardt (612/625-6797) to obtain black-and-white prints or 35mm color transparencies of these new mums.

GARDENERS SHOULD LIKE UNIVERSITY OF MINNESOTA'S 2 NEW MUMS

Snowsota and Maroon Pride are among the new mums that gardeners will find for sale this spring. Although few will know it, the two new cultivars represent the culmination of 39 years of work by Richard Widmer.

Widmer, a horticultural scientist who retired last year from the University of Minnesota, bred many of the 72 garden and 7 greenhouse chrysanthemums that the University's Agricultural Experiment Station has released since 1934.

Not many gardeners will remember Hiawatha, the first cultivar to be released from the breeding program, but more recent introductions, such as Autumn Fire, Burnt Copper, Centerpiece, Grape Glow, Lemonsota, Mellow Moon, Minngopher, Minnwhite, Rosy Glow and Royal Knight, are popular in many parts of the United States and Canada.

"When Louis Longley started breeding mums at the University," recalls Widmer, "only primitive types would bloom in Minnesota unless the growing season turned out to be very long, which was very unusual. By the time I took over the project, we had some

fairly decent cultivars, but most had weak stems and were not of the quality we have today.

"Over the years, we've strengthened the stems, improved growth habits, made them more disease resistant and enlarged the size of the blooms."

Peter Ascher, another University of Minnesota horticultural scientist, thinks gardeners will like many of the attributes of Snowsota and Maroon Pride. He says, "Both of these cultivars should be adapted to areas with relatively short growing seasons; they usually begin to bloom the last week of August here in the Minneapolis-St. Paul area."

Snowsota produces an informally mounded plant topped by 1-1/2-inch, long-lasting, white flowers. The flowers' light yellow centers fade to pure white, and the blooms resist turning pink at low temperatures. Medium-green foliage clothes the stiff stems of the 15-inch-high, 24-inch-wide plants.

Maroon Pride displays its flowers atop uniformly mounded plants. The rich dark red flowers, which are 3 to 3-1/2 inches wide, fade slowly. Plants of Maroon Pride have glossy, dark green foliage and grow 18 inches high and 28 inches wide.

The public may see these two new, patented mums for sale at florist shops as well as garden centers; both are suitable for being grown as spring-flowering, potted plants.

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NAGR3362

**NEWS/
INFORMATION**

March 12, 1990

Source: Vince Fritz
507/835-3620
Editor: Sam Brungardt
612/625-6797**HORT CROP STAND ESTABLISHMENT SYMPOSIUM TO BE APRIL 4-6**

The latest research and technology regarding stand establishment will be showcased April 4-6 at the National Symposium on Stand Establishment for Horticultural Crops. The event will be held at the Airport Hilton Hotel in Bloomington, Minn., a few minutes from the Minneapolis-St. Paul airport.

The program is intended for horticultural researchers, extension agents, seed company representatives and commercial growers. Preplanting and preseeding treatments, transplant production and postplant environment are the three main topics the symposium will cover.

Otho Wells and Donald Grabe will be the keynote speakers. Wells, from the University of New Hampshire's Department of Plant Science, will talk about the evolution of row covers and mulches in the production of horticultural crops. Grabe, from Oregon State University's Department of Crop Science, will speak on the relationship of seed moisture to seed quality and seedling vigor.

"Technology for stand establishment is changing rapidly and constantly developing," says symposium chairman Vince Fritz, the horticultural scientist stationed at the University of Minnesota's Southern Experiment Station, Waseca. "We're trying to cover as many aspects of stand establishment in detail as possible. The

symposium will offer a unique opportunity for participants to discuss the latest information informally through roundtable discussions. Many of the presentations will be geared to researchers, but we welcome anyone with an interest in stand establishment."

Tours to two commercial greenhouse operations on the symposium's second day will include a look at germination mist chambers.

The symposium is expected to draw participants from other countries as well as from across the United States. For registration information, call (800) 367-5363 or (612) 625-3775.

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AEA,BSS,CEO,L1

NAGR3389

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 12, 1990

Source: James O. Hanson
612/624-2268
Writer: Joseph Kurtz
612/625-3168

U OF M PLANS ANNUAL SPRING CLINIC FOR HORSE OWNERS

Keeping their horses healthy is a prime goal for those who own these animals. Horse owners can learn more about various aspects of horse health by attending the University of Minnesota's Annual Spring Clinic for Horse Owners on Saturday, April 7. This clinic will be in Room 135 of the Animal Science/Veterinary Medicine Building on the University's St. Paul campus.

Registration will begin at 8:15 a.m. The program will run from 9 a.m. to 5:15 p.m., with lunch from 11:45 a.m. to 1 p.m.

Featured speaker at the clinic will be Peter J. Timoney, director of the equine research center at the University of Kentucky in Lexington. Timoney will give two presentations on equine viral arteritis. This disease, which has become much more common in recent years, causes upper respiratory tract infections, edema and swelling of the legs, and also causes abortion in mares.

There will also be a presentation on Potomac horse fever, a gastrointestinal problem in horses caused by a blood-borne parasite. Trevor Ames and Tom Juergens of the University of Minnesota's College of Veterinary Medicine will be the presenters.

Another topic, presented by Mike Murphy of the University of Minnesota, will be plants and insects that are poisonous to horses.

A presentation by Ray Geor and Jane Ebben of the University of Minnesota on neonatal care of the foal will wrap up the program.

Advance registration fee for the clinic is \$20 for horse owners and veterinarians, \$10 for each additional family member, and \$10 for veterinary technicians and students. At the door, each of these fees will be \$5 more. The fee for lunch is \$5 in advance, \$6 at the door.

Registration forms are available from county extension offices in Minnesota or by contacting James O. Hanson, 440 Veterinary Teaching Hospitals, 1365 Gortner Ave., University of Minnesota, St. Paul, MN 55108; telephone (612) 624-2268.

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AEA,BSS,CEO,V2,K

NAGR3390

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

March 12, 1990

Source: Jim Linn
612/624-4995
Editor: Sam Brungardt
612/625-6797

STUDY SHOWS BST-TREATED COWS PRODUCE CALVES OF AVERAGE SIZE

Treating dairy cows with bovine growth hormone has no significant effect on the calves they have, according to a recent study done for the Minnesota Agricultural Experiment Station.

The growth hormone, rBST (recombinant bovine somatotrophin), can be used to increase milk production. "Some producers have asked whether cows getting BST have larger calves, and the results of this study show that treating dairy cows during lactation with BST does not modify the size, growth or sex of their calves," says Jim Linn, the extension dairy nutritionist who worked on the study with research assistant Rich Larson and other University of Minnesota researchers.

For the study, two groups of Holstein cows were given various dosages of rBST either by injection or by sustained release. Injected doses varied from 10.3 to 40.2 milligrams per day, while the sustained release doses ranged from 350 to 1,750 milligrams every 14 days. Some cows in each group served as controls and were given no rBST. The study included two successive lactations.

Calves from all cows were evaluated through the first 30 days of life, and data from the two groups were pooled.

"There was no statistically significant difference between the control and rBST-treated cows in the incidence of twinning and

still births," says Linn. "Percentage of deaths of live calves born to control or rBST-treated cows was not different during the first 30 days of life. Other growth and health characteristics, including body weight and length, heart girth, weight gain, heart rate and respiration, were the same for the calves born to the cows that were receiving rBST and their herdmate controls. There was also no significant difference in the incidence of diarrhea between the two groups."

Results of the study will be formally presented at the annual meeting of the midwestern section of the American Society of Animal Science, March 26-28 in Des Moines.

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AEA,BSS,CEO,DM,L3M,SelMedia

NAGR3387

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

March 15, 1990

Sources: Albert Paszek
612/624-4766
William Boylan
612/624-1727
Editor: Sam Brungardt
612/625-6797

CROSSBRED ROMANOV LAMBS COMPARE FAVORABLY TO DOMESTIC BREEDS

Crossbred Romanov lambs compare favorably in postweaning growth rate and carcass traits to lambs of several domestic breeds, a Minnesota Agricultural Experiment Station study has found.

The findings should be good news to producers who would like to cross the prolific Romanov breed with domestic breeds, says Albert Paszek, a University of Minnesota research assistant.

The study, which Paszek conducted under the guidance of animal scientist William Boylan, compared the growth and carcass traits of Romanov-Finn and Romanov-Dorset lambs with those of purebred Romanov, Rambouillet, Finn, Targhee, Lincoln and Suffolk lambs and the lambs of three synthetic breeds.

The lambs' birth weights, weaning weights and growth rates were compared, and some of the animals were evaluated for carcass traits, including internal fat measurements, leg scores and yield grade.

The researchers observed significant breed differences in birth weight and weaning weight but not in postweaning growth rate and carcass traits.

"Our research proved that crossbred Romanovs performed as well

as domestic breed lambs in the postweaning traits that we measured," Paszek says. "Over the last two years, there has been much more interest in the Romanovs because of their high prolificacy, which we are continuing to research. This study may encourage more producers to consider Romanovs for crossbreeding because it shows that their crossbred progeny will be similar in size to domestic breed lambs."

The Romanov, a Russian breed introduced to the United States from Canada in 1987, reputedly breeds out of season, but Paszek says more studies are needed to confirm this. He adds that producers often note that lambs of Romanov crosses are sturdier and livelier at birth than the lambs of many domestic breeds, but this also needs to be formally studied. Boylan, one of the first U.S. scientists to evaluate the Romanov, was responsible for introducing the Finnsheep breed, which many U.S. producers now use in crosses because of its prolificacy, to the United States.

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AEA,BSS,CEO,N3M

NAGR3391

**NEWS/
INFORMATION**

March 15, 1990

Source: Mel Baughman
612/624-0734
Writer: Rich Sherman
612/625-3154**FEE-BASED RECREATION TREND PROMPTS NEW STUDY**

Fee-based recreation is not a new idea, but is receiving new attention in Minnesota. Owners of forest, range and agricultural land in some other states already generate substantial income by charging fees for the recreational use of their lands.

Though the practice is not widespread in Minnesota, many landowners are charging people who want to use their land for camping, skiing, fishing, hunting, snowmobiling or other recreational activities.

Mel Baughman, forest resource specialist with the University of Minnesota's Extension Service, says fee-based recreation has growth potential in Minnesota, but could generate controversy. Compared to many states, Minnesota has both a large public land base and a tradition of free access to private land. It means that some Minnesotans are not used to paying such fees.

Perhaps the most controversial area is fee-based hunting, says Baughman. Many pro and con arguments are already being made. "Those in favor of fee-hunting claim that it generates additional income for rural families, encourages landowners to improve wildlife habitat, and since wildlife are free-roaming, the wildlife will travel to nearby land that is not leased and benefit those lands as well," he says.

"People who are against fee-hunting claim that it locks up hunting

land for the rich and that artificial stocking of animals could become more common, reducing the quality of wild animals." He says, "Answers to these questions depend on research."

One study of Minnesota small game hunters indicates that 87 percent are willing to pay a fee for good quality pheasant hunting. However, Baughman says more research is needed, and two additional research projects are planned. In one, the Minnesota Extension Service will study the operation of fee-based businesses in four areas of Minnesota: the southeast, the Twin Cities metro area, the north central area and the west central area.

The study is not intended to take sides on this sensitive issue, Baughman cautions. "This research is needed for us to know the marketing and management problems, if any, of fee-based businesses," he says.

"A second study will investigate the legal and political implications of fee-based hunting. Whether or not extension becomes involved in educating landowners about fee-based recreation, the practice already exists and is likely to grow."

The research team will work through local contacts, such as county extension agents, conservation officers and foresters. It will survey businesses and landowners who are already charging fees. Several organizations having special interests, such as tourism, conservation or hunting, will also be contacted to explore their concerns.

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NNRD3393

UNIVERSITY OF MINNESOTA
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 1420 Eckles Avenue
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NEWS/ INFORMATION

March 15, 1990

Source: Carol Shields
 612/625-8715
 Writer: Sam Brungardt
 612/625-6797

6 MINNESOTA YOUTHS ARE NAMED STATE 4-H ACHIEVEMENT WINNERS

The University of Minnesota's 4-H Youth Development program recently presented achievement awards to six 4-H'ers. The awards qualify the youths for a trip, paid for by the Minnesota Bankers Association, to the National 4-H Conference in Washington, D.C., April 1-7.

The award winners include Benton County 4-H'er Cynthia Bauerly, 18, daughter of Mike and Sharon Bauerly, Sauk Rapids; Grant County 4-H'er Janelle Olson, 17, daughter of Harlan and Judy Olson, Elbow Lake; Nobles County 4-H'er Jeff Weness, 17, son of Erlin and Jean Weness, Worthington; Otter Tail County 4-H'er Melanie Rotz, 18, daughter of Wayne and Linda Rotz, Clitherall; Pennington County 4-H'er Heather Olson, 16, daughter of Myles and Susan Olson, Thief River Falls; and Washington County 4-H'er Shelley Monitor, 19, daughter of Ray and Elaine Monitor, Hugo.

The National 4-H Conference provides opportunities for youth to participate in national 4-H program development and strengthen 4-H public relations efforts. 4-H is Minnesota's largest out-of-school educational program, serving 228,000 young people.

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AEA,BSS,CEO,YM

N4-H3400

**NEWS/
INFORMATION**

March 16, 1990

Source: Rick Hansen
612/296-5136Editor: Mary Kay O'Hearn
612/625-2728**NITROGEN TASK FORCE TO HOLD MEETINGS IN ST. CLOUD, ROCHESTER**

The Nitrogen Fertilizer Task Force will conduct public meetings in St. Cloud on March 22 and in Rochester on April 5 to hear testimony on the impacts of nitrogen fertilizer on ground and surface water.

"The information gathered from the public testimony will be used in the development of voluntary best management practices, a fertilizer management plan and possible nitrogen fertilizer regulations," says Rick Hansen, research analyst with the environmental quality section of the Minnesota Department of Agriculture.

The St. Cloud meeting on Thursday, March 22, will be at the Sunwood Inn. Citizens are encouraged to present information and opinions regarding nitrogen fertilizer at the meeting, which will run from 7 to 10 p.m. The business meeting that the task force will hold the next day, from 8 a.m. until noon, will be open to the public.

On Thursday, April 5, the second meeting to hear public testimony will be held at the Holiday Inn in Rochester from 7 to 10 p.m. The next day's business meeting, which will run from 8 a.m. until noon at the Friedell Building in Rochester, will also be open to the public.

The task force is comprised of farmers and representatives of farm organizations, the fertilizer industry, environmental groups, the University of Minnesota, local government and various state agencies. Gyles Randall, soil scientist at the Southern Experiment Station, Waseca, and Minnesota Extension Service soil scientist Michael Schmitt represent the University on the task force.

Hansen says, "The 1989 Groundwater Protection Act established the Nitrogen Fertilizer Task Force to review existing research, particularly research from the University of Minnesota, on nitrogen fertilizer impacts on ground and surface water for the development of voluntary best management practices."

For more information or to schedule testimony for the meetings, contact Rick Hansen, Minnesota Department of Agriculture, 90 W. Plato Blvd., St. Paul, MN 55107 or telephone (612) 296-5136.

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CEO,BSS,AEA,V2M,V4M,F1M,RM

NAGR3402

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 21, 1990

Source: Richard Goodrich
612/624-1205Writer: Sam Brungardt
612/625-6797**LIVESTOCK BREEDERS' ASSOCIATION TO HONOR 3**

The Minnesota Livestock Breeders' Association (MLBA) will induct three Minnesotans into the University of Minnesota Livestock Hall of Fame on March 23. The induction will take place at a banquet preceding the association's 94th annual meeting at the University of Minnesota, Waseca.

The MLBA is honoring the three--Norman County dairy producer Eldo N. Bentley, Mower County pork producer Eugene O. Holst and University of Minnesota animal scientist Robert M. Jordan--for their contributions and service to the livestock industry.

Bentley, of Route 2, Twin Valley, owns and operates Wildwood Farm, which is widely known for its Milking Shorthorns. Bentley now has 80 registered cows in his herd. Wildwood Farm animals have competed at many shows, with one bull being named grand champion at the 1989 World Dairy Expo.

Bentley is also a judge (he judged Illawarra Shorthorns in Australia in 1988) as well as a leader in Milking Shorthorn organizations. He was instrumental in organizing the Northern Minnesota Milking Shorthorn Breeders Association, and he has held offices in the Minnesota Milking Shorthorn Breeders Association and American Milking Shorthorn Society. He has received the Society's Progressive Breeder Award for eight years.

Holst, of Route 3, Austin, is known throughout the United States for his registered Hampshire hogs. Among the shows where Holst animals have captured top honors are the National Barrow Show, National Hampshire Type Conference and the International Livestock Show. Holst has participated in the Minnesota Swine Test Station, producing the top pen of Hampshires several times, and he has bred and owned several all-American Hampshires.

Holst has served on the board of directors of the Minnesota Pork Producers Association for several years and was also vice president of that organization. He also served on the board of directors of the National Pork Producers Council, has been a member of its executive committee, and served as chairman of its planning committee.

Professor Jordan, who lives at 7143 Manning Ave. N., Stillwater, has been on the University of Minnesota faculty since 1954. In addition to conducting research for the Minnesota Agricultural Experiment Station and working with farmers as a Minnesota Extension Service specialist, Jordan has taught animal science courses and coached the University's livestock judging team. Although most of his research and extension work has been sheep, Jordan has also worked with horses and Angora goats, and his most recent initiative has been with red and fallow deer.

Jordan has made many contributions to more efficient sheep production. He was one of the first to study the management and nutrition problems of early-weaned lambs, and his research on the maintenance of ewes in confinement and feeding ewes according to

need during each phase of the reproduction cycle has been of great value to producers. He has a keen interest in the economic aspects of sheep production, and has written extension bulletins dealing with capital requirements and debt service cost of sheep. He also researched a number of new approaches to sheep production, including life cycle feeding in the breeding flock, early weaning, use of milk replacers, pasture forage utilization and introduction of Finnish Landrace into commercial flocks.

The Minnesota Livestock Breeders' Association is an umbrella organization that represents 24 livestock species and breeds. The association supports youth activities dealing with livestock and provides a voice for animal agriculture through its public relations and legislative activities.

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NAGR3407

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 21, 1990

Source: Richard Goodrich
612/624-1205
Writer: Sam Brungardt
612/625-6797

LIVESTOCK BREEDERS TO HONOR U OF M ANIMAL SCIENTIST

Robert M. Jordan, a University of Minnesota professor of animal science who lives at 7143 Manning Ave. N., Stillwater, will be inducted into the University of Minnesota Livestock Hall of Fame on March 23. The Minnesota Livestock Breeders' Association (MLBA) is honoring Jordan for his contributions and service to the livestock industry.

Jordan has been on the University of Minnesota faculty since 1954. He has taught several animal science courses, and he coached the livestock judging team for 14 years. However, he is probably best known for the work he's done with farmers as a Minnesota Extension Service specialist and for the research he has conducted for the Minnesota Agricultural Experiment Station.

Jordan has made many contributions to more efficient sheep production. He was one of the first to study the management and nutrition problems of early-weaned lambs, and his research on the maintenance of ewes in confinement and feeding ewes according to need during each phase of the reproduction cycle has been of great value to sheep producers. He has a keen interest in economics, and has written extension bulletins dealing with capital requirements and debt service in sheep production. He also researched a number of new approaches to sheep production,

including life cycle feeding in the breeding flock, early weaning, use of milk replacers, pasture forage utilization and introduction of Finnish Landrace into commercial flocks.

Jordan has authored more than 600 scientific and popular articles as well as chapters in six books, and he has been spoken on various aspects of sheep production in 16 states and in Canada. He was chairman of the subcommittee that revised the National Research Council (NRC) publication, Nutrient Requirements of Sheep; was a member of the advisory committee to the Pipestone Sheep Project and served as superintendent of the Minnesota State Fair's sheep show for 32 years.

In 1966, he accepted the challenge to develop a course in horse production and to serve as horse extension specialist. He conducted research with ponies to determine protein requirements of foals; calcium and phosphorus requirements for growth, gestation and lactation; energy requirements for lactation; lysine needs; toxicity levels for copper, zinc and sulfur; and the value of different plants in pasture mixtures for horses. More recently, his surveys of horse owners' problems and practices and the philosophies of race horse trainers relative to nutrition have provided information for the horse industry.

Jordan has written several extension horse publications, and he was a member of the subcommittee that revised the NRC's Nutritional Requirements of Horses publication.

In 1978, Jordan initiated a research and education program with Angora goats. Since then, he has conducted seminars and

written an extension bulletin and many articles about Angoras. More recently, he has acquired considerable knowledge about fallow and red deer farming. He is often consulted on aspects of deer nutrition and management, and his publication, Economic Potential of Domesticated Deer, has been distributed widely.

Jordan grew up around Morris, Minn., where his father was an animal scientist at the West Central Experiment Station. He received a B.S. degree from the University of Minnesota in 1942, an M.S. degree from South Dakota State University in 1949 and a Ph.D. in animal science from Kansas State University in 1953.

The MLBA will also induct two other Minnesotans into the Hall of Fame on March 23: Eldo N. Bentley, a Milking Shorthorn breeder from Twin Valley, and Eugene O. Holst, a Hampshire hog breeder from Austin. The MLBA is an umbrella organization representing 24 livestock species and breeds. It supports youth activities that deal with livestock, and provides a voice for animal agriculture through its public relations and legislative activities.

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NAGR3408

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

March 26, 1990

Source: Anne Hanchek
612/443-2460
Writer: Joseph Kurtz
612/625-3168

MINNESOTA'S MASTER GARDENERS WILL HAVE FIRST STATE CONFERENCE

They can often be found at places such as garden centers, nursing homes and service club meetings. They donate thousands of hours of time, talent and effort to their fellow Minnesotans. They play key roles in helping the Minnesota Extension Service carry out its educational mission.

They are Minnesota's Master Gardeners, and a large contingent of them will gather April 28 in St. Paul for the first Minnesota Master Gardener State Conference.

The Master Gardener program has been operating in Minnesota since 1977. Through the program, professional educators with the Minnesota Extension Service develop a high level of gardening expertise in volunteers. These volunteer Master Gardeners then reach out with their knowledge to those who need gardening information. Volunteers donate a minimum of 50 hours of service during their first year in the program, and at least 25 hours per year thereafter.

Anne Hanchek and Mike Zins, University of Minnesota extension horticulturists, direct the Master Gardener program at the state level. They expect 150 to 200 Master Gardeners from across Minnesota to attend the conference.

"The conference has three major goals," says Hanchek. "One is

to provide additional advanced training to the Master Gardeners. A second is to recognize them for their work, particularly those who have been in the program 10 years or more or have donated over 1,000 hours of service. A third is to re-energize the program and possibly form an advisory council of Master Gardeners to help guide the program."

The conference will take place on the University's St. Paul campus. In the evening, there will be a banquet and awards program at Augsburg College.

Hanchek says it's difficult to get a precise total on the number of Master Gardeners in Minnesota. "There could be as many as 1,000, but we expect that the number is more like 600," she says. "There are about 300 in the Twin Cities metro area alone. If a wage value were placed on the service donated by the volunteers, it would amount to a lot of dollars."

The conference is being held during Minnesota Volunteer Recognition Week and in conjunction with National Volunteer Week. Certificates from Gov. Rudy Perpich will be part of the recognition for volunteers with 10 years or 1,000 hours of service.

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AEA,BSS,CEO,V7,I2M

NAGR3411

NEWS/ INFORMATION

**UNIVERSITY OF MINNESOTA
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 405 Coffey Hall
 1420 Eckles Avenue
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March 26, 1990

Source: Dan Putnam
 612/624-1211
 Editor: Sam Brungardt
 612/625-6797

AMARANTH SYMPOSIUM TO EXPLORE NEW WAYS WITH ANCIENT GRAIN

Aspects of growing, processing and marketing amaranth, a high-protein grain held sacred by the ancient Aztecs, will be explored Aug. 23-24 at a symposium in Bloomington, Minn.

"Amaranth is a crop with excellent biological potential," says Dan Putnam, an agronomist who conducts research on amaranth for the University of Minnesota's Agricultural Experiment Station. "It's adaptable to different regions, the yield level is reasonable and it has good resistance to diseases and pests. It also has the reputation for being drought tolerant."

The tiny seeds of amaranth, which have a distinctive, nut-like flavor, are showing up in various food products, such as cereals, breads and cookies. The seeds can even be popped like corn. However, Putnam says, the markets for amaranth are currently quite small. The symposium will discuss existing food products that use amaranth and explore current and potential efforts for increasing its use in foods.

Putnam says, "Amaranth makes an excellent additive to cereals, crackers and snack foods. It has a higher protein level than any other grain, including oats, and it is a nice source of soluble fiber. Studies have also shown that amaranth contains compounds that have been shown to reduce serum cholesterol levels in laboratory animals."

The Fourth National Amaranth Symposium will present information on the biology of amaranth, growing amaranth for grain and forage, processing amaranth grain, the composition and nutrient value of grain and vegetable amaranth, the economics of growing amaranth, seed production, current research and consumer and industry needs. The program is intended primarily for farmers, researchers, extension agents, food processors and other agribusinesses and public and private agencies.

An optional tour of amaranth research plots will be given on Aug. 25, after the symposium, which will be at the Minneapolis-St. Paul Airport Hilton.

Although Nebraska and Kansas produce most of the amaranth grown in the United States, the crop can also be grown in Minnesota. Putnam says amaranth is probably best suited to conditions in the southern and western parts of the state, but notes that crops have been produced successfully in field trials as far north as Grand Rapids.

Farmers who want to try their hand at growing amaranth shouldn't need to make expensive investments, according to Putnam, but they will have to learn about the crop's peculiarities and modify their planting and harvesting equipment because the seeds are so small.

More information about the symposium can be obtained by calling (800) 367-5363 or by writing to Educational Development System, 405 Coffey Hall, 1420 Eckles Ave., University of Minnesota, St. Paul, MN 55108.

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AEA,BSS,CEO,A1,F1,H2,L3

NAGR3412

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 29, 1990

Source: Don Rasmusson
612/625-0250
Writer: Sam Brungardt
612/625-6797

UNIVERSITY OF MINNESOTA'S EXCEL BARLEY MAY REPLACE ROBUST

The Minnesota Agricultural Experiment Station has released Excel, a new six-row barley variety. Seed is being distributed this spring to registered seed growers, and farmers should be able to buy certified seed of Excel for the 1991 planting season.

The malting and brewing industry expects Excel to eventually replace Robust, a variety the Experiment Station released in 1983, says Donald Rasmusson. Rasmusson is the University of Minnesota research agronomist who heads the Experiment Station's barley improvement program. He notes that Robust was the most widely grown barley in the Midwest last year (it made up 85 percent of Minnesota's barley acreage and was widely grown in the Dakotas also).

Rasmusson says, "Some brewers consider Robust too low in alpha amylase, but that shouldn't be a problem with Excel; its malting traits appear to be as good or better than those of Morex, which has been the standard for malting since we released it in 1978." Excel, Rasmusson says, has the high alpha amylase and diastatic power of Morex, it exceeds Morex in extract by .5 percent and it is .9 percent lower in protein than Morex.

"Excel appears to have Robust's desirable agronomic attributes," Rasmusson says. "It yielded, on the average,

4 percent more than Robust in 33 trials in Minnesota and in 32 regional trials. It also has shown a yield advantage over Morex-- 9 percent in Minnesota and 14 percent in the regional trials."

Kernel plumpness is the one trait in which Excel is not as good as Robust, according to Rasmusson. This is important because kernel plumpness is often a pricing factor.

Rasmusson adds, "Although Excel is probably best suited for the barley-growing area of the Upper Midwest, its performance in Idaho and Manitoba suggests that it may be widely adapted. It is similar to Robust in maturity and lodging reaction."

Roy Wilcoxson, the plant pathologist who works with Rasmusson, says Excel possesses the T gene for resistance to stem rust, the ND B112 gene for resistance to spot blotch and a low level of resistance to net blotch. It is, however, susceptible to loose smut.

Excel was tested as M52.

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AEA,BSS,CEO,V2,F1

NAGR3419

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 29, 1990

Sources: Brian Crooker
612/625-3185
Don Otterby
612/624-0782
Writer: Joseph Kurtz
612/625-3168

U OF M ANIMAL SCIENTISTS SAY BST POSES NO DANGER TO HUMANS

Use the word "hormone" in connection with a food product, and you're likely to get some people stirred up in today's health-conscious society. Perhaps that's appropriate, since "hormone" is derived from a Greek word that means to stir up or excite.

One hormone that's stirred up a lot of people lately is bovine somatotropin (BST), a substance that increases milk production in dairy cows.

University of Minnesota animal scientists Brian Crooker and Don Otterby have been conducting research on BST for the University's Agricultural Experiment Station since 1984.

Crooker explains that BST--like insulin--is a protein hormone that must be administered by injection. "It is important to distinguish between protein hormones, such as insulin and BST," he says, "and steroid hormones, such as estrogen, testosterone and progesterone.

"When humans consume protein hormones, these hormones are processed, or broken down, just like all other proteins, by digestive enzymes in the small intestine. This destroys the activity of the hormones.

"When steroid hormones, such as estrogen, are consumed, they are absorbed intact. In large enough amounts, they can have an effect on

humans, as demonstrated by birth control pills. However, foods containing small quantities of estrogen, such as carrots, potatoes, spinach, cabbage and garlic, are usually considered safe and healthful."

One question consumers ask is, "Does treating cows with BST affect the milk they produce?"

BST, says Crooker, is present in very small amounts in the milk of all cows, whether or not they have been treated with the hormone. Moreover, research has shown that the amount of BST in milk is the same, whether or not the cow was treated.

"A common reaction of consumers to the thought of hormones in their food is that this food is contaminated and consuming it will have some harmful effect on them or their children," says Crooker. "However, nearly all plant and animal food products contain hormones. People have been consuming food and the hormones within food since the beginning of mankind. We can safely eat these foods because they contain only small amounts of hormones."

BST is a species-specific hormone, according to Crooker. It becomes active in cows and certain other species when it is injected, but not in humans. Were a person accidentally injected with BST, the substance would have no effect.

So far, Crooker and Otterby have studied the effects that BST has had on some 600 dairy cows. The data they have obtained is allowing them to evaluate several aspects of how BST affects cows. Among these are effects on the animals' physiology, health, reproductive performance, body fat and metabolism. The scientists are looking at

the effect various dosages of BST have on milk production, and how a cow's genetic make-up affects how she responds to BST injections.

They have published some of their findings and presented them at scientific meetings. They have also disseminated information through the news media so producers and consumers can better understand what BST does and does not do.

Why are Crooker and Otterby studying such a controversial substance?

The U.S. Food and Drug Administration has not yet approved BST for commercial use, but Otterby expects approval to come sometime after July 1. "We've been told next year for the next three years," he says.

Crooker says, "If it's approved, we have to have information so producers know how to use it. The dairy industry is getting very competitive, and the milk price structure favors non-Midwestern dairies. We need to have the technology available to help our producers remain competitive. Some Minnesota producers want to use BST, and we need to have information available so they can use it as effectively as possible."

Last winter, Crooker and Otterby spoke about BST at a series of meetings for producers and reporters. For those meetings, they compiled a publication, Bovine Somatotropin (BST) and the Dairy Industry. It is available for \$5 a copy (make checks payable to the University of Minnesota) from Animal Science Extension, 101 Haecker Hall, University of Minnesota, St. Paul, MN 55108.

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AEA,BSS,CEO,V2,D,H1,N2

NAGR3415

NEWS/ INFORMATION

March 29, 1990

Source: George Rehm
612/625-6210
Writer: Jack Sperbeck
612/625-1794

U OF M SOIL TESTING LAB CAN NOW GIVE TEST RESULTS FASTER

Faster results are now available from the University of Minnesota Soil Testing Laboratory.

Results of the analysis will be back in the mail within three days. If a soil sample reaches the lab on Monday, the results will be in the mail on Wednesday.

"There's still time to take soil samples this spring and get fertilizer recommendations in plenty of time before planting," says George Rehm, soil scientist with the University of Minnesota's Extension Service.

"Farmers can make a mistake if they use the same fertilizer program every year. Soil test levels may have moved into the high range. If this is the case, you can reduce fertilizer applications and improve farm profits," Rehm says.

County extension offices have a good supply of sample bags and easy-to-follow instructions. "There's no substitute for soil samples as a management tool in making fertilizer recommendations. And there's plenty of time to collect samples this spring," Rehm says.

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AEA,BSS,CEO,F1M

NAGR3417

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 29, 1990

Source: Jim Pettigrew
612/624-5340
Editor: Sam Brungardt
612/625-6797

STUDIES SHOW BIOTIN BOOSTS SOWS' REPRODUCTIVE PERFORMANCE

Adding the vitamin biotin to sows' diets improves their reproductive performance, according to results of experiments conducted cooperatively at the Universities of Minnesota, Nebraska and Kentucky.

The research showed that sows on a biotin-supplemented diet had more pigs at weaning. They also tended to give birth to more live piglets and to eat more during lactation, but these differences were not statistically significant.

"Based on these results, I'd recommend that biotin be added to all sow diets," says University of Minnesota animal scientist Jim Pettigrew, who conducts swine research for the Minnesota Agricultural Experiment Station. "Pork producers should check feed tags and make sure the sow feed they are using lists biotin as an ingredient."

For the experiment, sows that farrowed a total of 303 litters were fed a 14 percent protein corn-soybean meal diet throughout gestation and lactation. Control sows received no added biotin, while others were given 300 milligrams of biotin per ton of diet. Sows were put on the biotin-added diet at breeding and were fed it through three reproductive cycles, when possible. They were fed an average of 4.3 pounds daily during gestation, and could feed at

will during lactation.

On the average, sows on the biotin-added diet ate 1.1 pounds a day more during lactation than the control sows and had 9.4 piglets alive 21 days after birth, compared to 8.7 for the controls (a difference, Pettigrew says, probably related to the tendency of the sows on the biotin-added diet to have larger litters--10.6 live piglets versus 10.2). Piglet weight, both at birth and at 21 days, seemed unaffected by biotin.

However, added biotin did not decrease the incidence of foot lesions, a condition associated with severe biotin deficiency. Although the sows that were fed biotin had more foot bruises than the controls, the difference was not important, according to Pettigrew.

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AEA,BSS,CEO,P1

NAGR3414

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

March 29, 1990

Source: Rick Hansen
612/296-5136
Editor: Mary Kay O'Hearn
612/625-2728

LOCATION OF NITROGEN TASK FORCE MEETING IN ROCHESTER IS CHANGED

To accommodate a larger crowd, the April 5 public meeting in Rochester of the Nitrogen Fertilizer Task Force has been changed from the Holiday Inn to Courtroom 1 of the Olmsted County Courthouse, 515 Second St. SW, at the intersection of Sixth Ave. SW and Second St.

Rick Hansen, research analyst with the environmental quality section of the Minnesota Department of Agriculture, said the Thursday meeting scheduled time remains the same, 7 to 10 p.m.

Public testimony is being heard on the impacts of nitrogen fertilizer on ground and surface water. Information gathered will be used to develop voluntary best management practices, a fertilizer management plan and possible nitrogen fertilizer regulations, Hansen reiterated.

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CEO,BSS,AEA,V2M,V4M,F1M,RM

NAGR3416

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

MEDIA ADVISORY

March 29, 1990

STORY TIPS FOR MINNESOTA EARTH DAY, APRIL 22

Nationwide celebrations of Earth Day 1990 on April 22 will call attention to environmental issues. The Minnesota Extension Service and the Minnesota Agricultural Experiment Station of the University of Minnesota conduct many educational and research efforts related to air, land and water quality. Here are a few that would lend themselves to Earth Day coverage:

Recycling yard wastes. Twin Cities metro area residents can no longer dispose of yard debris, including grass clippings, in landfills. People who live outside the metro area will be under similar restrictions within a year. **Anne Hanchek**, an extension horticulturist stationed at the University's Landscape Arboretum, says grass clippings can be left on the lawn, composted or used as mulch. For tips on proper lawn management, call Hanchek at (612) 443-2460 or (612) 624-1706.

Do home treatment systems make drinking water safe? Concerned about the quality and safety of groundwater, many homeowners are investing in reverse osmosis water treatment devices. **Wanda Olson** (612/624-3780), extension housing technology specialist, has studied families in Brown and Nicollet Counties who have such systems. She can report on the consumers' concerns about their water and the test results on the effectiveness of the units, some of which failed to perform as promised.

If you can't lick 'em...feed 'em? Quackgrass is similar in yield and quality to reed canarygrass and smooth broomgrass as a forage, so why waste time, energy and money eradicating this weed? **Craig Sheaffer** (612/625-7224) and **Don Wyse** (612/625-7064), agronomic scientists with the Minnesota Agricultural Experiment Station, are studying the potential of using crabgrass instead of battling it with herbicides.

A problem waste becomes an asset. Spent lime, a by-product from water treatment plants, can pose a disposal problem for cities. Through a cooperative program with several state agencies, spent lime is now being spread on fields to help raise crop yields instead of being dumped in landfills. University research confirms that this is a safe use of the lime, and the acidic soils of east central Minnesota benefit from the applications. For more information, contact Chisago County extension agent **Rodney Elmstrand** at (612) 257-2982.

Recycling on the farm. A new use for newspaper is as bedding in dairy barns. Animal scientist **Hugh Chester-Jones** (507/835-4661), with the University's Southern Experiment Station at Waseca, has found it takes only 80 percent as much dry, shredded and chopped newspaper as dry straw to maintain the same level of cleanliness in a barn. The shredded paper costs less also.

Irrigation doesn't always contribute to groundwater pollution.

Applying agricultural chemicals, such as nitrogen fertilizer, through irrigation systems is called "chemigation." If managed properly, this can be an environmentally safe way to apply chemicals to crops. On sandy soils, it is less likely to affect the groundwater than if larger applications are applied early in the growing season by other methods. Extension agricultural engineer **Jerry Wright** (612/689-1711) can discuss the environmental merits of chemigation.

Come, and we will make you fishers...of fish. Some 3 million Minnesotans already enjoy fishing, but a new program through Minnesota 4-H and the Department of Natural Resources hopes to "hook" even more potential anglers. The MINNAQUA program aims to teach fishing skills and environmental consciousness to youth, single parents, senior citizens and minorities in the Twin Cities and Duluth areas. Volunteers receive 10 hours of instruction on safety, fishing ethics, fish identification, water quality and ecology, then share their knowledge with youth organizations, community groups and others. For more information, contact extension aquatic resource educator **Steve Bilitz** (612/625-4774).

A pretty plant poses a pretty bad threat. Purple loosestrife, a pretty but noxious weed, is invading more and more of Minnesota's precious wetlands. University of Minnesota weed scientist **Roger Becker** (612/625-5753) is looking at how loosestrife seedlings get the upper hand in competing with other seedlings. Forest resources scientist **Jim Perry** (612/624-9796) is trying to find out how loosestrife affects a wetland's ability to cleanse runoff water. Right now, using herbicides is one of the few management tools available, but one of the researchers' goals is to enhance other options, such as biological control and desirable plant competition.

Making U.S. agriculture more energy efficient. It's estimated that if all food were produced with as much investment of energy as is now the norm in the United States, almost 80 percent of the world's energy resources would have to be devoted to food production. Clearly, the U.S. model cannot be the future world food system. Minnesota Agricultural Experiment Station entomologist **David Andow** (612/624-5323) has thought a lot about this, and is doing research into using integrated pest management practices to reduce energy inputs and create a more "sustainable" agriculture.

If need a source for an Earth Day story on any other topic related to agriculture, forestry, wildlife, youth development or family life, call Dani O'Reilly (612/625-4715), Deedee Nagy (612/625-0288), Jennifer Obst (612/625-2741), Martin Moen (612/625-6243) or Sam Brungardt (612/625-6797). We'll do our best to line you up with a knowledgeable source.

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 2, 1990

Source: James Orf
612/625-8275
Writer: Sam Brungardt
612/625-6797

MINNESOTA AGRICULTURAL EXPERIMENT STATION RELEASES KASOTA SOYBEAN

Kasota is the name of the new soybean variety that the Minnesota Agricultural Experiment Station recently released. Seed is being distributed to registered seed growers in Minnesota, and farmers should be able to buy certified seed for the 1991 planting season.

Kasota, which was tested as M82-106, has excellent yield for its maturity, according to James Orf, the University of Minnesota research agronomist in charge of the Experiment Station's soybean improvement program.

Kasota is similar in maturity to Sibley, and three to four days earlier than Hardin. "This means that its area of adaptation may be about 50 miles farther north than Hardin's," Orf says.

"Although Kasota is similar in maturity to Sibley, it's superior to that variety in lodging resistance, protein level and resistance to iron chlorosis. It also has additional resistance to Phytophthora root rot since it carries the Rps1c gene."

In 13 Minnesota tests over the past three years, Kasota yielded an average of 42.4 bushels per acre, compared to 41.7 for Sibley, 43.6 for Hardin and 42.0 for Kato. In 38 regional tests during the same time period, Kasota averaged about 2 bushels more per acre than Sibley.

"One of Kasota's most important attributes is its protein content," Orf says. "In the Minnesota and regional tests, it averaged 41.7 and 40.9 percent protein, respectively, compared to 40.4 and 39.3 percent for Sibley, 39.7 and 39.1 for Hardin and 42.1 and 42.0 for Kato. Since one of our goals is to make Minnesota soybeans more competitive in the market, protein content is an important consideration."

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AEA,BSS,CEO,F1

NAGR3423

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 2, 1990

Source: Joe Conlin
612/624-4995
Writer: Joseph Kurtz
612/625-3168

TV CONFERENCE TO FOCUS ON DAIRY POLICY

"The Dairy Aspects of the 1990 Farm Bill" will be the focus of a national television conference that will be broadcast by satellite April 18.

The conference will feature congressional leaders and dairy industry experts speaking about alternatives for the 1990 National Farm Bill and their impact on the U.S. dairy industry.

The conference will run from 11:45 a.m. to 2:30 p.m.

Persons with satellite receiver dishes can pick up the conference on Westar 5, transponder 2.

Persons who do not have dishes can view the conference at one of three downlink sites in Minnesota. These are at the Tower campus of Red Wing Technical College, on Highway 6, Red Wing; in Room A202 of Coffman Continuing Education Building at Rochester Community College, Rochester; and the Auditorium of St. Cloud Technical College, St. Cloud.

Joe Hiller of Washington State University will moderate the opening segment, "Policy Dimensions for Minnesota." Other segments and speakers will be "Alternatives for Milk Price Determination," Ed Jesse, University of Wisconsin; "Alternatives for Supply Management," Robert Cropp, University of Wisconsin; "Congressional Status of the 1990 Farm Bill," Sen. Patrick Leahy,

chairman of the Senate Agriculture Committee, and Rep. Charles Stenholm, chairman of the House Agriculture Committee; "Executive Branch Proposal," Charles Shaw, USDA; and "Dairy Industry Proposals," James Barr, National Milk Producer's Federation, and Al Ortego, Dairymen, Inc.

The program will feature two phone-in question-and-answer periods.

The TV conference is being sponsored by the University of Minnesota's Extension Service in cooperation with Washington State University, the University of Wisconsin, the Extension Service of the U.S. Department of Agriculture, the University of Idaho, Oregon State University and Utah State University.

For more information, contact Cheryl Hays Wilson (612/624-1241) or Joe Conlin (612/624-4995) at the University of Minnesota.

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AEA,BSS,CEO,V2M,A1M,DM

NAGR3420

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 2, 1990

Source: C. J. Christians
612/624-0766
Writer: Joseph Kurtz
612/625-3168

BULLS FROM CENTRAL TEST STATION TO SELL AT WINDOM

A sale of young bulls tested for growth rate under standardized conditions will take place April 21 in Windom. The sale will begin at 1 p.m. at the Windom Sales Co.

All of the bulls will have completed a 140-day test at the central bull test station at New Richland, Minn. The top 75 percent of the bulls on test, approximately 57 animals, will be sold. The make-up of the group by breed is expected to be 25 Simmental, 11 Angus, six Salers, five Gelbvieh, four Charolais, three Polled Shorthorn and three Limousin.

The centralized testing takes place under the supervision of C. J. Christians, extension animal scientist at the University of Minnesota. The test measures the bulls' growth rate, weight per day of age and yearling weight. The animals are also measured for scrotal size and hip height. A veterinarian checks them for reproductive soundness.

"A central test station provides an opportunity to see how bulls grow when they all get the same feed and management," says Christians.

The heritability of growth traits such as feedlot average daily gain, 205-day weaning weight, weight per day of age and adjusted yearling weight is relatively high, according to

Christians. This means these traits are among those most rapidly improved through the use of a superior bull.

The central bull test was conducted at the Kevin Miller farm near New Richland. Tom Hook, Tracy, Minn., executive vice-president of the Minnesota Beef Cattle Improvement Association, is sale manager.

For more information about the sale or test, contact C. J. Christians, Extension Animal Science, 101 Peters Hall, University of Minnesota, St. Paul, MN 55108 or Tom Hook, Route 1, Box 90, Tracy, MN 56175.

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AEA,BSS,CEO,V2M,A2M

NAGR3422

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

April 2, 1990

Source: Pete Anderson
612/624-4995
Writer: Joseph Kurtz
612/625-3168

ADEQUATE MAGNESIUM PROTECTS CATTLE FROM GRASS TETANY

Nursing beef cows and stocker cattle grazing lush, young grass during early spring may need supplemental magnesium. A shortage of dietary magnesium can result in grass tetany, according to Pete Anderson, extension beef scientist at the University of Minnesota.

"Early spring grass often contains high levels of potassium, phosphorus and other nutrients," says Anderson. "These can interfere with the absorption of magnesium by cattle. To correct this, provide a mineral supplement containing magnesium. A mineral block containing an equal mixture of salt and magnesium will work well."

Anderson says it is also important to check the calcium level of the diet. A calcium deficiency can cause a tetany similar to that caused by a magnesium deficiency.

The first signs of grass tetany may include reduced feed intake, loss of coordination, increased excitability and grinding of teeth. More advanced signs may include muscular twitching, labored breathing and convulsions. A producer observing advanced signs should consult a veterinarian. Anderson says cattle with advanced symptoms are likely to die within a few hours unless they receive treatment.

In addition to providing supplemental magnesium, Anderson

suggests the following strategies to reduce the likelihood of grass tetany:

--Refrain from grazing grass pastures in the spring until growth reaches 8 to 10 inches. If the cattle are turned onto grass pasture sooner, provide legume hay free choice.

--Graze legume or legume-grass pastures first.

--Graze the least susceptible animals (heifers, dry cows and cows with calves older than four months) on high-risk pastures.

--Dust pastures with magnesium oxide at the rate of 25 pounds per acre at the beginning of the critical period.

--Use dolomitic limestone to increase the magnesium content of the soil.

--Apply nitrogen and potassium fertilizer in a split (spring and fall) application, rather than applying it all in the spring.

Anderson says feedlot cattle and dry cows need a magnesium level of 0.10 percent of dry matter in their diet. Heifers and lactating cows need a level of 0.18 to 0.20 percent.

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AEA,BSS,CEO,V2,A2

NAGR3421

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: Cynthia Ash
612/624-4977Editor: Mary Kay O'Hearn
612/625-2728**PRUNING OAKS IN SPRING IS OPEN INVITATION TO OAK WILT**

Between April 15 and July 1 is not the time to prune or wound oak trees. That's because pruning or trimming makes oak trees susceptible to oak wilt, says Cynthia Ash, a plant pathologist with the University of Minnesota's Extension Service.

"Oak wilt is a serious threat to oak trees in roughly the southeast quarter of Minnesota," Ash says.

The disease spreads from infected trees to nearby trees of the same species through root grafts. It can travel from infected red and pin oaks to other oak trees with picnic beetles, also called sap beetles. "These beetles are attracted to fresh spore mats on recently killed red and pin oaks," she says. They feed on the fungus (spore mat) and in the process their bodies become covered with spores.

When they leave these trees they may be attracted to fresh wounds on other oak trees for feeding. While the beetles are feeding, the spores of the oak wilt fungus can get into the wound and infection occurs. To prevent this, she repeats, do not prune or wound oak trees between April 15 and July 1.

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I2M,Z3,Z4,Z5

NAGR3433

MSC/9A27p

MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM

405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

April 5, 1990

Source: John Lawrence
612/625-1273

Writer: Jack Sperbeck
612/625-1794

MIDWEST PORK PRODUCERS MAY BENEFIT FROM PACKER CONCENTRATION

Minnesota and other Midwest pork producers may enjoy any possible benefits from concentration of the pork packing industry since they're in the heart of the nation's pork-producing region.

"If the pork industry shrinks, as beef has, to four firms with over 70 percent of the kill, it's very likely that all four will remain in this region," says John Lawrence. Lawrence is a livestock marketing economist with the University of Minnesota's Extension Service.

Some experts think the pork processing industry is poised to follow the wave of concentration that swept the beef industry over the past 10 years. "The question is not whether packer concentration in pork will increase, but by how much and how fast," Lawrence says.

The four largest beef packing firms slaughtered 36 percent of the steers and heifers in 1980, and 70 percent in 1989. The four largest hog packing firms slaughtered 34 percent of the barrows and gilts in 1989.

"Some evidence suggests that changes may be slower in the pork industry. There are economies of size in pork packing, but other factors that fueled beef's concentration aren't as strong," Lawrence says.

Falling beef demand in the 1980s and the resulting lower fed cattle supplies meant packers had to bid more aggressively to keep their

plants open. These factors forced packers to become more competitive and lower their production costs. Economies of size in the packing industry produce a lower average total cost as firm size increases.

Pork demand weakened in the 1980s, but the decline was not as large as for beef. And, it has showed some recovery in recent years. In addition, pork producers are able to react to profitable prices more quickly than beef producers. Periods of tight supplies are often short-lived and don't necessarily force packers to make major changes in their operations.

The Reagan administration's push for efficiency and lax attitude toward mergers that helped fuel concentration in beef packing has been replaced by a "more curious eye" at the Justice Department. "More mergers and acquisitions will likely be brought before the Justice Department. Many may not begin because of this threat," Lawrence says.

The pork and beef industries have different production and procurement practices. "Hog production is not nearly as concentrated as the feedlot industry. In order to secure a week's kill, a hog buyer may have to talk to several hundred pork producers as opposed to a handful of feedlot managers."

And for now, at least, hog packers don't own a significant percentage of their kill since ownership typically requires a longer commitment to the producer--like a year's lease on the facility. (Packers can easily own cattle that are custom fed by commercial feedlots without making a long-term commitment to a producer).

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NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: John Lawrence
612/625-1273
Writer: Jack Sperbeck
612/625-1794

FARMSTEAD CLOSING HAS NO EFFECT ON HOG PRICES

Closing of the Farmstead hog processing plant in Albert Lea, Minn., has not meant lower prices to farmers. "There are six plants within a 125-mile radius of Albert Lea and bidding for market hogs has remained competitive," says John Lawrence, livestock marketing economist with the University of Minnesota's Extension Service.

Lawrence says both Morrell in Sioux Falls, S.D., and Hormel in Austin, Minn., are going to double shifts in April and May. And, a new IBP plant in Waterloo, Iowa, will be on line by the third week of April.

"If the Farmstead plant had been located in an area with fewer hog buyers, say another 100 miles north, we may have seen a price drop. But there are enough other buyers in southern Minnesota and northern Iowa to keep bidding competitive," he says.

Lawrence says no one knows if the Farmstead plant will reopen. But if it does, he adds, chances are it will be sold to an existing hog processor who wants to expand.

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AEA,BSS,CEO,E1,P1

NAGR3449

NEWS/ INFORMATION

April 5, 1990

Source: Tom Zurcher
612/625-4228

Writer: Evelyn Anderson
612/624-3770

HUBBARD COUNTY 4-H HORSE PROJECT LEADER RECEIVES MLBA AWARD

Michele Sheets, Route 1, Guthrie, received an award for her work as a 4-H animal science volunteer leader at the March 23 annual meeting of the Minnesota Livestock Breeders' Association.

Sheets has volunteered with the Hubbard County 4-H horse project since it began. She works weekly with the horse judging team and the horse bowl team, renting out horses to youth who do not own one. She is co-leader of the 4-H Riders Horse Club and provides transportation to members for various activities.

She also has served as a chaperon at the State 4-H Horse Show.

4-H Youth Development is the state's largest out-of-school educational program, serving 228,000 young people. It is part of the University of Minnesota's Extension Service.

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29,KM

N4-H3429

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: Tom Zurcher
612/625-4228
Writer: Evelyn Anderson
612/624-3770

MOWER COUNTY 4-H LEADER RECEIVES MLBA AWARD

Butch Lerum, Route 2, Austin, received an award for his work as a 4-H animal science volunteer leader at the March 23 annual meeting of the Minnesota Livestock Breeders' Association.

Lerum is an active leader in the 4-H dairy project. He shares his knowledge with local club members and promotes dairy judging and other activities.

Lerum serves on the county dairy committee and is a volunteer leader at the county fair.

4-H Youth Development is the state's largest out-of-school educational program, serving 228,000 young people. It is part of the University of Minnesota's Extension Service.

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N4-H3428

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: David Lime
612/624-2250
Writer: David Hansen
612/625-7290

Editors: Call Carl Walker (612/624-3708) or Dave Hansen (612/625-7290) to obtain a b/w print or 35mm color slide to use with this story.

IT TAKES A LOT TO KEEP THINGS NATURAL IN THE BWCA

"Wilderness management is controversial," says David Lime, recreation researcher with the University of Minnesota's College of Natural Resources. "Some people think that wilderness areas and national parks do not need to be managed--just leave them alone and they'll take care of themselves."

That's not the answer, Lime says, because people impact wilderness areas whether they want to or not. Every visitor to Minnesota's Boundary Waters Canoe Area Wilderness (BWCA) changes it with his or her visit.

Human activity outside the area also has consequences. Acid rain, for example. Even allowing naturally occurring fires to burn is a human impact, a management decision.

"Many people accept wilderness management: of the natural resources, forests and lakes. But they often don't think of people management," Lime says. "You need to manage people. Some people love wilderness to death. Just look at many of our national parks."

Park and wilderness use increased rapidly in the 1970s. The BWCA became the most heavily used wilderness in the nation. That led the U.S. Forest Service to regulate its use.

The leading complaint of the more than 5,000 BWCA visitors Lime has surveyed is that they are "meeting too many other groups" in the wilderness. They say this diminishes the wilderness they came to experience.

Other comments also reflect people's impact on the area. More than a third of those surveyed mentioned trouble "finding an unoccupied campsite" and "airplanes flying overhead."

Lime says, "A surprise to us was the magnitude of the response to visitor-caused damage to vegetation."

Because of the many complaints, Lime is preparing to study crowding. "We'll look at specific lakes or groups of lakes. Tolerances vary from the periphery to the back country," he says.

Visitors are also concerned about the quality and condition of portages, the survey shows. And, "too many rules and regulations" is a frequent complaint.

Those rules are a direct response to the visitors themselves, Lime says. "The Forest Service has had to do a lot of regulating. People create biological as well as social impacts."

The effects of those impacts may become clearer with results from other University research. Lime and landscape architecture researchers David Pitt and Joan Nassauer will use a computer simulation that shows how a campsite can deteriorate over time to evaluate reactions of users of recreation areas. It should help show at what point people notice changes, and what level of deterioration people find unacceptable.

These studies are part of preparations for the Forest Service's 1992 update of its BWCA management plan. Entry permits to the BWCA have been required since 1966, and access has been limited since 1976.

Lime's study is sponsored by the Forest Service and the Wilderness Research Center, a private research foundation.

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**NEWS/
 INFORMATION**

UNIVERSITY OF MINNESOTA
 EDUCATIONAL
 DEVELOPMENT SYSTEM
 405 Coffey Hall
 1420 Eckles Avenue
 St. Paul, Minnesota 55108

April 5, 1990

Source: Lee Johnston
 612/589-1711
 Writer: Joseph Kurtz
 612/625-3168

MAINTAIN HOG FEED QUALITY IN STORAGE BIN, FEEDERS

Providing hogs with properly mixed, high-quality feed is a key aspect of profitable pork production. But attention to feed quality should not end when the feed leaves the mixer, notes Lee Johnston, University of Minnesota extension swine scientist.

"It seems foolish to work hard to produce top-quality feed, only to have it soiled or spoiled between the time it leaves the mill and the pig eats it," he says.

Johnston, who is stationed at the West Central Experiment Station, Morris, recommends storing feed in a clean, dry place. The storage bin should provide protection from insect and rodent infestation. To make sure stale feed does not remain in a bulk storage bin, completely empty the bin frequently. Be sure to clean the auger boot when bins are empty. Wet, moldy feed often accumulates around the auger intake.

Maintaining feed quality does not end once the feed goes into the feeders. "Feed gets stale if it sits in feeders for an extended period of time," says Johnston. "If the feed is stale, pigs may eat less."

Johnston recommends filling feeders often enough to provide fresh feed at all times. For grow-finish pigs, he suggests

putting enough feed in feeders to last a week. For nursery pigs, he recommends putting in fresh feed every day or two, and every day for lactating sows.

"Keep feeder holes free of wet, soiled feed, and remove feed build-up in corners," says Johnston. "These conditions lead to mold growth."

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AES,BSS,CEO,V2,P1

NAGR3447

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: Juanita Reed-Boniface
612/625-9231
Writer: Evelyn Anderson
612/624-3770

WABASHA COUNTY YOUTH WINS LIVESTOCK SCHOLARSHIP

Tim Sullivan, son of Mr. and Mrs. Dennis Sullivan of rural Kellogg, won a \$500 scholarship from the Minnesota Livestock Breeders' Association, the association announced March 23 at its annual meeting in Waseca.

Sullivan, 19, is a senior at Plainview High School. He plans to attend the University of Wisconsin at River Falls and major in agriculture. He is active in 4-H, with experience showing animals at county, state and regional events. He has conducted project meetings on beef nutrition and has demonstrated animal selection at county events. He has served as vice president and treasurer of the Wabasha County 4-H Executive Council, and has held several offices in his local club.

Sullivan also is active in FFA, serving as president of the Plainview chapter and as Region 8 Star Farmer. He has begun developing his own beef herd and is a member of the National and Minnesota Junior Angus Associations.

#

84,A2M

N4-H3425

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: Tom Zurcher
612/625-4228
Writer: Evelyn Anderson
612/624-3770

MLBA HONORS BECKER COUNTY 4-H LEADERS

Don and Norma Smith, Route 2, Frazee, received an award for their service as 4-H animal science volunteer leaders at the March 23 annual meeting of the Minnesota Livestock Breeders' Association.

The Smiths have been volunteer 4-H leaders for 13 years, even though their own children have "graduated" from 4-H. For the past four years, they have been county leaders for the sheep project, and they serve as co-chairs of the county livestock committee.

Working with parents and 4-H'ers, they organize biennial county livestock workshops and county fair auctions and events. They also lead the Silverleaf Gophers 4-H club, which has been selected for several years as a top 4-H club in the county.

To promote the sheep industry, they have given demonstrations on sheep and lambs at the annual Farm and Home Show and are active members of the Lakeland Sheep Producers Association.

Becker County extension agent Larry Swenson describes the Smiths as "movers and shakers" who are excellent leaders and organizers.

4-H Youth Development is the state's largest out-of-school educational program, serving 228,000 young people. It is part of the University of Minnesota's Extension Service.

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03,N3M

N4-H3431

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: Jeffrey D. Hahn
612/624-4977Editor: Mary Kay O'Hearn
612/625-2728**DON'T SCORN THOSE BENEFICIAL NIGHTCRAWLERS**

If spring is pretty wet, nightcrawlers will be more noticeable. "You'll know them as they become active from the mounds of dirt they produce, and large numbers can cause lumpiness in the lawn," says Jeffrey Hahn, an entomologist with the University of Minnesota's Extension Service. "They are beneficial because they help aerate the soil, improve water drainage and regulate thatch. They should be tolerated whenever possible."

However, large numbers of nightcrawlers usually indicate a thatch problem in the lawn. Thatch is the dead and living plant material lying just above the soil surface. A thatch layer of 1/2 inch or more may stress your lawn, Hahn says.

Proper regulation of thatch will help balance nightcrawler numbers. This can be done with a power rake (also known as a vertical mower). Early fall is the best time to power rake, but it can be done in spring when the ground is firm under foot and before warm weather. Dethatching also allows more efficient aeration and helps knock down the mounds.

Chemical control is usually not suggested because the real problem is the thatch, Hahn says. Nightcrawler numbers can be temporarily reduced by treating with diazinon. This kills about 60 percent of the population--a desirable level due to their

beneficial nature. Carbaryl (Sevin) kills over 90 percent of
nightcrawlers and is not suggested. Always follow label
directions for treating soil insects, he emphasizes.

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V7,V8,I2

NAGR3436

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: Deborah Brown
612/624-7491Editor: Mary Kay O'Hearn
612/625-2728**NOW IS TIME TO PLANT, TRANSPLANT TREES, SHRUBS**

If you plan to transplant a young tree or shrub in your yard or you're going to buy bareroot nursery stock, the sooner you can plant, the better, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

"If all goes well, spring rainfall will reduce the need to water much at first," she adds. Besides, cooler weather gives roots an opportunity to begin to grow before warmer weather pops the buds open, causing them to lose moisture more rapidly through the foliage.

"If you are moving evergreens, it must be done with soil around the root area. If you dig them up and expose bare roots, their chances for survival are slim, no matter when you plant them or how well you care for them afterwards," Brown says.

Balled and burlapped or container-grown trees and shrubs may be planted right through the growing season, as long as watering will be done regularly. Evergreens usually do best, though, when planted in spring or early autumn.

Whether or not you plant bareroot, be sure to surround new trees and shrubs with mulch, extending a foot or more in all directions. This helps protect them from accidental injury by lawnmowers and weed-whackers, reduces competition from grass or

weeds, insulates the soil from overheating in the sun, and helps reduce moisture loss from surface evaporation.

Woodchips and shredded bark are ideal mulches for woody plants in the landscape. Maintain them at 4 to 6 inches deep, no deeper. When mulch is more than 6 inches thick, it will reduce the amount of oxygen that reaches feeder roots in the soil, and roots will actually start to grow up into the mulch, defeating its purpose.

Woodchip or bark mulch can be dished slightly towards the young trees or shrubs, so you can lay a hose down and let it run slowly into the depression for easy watering, says Brown.

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V7,V8,I2

NAGR3434

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: Deborah Brown
612/624-7491

Editor: Mary Kay O'Hearn
612/625-2728

CHECK THESE SPRING PRUNING POINTERS

Deborah Brown, horticulturist at the University of Minnesota's Extension Service, offers the following pointers on spring pruning trees and shrubs:

--Finish pruning fruit trees in early April. Wounds will heal rapidly once new growth begins; no pruning paint is needed. Thin branches, but never "top" the trees. Topping results in a surge of new growth...all of it thin, spindly, disease-prone and very vertical. With fruit trees, you want fewer, sturdier, more horizontal branches, branches that will be able to support the weight of developing fruit.

--If hedge plants look uneven because of winter dieback, prune the entire hedge back hard. Work in fertilizer along the front and back of the hedge, and water regularly until the ground freezes next fall. Prune new growth so the top of the hedge is slightly narrower than the base, to allow sunlight to reach down to the ground.

If you have a honeysuckle hedge with problems of witches broom aphids, consider digging it out and replacing it with sturdier shrubs rather than putting a lot of effort into pruning.

--Badly damaged evergreens also probably need to be replaced. If there are just some brown tips, those can be pruned out when

you are able to see where the new growth will expand. Then be sure to leave some green, healthy tissue. Evergreens rarely send out new growth from the base. It comes from the youngest existing stems.

--Remember, when pruning flowering shrubs early in spring, this will usually remove that year's flower buds. There are some exceptions: mockorange, potentilla, weigelia and spiraea. When in doubt, and you want to enjoy the flowers, wait to prune until after blooming.

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V7,V8,I2

NAGR3435

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: Tom Zurcher
612/625-4228
Writer: Evelyn Anderson
612/624-3770

MEEKER COUNTY 4-H LEADER RECEIVES LIVESTOCK AWARD

Doug Stade, 16251 TTT Road, Eden Valley, received an award for his work as a 4-H animal science volunteer at the March 23 annual meeting of the Minnesota Livestock Breeders' Association.

Stade, a longtime leader in the swine project, heads the swine show at the county fair, organizes livestock auctions, and takes Meeker County youth to the regional livestock show in Nebraska each year. At the state level, he participates each year at the State Fair 4-H swine show, promotes pork production education and is active on the pork producers board. He also serves on the board of directors of the Minnesota 4-H Adult Volunteers Association.

In nominating Stade for the award, Mary Benoit, Meeker County 4-H extension agent, described him as "an outstanding leader not only in the swine project but as a community leader as well. He is convincing; he gets the job done."

4-H Youth Development is the state's largest out-of-school educational program, serving 228,000 young people. It is part of the University of Minnesota's Extension Service.

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46,P1M

N4-H3427

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 5, 1990

Source: Tom Zurcher
612/625-4228
Writer: Evelyn Anderson
612/624-3770**SWIFT COUNTY 4-H LEADER RECEIVES LIVESTOCK ASSOCIATION AWARD**

Joel Lee, Route 1, DeGraff, received an award for his work as a 4-H animal science volunteer at the March 23 annual meeting of the Minnesota Livestock Breeders' Association.

Lee is a dairy producer who has brought his four sons into the 4-H dairy project. According to Randee Hokanson, Swift County extension agent, Lee is known for producing quality animals and for his expertise in dairy judging. "Every county needs a leader like Joel," Hokanson adds.

Lee is active on the Swift County 4-H Livestock Board and in the county dairy judging contest. He has assisted in show arena setup and helps coordinate many of the County Fair livestock shows and auctions. He also hosted several activities and events for 4-H'ers who do not have their own animals, to help them learn about dairy products. Eight other counties requested materials from this project.

4-H Youth Development is the state's largest out-of-school educational program, serving 228,000 young people. It is part of the University of Minnesota's Extension Service.

#

81,DM

N4-H3432

NEWS/ INFORMATION

April 5, 1990

Source: Tom Zurcher
612/625-4228
Writer: Evelyn Anderson
612/624-3770

WRIGHT COUNTY 4-H LEADER RECEIVES AWARD FROM MLBA

Dwayne Diers, Route 1, Waverly, received an award for his work as a 4-H animal science volunteer leader at the March 23 annual meeting of the Minnesota Livestock Breeders' Association.

Diers is an active volunteer in the Wright County 4-H Federation, serving on the budget, food stand and project development committees. He has coached a livestock project bowl team for three years and serves on the Minnesota 4-H dairy project bowl committee.

Wright County Extension Agent William Zimmerman says Diers is "very supportive of 4-H in all areas" and is responsible for a significant increase in participation by 4-H'ers in dairy beef projects in the county.

4-H Youth Development is the state's largest out-of-school educational program, serving 228,000 young people. It is part of the University of Minnesota's Extension Service.

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91,A2M,DM

N4-H3430

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 9, 1990

Source: Deon Stuthman
612/625-3709Writer: Sam Brungardt
612/625-6797**NEW PREMIER OAT TOUTS HIGH YIELD, TEST WEIGHT, GROAT PERCENTAGE**

The Minnesota Agricultural Experiment Station has released Premier, a new oat variety. Seed is being distributed this spring to registered seed growers in Minnesota. Farmers should be able to buy certified seed for the 1991 planting season.

Deon Stuthman, the University of Minnesota research agronomist who conducts the Experiment Station's oat improvement program, says, "We're introducing Premier because it's as good or better in yielding ability, bushel weight and groat percentage than anything else that's available."

Premier has been tested in Minnesota statewide trials as Mn 81229 since 1982. It has also been included in the trials of several surrounding states for the last several years.

Minnesota tests from 1983 through 1989 showed Premier's yielding ability to be equal to that of Steele, currently the most popular oat in Minnesota. However, Premier surpassed Steele in test weight (41.0 pounds per bushel versus 39.3) and groat percentage (75.3 percent versus 74.5). "Also," says Stuthman, "Premier has very good resistance to smut while Steele does not, which means that farmers do not have to treat Premier seed."

Don, which was released in 1985, is the only variety that significantly outyielded Premier in Minnesota trials from 1985

through 1989. While Don is shorter and resistant to crown rust (Premier's only moderately resistant to this disease) as well as smut, its test weight, groat percentage and resistance to lodging are not quite as good as Premier's.

Stuthman says Premier's excellent test weight should appeal to farmers: it means the price they receive at the elevator will not likely be discounted because of low test weight.

He adds, "Premier's very high groat percentage will appeal to processors because they will get a higher yield when they mill it; the groat is what they need to make oatmeal and other food products. And the high groat percentage also means that Premier will make an excellent feed oat where seed color is not a consideration."

Premier is midseason in maturity, heading two days later than Preston and about two days earlier than Steele.

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AEA,BSS,CEO,F1

NAGR3443

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 9, 1990

Source: Dennis Warnes
612/589-1711
Editor: Sam Brungardt
612/625-6797

PRECIPITATION CRITICAL IF USING RYE COVER WITH NO-TILL BEANS

No-till soybean growers may be able to reduce herbicide usage by exploiting the natural, weed-killing properties of a winter rye cover crop.

Farmers may want to experiment with a winter rye cover crop to replace some herbicide use in years when there's enough moisture, says Dennis Warnes, research agronomist at the West Central Experiment Station, Morris. Using rye as a cover crop would also minimize soil erosion, he adds.

Since 1985, Warnes and other University of Minnesota researchers have studied how well winter rye, which yields a natural, weed-suppressing chemical when it is killed, controls weeds in no-till soybeans and corn. Cover crops are widely used in the southern Corn Belt, but winter rye is the only cover crop that will consistently survive Minnesota's harsh winters.

In the studies, fall-planted winter rye was killed with glyphosate at various time periods before soybeans and corn were seeded into the residue with a no-till planter. Yields from these plots were then compared with those from control plots.

Results of the studies showed that weed suppression and subsequent yields depended very much on soil moisture and on how much time had elapsed between killing the rye and seeding. "When annual

precipitation is 30 inches or more, the system works," Warnes explains. "But when it's between 20 and 30 inches, we advise minimizing the risk of lowered yields from moisture competition. This can be done by planting the rye later in the fall and by killing it relatively early in the spring."

The rye helped control weeds in no-till corn, but Warnes says more studies are needed to make the proper management recommendations to keep yields maximized. This is because corn is less tolerant than soybeans of competition from the rye.

Although the studies show that winter rye may be a promising alternative to herbicides for no-till soybeans, and possibly corn, Warnes cautions growers to go slowly. He says, "Any time you eliminate herbicides and you still want to control weeds, you have a high-risk situation. You have to learn how to minimize the risk. In the severe drought year of 1988, for instance, the weeds were controlled but soybean yields were greatly reduced in our trials."

Moreover, using a winter rye cover crop will not completely eliminate the need for herbicides. Warnes says, "This is because the winter rye system will not control late-germinating or large-seeded broadleaf weeds."

Warnes says field studies will continue this summer at Morris and at the Southwest Experiment Station, Lamberton. The research is being done with legislative appropriations to the Minnesota Agricultural Experiment Station and with money from the Greater Minnesota Corporation's Agricultural Utilization and Research Institute.

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 9, 1990

Sources: Carlos Pijoan
612/625-1233
Larry Jacobson
612/625-9733
Writer: Jennifer Obst
612/625-2741

Editors: Call Carl Walker (612/624-3708) or Jennifer Obst (612/625-2741) to obtain a b/w print or 35mm color slide to use with this story.

LOW-INPUT SYSTEM WORKS FOR BOTH PRODUCERS, PIGS

Getting into farming shouldn't require the resources of a multinational company or a very rich relative. Unfortunately, that can be too near the truth these days.

Minnesota Agricultural Experiment Station researchers Carlos Pijoan and Larry Jacobson have designed one way a person could get started in farming without a key to Fort Knox: a low-input feeder pig operation. They are now giving the system a real-life test, studying its productivity, profitability and implications for animal welfare on the farm of Ardyce and David Olson in southeastern Minnesota.

There the University of Minnesota researchers are comparing, side-by-side, their low-input system with a conventional intensive system. Forty animals are in the study--20 in each system. To make the comparison fair, all the pigs are the same age, have the same genetics and manager, and are receiving the same feed.

The study is still in its early stages, but the researchers have already found some interesting results. The low-input system not only uses less energy--the major input is lots of straw--but also requires less labor. And, although it's too early for production conclusions, the

low-input system also appears to be good for the pigs.

The low-input system is in an old pole barn with an open south side and an earthen floor. Communal farrowing is done in an open, 32-by-40-foot pen, which is heavily bedded. No individual farrowing pens are provided; only a large bale of straw so sows can build nests and farrow wherever they choose.

"We can build this system for about 25 percent of the cost of a conventional swine system," Pijoan says. "So, even if the production is slightly less--which it probably will be--the return on the capital investment is much better."

The study includes observation of the behavior of the animals in each of the systems. Preliminary results show that aggressive and abnormal behavior is more common in the intensive system.

Pijoan also notes that sow condition is better, even though weaning occurs between five and six weeks of age, about three weeks later than in the intensive system. This may be, he thinks, because "The sows move around, and so even though in both systems they can eat as much as they want, they eat more in the low-input system."

In addition to looking for an economical and healthy way to raise pigs, the researchers are also investigating the low-input system as a way to minimize the use of chemicals. "We are trying very hard to use zero antibiotics," Pijoan says. "If the pigs get sick, of course, we will treat them with antibiotics, but we don't give antibiotics in the feed. We feel there is a market for chemical-free pork."

The study has gone through one farrowing, and will go through four before final economic analysis. The researchers have also received funding from the Greater Minnesota Corporation to extend the study to the University's Agricultural Experiment Station at Rosemount.

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NEWS/ INFORMATION

April 9, 1990

Source: Anne Hanchek
612/443-2460

Editor: Mary Kay O'Hearn
612/625-2728

U OF M HORTICULTURIST OFFERS TIPS TO SAVE WATER IN THE GARDEN

Are you reading garden catalogs and thinking of planting a garden this spring, despite the drought? Or have you dismissed the idea as hopeless? Take heart: you can plant this spring and have great success if you plan a water-conserving garden.

Whether you grow vegetables or flowers, the steps for conserving water and avoiding drought stress are the same, says Anne Hanchek, Minnesota Extension Service horticulturist.

"Begin with good soil preparation. Remove all weeds that might compete for water. Incorporate organic material such as compost or peat moss into the soil to increase the water-holding capacity of sandy soils and to decrease the cementation of clay soils," Hanchek says.

Choose drought-tolerant species whenever possible such as ornamental grasses, spring-flowering bulbs, herbs, heat-resistant leafy vegetables and prairie natives. Try to set out small transplants rather than seeds, and plant in early evening rather than morning to avoid sudden heat stress. Water deeply as soon as the plants are in the ground. Then, cover the ground with a mulch. Mulching will greatly reduce evaporation from the soil and will moderate soil temperatures.

After planting, continue regular watering. "Drip irrigation

is the most efficient way to deliver water to exactly where it is needed: the plant roots," Hanchek says. "Whether you use tubing, T-tape or a soaker hose, apply low pressure for an extended time to allow water to penetrate deeply." Since little water is lost to the air this way, your overall water use will be lower. If possible, lay the irrigation before mulching. Simply cover the hose with mulch to conserve even more water.

Keep lawn grasses away from the garden; they compete mightily for moisture. Use less fertilizer, especially nitrogen. Most herbaceous perennials and annuals are fine with a fall or spring application of 5-10-5 fertilizer. Overfertilizing stimulates lush, succulent growth at the expense of flowers and roots. Hanchek suggests harvesting vegetables early, in the "baby" stage before they become drought stressed.

"Finally, invoke Murphy's Law after all these precautions for drought because we're sure to have rain!" Hanchek concludes.

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V7,V8M,I2M

NAGR3442

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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1420 Eckles Avenue
St. Paul, Minnesota 55108

April 9, 1990

Source: Deborah Brown
612/624-7491
Editor: Mary Kay O'Hearn
612/625-2728

IT'S NOT TOO EARLY TO THINK ABOUT SPRING LAWN CARE

Winter's accumulation of leaves, dead weeds, twigs and other debris can be raked from lawns and composted instead of being jammed into plastic bags and hauled to a dumping site.

If you fertilized twice last fall, you probably can skip it this spring. But if you decide to fertilize, wait until the grass greens up and is ready to mow, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

If you plan to use a pre-emergent herbicide to prevent crabgrass, be aware that they are most commonly available in combination with fertilizer and that one application will certainly provide enough fertilizer for spring.

If April warms up quickly, you may decide to apply crabgrass preventer toward the end of the month (that is if you live in the southern half of Minnesota). Otherwise, wait until the first or second week in May.

An exception might be in really hot areas, such as next to a sidewalk or asphalt drive, or on a sunny, south-facing slope, particularly if the soil is sandy. If crabgrass has been a problem in past years, treat those areas in late April, Brown recommends.

Sparse areas of the lawn can be reseeded as soon as the soil is dry and firm enough to walk on without feeling spongy underfoot. Be sure to use a heavy garden rake to loosen the soil before seeding. Don't use herbicides in reseeded areas. (Use crabgrass preventer only if it's labeled specifically for use with newly seeded lawns.)

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V7,V8M,I2M

NAGR3441

NEWS/ INFORMATION

April 12, 1990

Source: Cynthia Ash
612/624-4977

Editor: Mary Kay O'Hearn
612/625-2728

TREES CAN BE STRESSED, TOO

Outwardly, people and trees can appear to be extremely healthy, but inwardly they could be suffering from stress.

When a tree is stressed, it is robbed of starch, its stored food supply, says Cynthia Ash, a plant pathologist with the University of Minnesota's Extension Service.

When a tree is damaged by insects, disease, environmental or mechanical factors, it uses part of its stored food supply to replace lost leaves and branches or to heal wounds. In the meantime, the tree's outward appearance seems the same. However, at some point that stored food supply is exhausted.

"When this occurs, additional stress results in dieback and, if it is severe, the tree's eventual death," she says. During this spring and summer, regardless of the weather conditions, many trees and shrubs are going to be in that "stressed" category and others will be beyond that and will die.

What can be done about it? Watering is very important, Ash says. Not only do plants need water, but without water they cannot take up the necessary nutrients from the soil. In soils where nutrients may be deficient, fertilization is important especially on young trees and shrubs. An organic mulch (such as woodchips or shredded bark) placed several feet from the tree

trunk will help keep the soil cool and moist and prevent weed growth. High soil temperatures kill plant roots preventing water and nutrient uptake even when water is present.

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V7,V8,I2

NAGR3437

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 12, 1990

Source: Joe Conlin
612/624-4995
Writer: Joseph Kurtz
612/625-3168

MANAGEMENT ADJUSTMENTS CAN BOOST DAIRY PROFITS

Increased profits of over \$24,000 per year for a 50-cow dairy herd--that's what's possible for producers who "fine tune" five management factors, according to a University of Minnesota extension dairy scientist.

Joe Conlin examined the effects on profitability of five factors for a 50-cow herd producing 17,000 pounds of milk per cow per year. He used current feed prices and a \$12.00 per hundredweight milk price. The factors he looked at are somatic cell count, calving interval, herd replacement rate, debt level, and age of heifers at first calving. "Many people don't think of these as being efficiency factors," he points out. "They are not directly tied to production, although some of them may influence production."

The Minnesota scientist found that lowering the somatic cell count from 400,000 to 250,000 would increase profits by \$4,062 in the 50-cow herd. Reducing the calving interval from 14 months to 12 months would increase profits by \$4,684. Reducing the herd replacement rate from 46 percent to 36 percent would make a difference of \$581. Lowering age at first calving from 29 months to 24 months would increase profits by \$5,401. Reducing the debt

level from 40 percent of assets to zero would have the biggest impact, a whopping \$9,375.

The combined effect of the five factors is \$24,103. In terms of cost for producing 100 pounds of milk, the adjustments make a difference of \$2.68, according to Conlin.

"Inefficient management can seriously reduce profitability in spite of high productivity," says Conlin. "When these five factors were not efficient, returns over cash costs for a 20,000-pound herd were \$12,000 below the returns for an efficiently-managed herd producing 17,000 pounds per cow."

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AEA,BSS,CEO,V2,D

NAGR3457

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 12, 1990

Source: Ken McNamara
612/625-8799

Writer: Larry A. Etkin
612/625-4272

SUSTAINABLE AG SYMPOSIUM SET FOR APRIL 28 ON ST. PAUL CAMPUS

American agriculture seems to sometimes grow more acronyms and buzzwords than it does crops. Among the most visible these days are LISA and "sustainable agriculture."

An April 28, 1990 all-day symposium at the University of Minnesota aims to fill some of the gaps many people--producers, researchers and consumers alike--have in understanding what sustainable agriculture means. Agriculture production and research relating to sustainable agriculture is another focus.

The symposium is mainly for people concerned with the policies, practices and results of land grant university sustainability research. Social, economic, governmental and university influences will be covered in symposium sessions.

Several speakers will address farm policy and legislative impacts on sustainable agriculture. Ethical and consumer issues, sustainability of rural lifestyles, and barriers to both sustainability research and the incorporation of its results into mainstream agriculture will also be covered.

Some specific topics and speakers scheduled for the symposium are: Senate agriculture committee chairperson Chuck Davis addressing Minnesota legislative issues affecting sustainable

agriculture; University regents professor Vernon Ruttan talking about limitations of sustainable agriculture; and Ken Taylor from the Minnesota Food Association discussing the impacts of consumers on sustainable agriculture.

The symposium will be held in Borlaug Hall on the St. Paul campus of the University of Minnesota. Morning sessions, featuring general sustainable agriculture issues will begin at 9 a.m. The symposium will run until 5 p.m.

Afternoon sessions will focus on more specific reports from researchers on projects in progress, and their relationships to agricultural sustainability. These reports will cover soils, agronomy, applied economics, plant pathology, entomology, food science, animal science, and activities with the Land Stewardship Project.

No pre-registration is necessary. All sessions are open to the public and free of charge. Lunch is on your own.

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AEA,BSS,CEO,V4,V7,A1,B2,F1,L3,N2,R

NAGR3452

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 12, 1990

Source: Deborah Brown
612/624-7491
Editor: Mary Kay O'Hearn
612/625-2728

CONSIDER LEAVES, GRASS 'GARDEN TREASURE'

Laws governing disposal of yard waste (leaves, grass clippings and prunings) are already a reality in the Twin Cities metro area. These organic materials are no longer welcome in public landfills. Barring a legislative change of heart, the restrictions will be enforced statewide, starting in 1992.

Private haulers will still pick up your yard waste, but they'll pass along the additional cost of finding a place to accept it by charging you as much as \$3 a bag, reminds Deborah Brown, horticulturist with the Minnesota Extension Service. "It's no wonder people are being encouraged to recycle as much yard waste as possible, right in their own backyards," she says.

The good news is that it's relatively easy to turn this waste into compost which is "truly a garden treasure." As an organic soil additive, compost will improve the moisture-holding capability of sandy soils. It also helps to open heavy, clay-like soil, improving drainage. And as compost continues to break down in the soil, it releases small amounts of nutrients and encourages the presence of beneficial earthworms.

"Spring is a good time to start a new compost pile. You'll need to rake the lawn anyway, to remove annual weeds, twigs and debris that accumulated over the winter. Rather than jam the

debris into large plastic yard bags, turn it into compost by layering it with a little soil and inexpensive, high-nitrogen fertilizer (about 10 inches of vegetation, then a thin layer of soil and sprinkling of fertilizer, repeated by 10 inches of vegetation and so on). Keep the pile slightly moist, and turn it a couple times a month," Brown describes.

To speed decomposition and keep your yard looking tidy, contain the compost in some sort of enclosure. A 5-x-5-x-5-foot bin made of woven wire fencing with posts at the corners will do nicely, and it's neither costly nor difficult to construct.

For more details, ask your county extension office for the Minnesota Extension Service publications AG-FS-3899, "Backyard Composting," or AG-F0-3296, "Composting and Mulching: A Guide to Managing Organic Yard Wastes."

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V7,V8M,I2M

NAGR3440

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 16, 1990

Source: Larry D. Jacobson
612/625-9733
Editor: Mary Kay O'Hearn
612/625-2728

LIVESTOCK HOUSING VENTILATION HANDBOOK IS AVAILABLE

If you want to install mechanical ventilation in livestock buildings or your current ventilation system needs improvement, a new handbook from Midwest Plan Service should give you an assist.

Mechanical Ventilating Systems for Livestock Housing (MWPS-32) is a 72-page how-to manual on applying principles of airflow for effective, efficient ventilation. It covers negative-, positive- and neutral-pressure systems in addition to manure pit ventilation, says Larry D. Jacobson, agricultural engineer with the University of Minnesota's Extension Service

There are sections on fans (types, performance, selection, controls, installation), applications (mechanical ventilation in dairy, veal calf, horse, poultry, rabbit, sheep and swine housing), emergency ventilation, insulation, maintenance and troubleshooting.

"Adequate ventilation is a must in maintaining a healthful building environment for humans and livestock," Jacobson says. "Ventilation removes or dilutes harmful dusts and gases and reduces undesirable odors, airborne disease organisms and excess moisture."

Mechanical ventilation can be especially beneficial in housing for young or small animals and for breeding stock sensitive to

temperature. Milking centers, intensive confinement operations and areas where extreme weather conditions affect productivity are other instances where mechanical ventilation can be cost-effective, he adds.

MWPS-32, written by agricultural engineers from 12 north central land grant universities, can be obtained for \$5 a copy (Minnesota residents add 6 percent sales tax) from Extension Agricultural Engineering, 201 Agricultural Engineering, 1390 Eckles Ave., University of Minnesota, St. Paul, MN 55108. Checks should be made payable to the University of Minnesota.

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AEA,BSS,CEO,A2,D,E4,K,N1,N3,P1

NAGR3458

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 19, 1990

Source: Jerry Hawton
612/624-2270
Editor: Sam Brungardt
612/625-6797

ALKALOIDS MAKE LUPINE MEAL POOR INGREDIENT FOR SWINE FEED

Swine producers seeking alternative protein sources should probably not try to use lupine meal for more than 10 percent of the diet, according to Jerry Hawton, a swine researcher for the Minnesota Agricultural Experiment Station.

"Recent studies conducted by University of Minnesota researchers show that growing and finishing swine will not tolerate much lupine meal in their feed, as pigs apparently dislike the bitter taste imparted by the alkaloids in the lupine meal," he explains.

In the studies, pigs were fed dehulled, defatted lupine meal. The meal was made from lupines of the Kiev variety, which is thought to be low in alkaloids. However, Hawton says the tests show this variety's alkaloid content is too high to be palatable to swine.

He says he had hoped that lupine meal would prove acceptable as a feed ingredient for several reasons. First, lupines can be grown on the lighter, more acidic soils that are not well suited to soybean production. Second, lupine has a high protein content and is quite similar to soybean meal in composition. Third, unlike some high-protein legumes, lupine does not require expensive heat processing before it can be fed. While these

factors should make lupine an attractive feed ingredient, Hawton says results of the studies suggest that pigs cannot tolerate a high amount in their feed. "The more lupine meal we put in the feed, the less feed they ate and the more growth performance was impaired," he says. "Even when we added molasses, there was still a decrease in feed intake."

In addition to the alkaloid problem, Hawton says the percentage of available lysine in lupine meal is quite low compared to the percentage in other protein sources. Consequently, he advises, "Based on our finding, we're telling swine producers not to use lupine meal in their feed in amounts greater than 10 percent."

Hawton adds, "Producers who grow lupines themselves or who have easy access to low-cost lupine seeds or meal could certainly consider using them as a feed ingredient in small amounts.

He says some other nontraditional protein sources, such as canola meal or dehulled sunflower seed meal, have been much more successful than lupine in swine feed.

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AEA,BSS,CEO,F1,L3,P1

NAGR3460

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 19, 1990

Source: Jeffrey Hahn
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

CARPENTER ANTS MAY REAPPEAR IN SPRING

With warm spring weather, carpenter ants may appear regularly in and around homes. When this happens, the nest is nearby, possibly even inside the home.

Trying to determine where the ants are nesting can be tricky. Locating and treating the nest directly is the most effective control for an indoor colony, says Jeffrey Hahn, entomologist with the University of Minnesota's Extension Service. If ants are coming from an outside colony, control tactics may need to be changed.

There are clues that may indicate an indoor nest, such as indoor sightings of more than 20 ants, seeing ants during the winter, winged ant swarms indoors and seeing water-damaged wood or sawdust. But the nest could still be indoors even if none of these clues is found.

It is common for part of the parent colony to splinter off and establish a satellite colony nearby. When outdoor carpenter ant nests are close to homes, it is possible for a satellite colony to develop in a building. Pest control operators can spray long-lasting insecticides around the outside of the building to help prevent satellite colonies from moving indoors when this situation exists.

"Carpenter ants that enter homes from an outdoor nest just to forage for food and water are nothing more than a nuisance and needn't be controlled," Hahn says.

However, the variety of situations that may exist makes control decisions difficult. Fortunately carpenter ant damage occurs slowly so home dwellers should patiently observe activity until the situation and nest location becomes more apparent. Then control will be more effective, he concludes.

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V7,V8,I2,I4

NAGR3459

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 19, 1990

Source: Nancy Breneman
612/625-3775
Writer: Sam Brungardt
612/625-6797

PROCEEDINGS OF WOOD-BASED ECONOMIC DEVELOPMENT SYMPOSIUM AVAILABLE

The proceedings of a recent symposium that explored opportunities for the development of forest product industries in the Lake States is now available. The symposium, organized by the University of Minnesota's Center for Alternative Plant and Animal Products, was held April 4-6 in St. Paul, Minn.

Among the topics in the 202-page publication are How to Evaluate Potential Enterprises, How Communities Can Attract Forest Products Industries, Community Preparedness for Forest Products Industry Development, Selecting the Right Export Market Entry Strategies and How to Do Your Own Market Research.

Other presentations cover specific products and services: birch turnings, ready-to-assemble furniture, bar-coded lumber and wood products, small hardwood clears, hardwood dimension lumber and specialty products, pine and white cedar shakes, Scandinavian flooring and secondary products made from wood composites.

Wood-Based Economic Development in the Lake States: Proceedings of a Symposium on Specific Forest Product Opportunities may be bought for \$20 a copy. Orders should be sent, with checks payable to the University of Minnesota, to Extension Special Programs, Educational Development System, 405 Coffey Hall, University of Minnesota, St. Paul, MN 55108-1030.

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AEA,BSS,CEO,E1,H3,H4

NNRD3462

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM

405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 19, 1990

Source: Cynthia Ash
612/624-4977

Editor: Mary Kay O'Hearn
612/625-2728

CONSTRUCTION CAN WIPE OUT TREES

Hundreds of trees are damaged and eventually die each year in Minnesota due to digging for new home construction, room additions, utility lines and even sidewalks.

Most of the damage occurs to the trees' root systems. In an urban situation, the root system of a large tree extends well beyond the dripline--sometimes as far away from the trunk as the height of the tree. The rooting depth varies with soil type, but most of the roots responsible for water and mineral absorption are located where there is a good supply of oxygen, usually in the top 12 to 18 inches of the soil.

The tree is a balanced system, points out Cynthia Ash, a plant pathologist with the University of Minnesota's Extension Service. When part of the root system is removed or killed during construction activities, less water and soil minerals can be taken up. "The food stored in those roots is lost, and the physiology of the tree is upset," she says. The tree can no longer support the amount of top growth it had in the past. New foliage is smaller, lighter in color and branches begin to die.

"If the damage is minimal and the tree is properly cared for, it may recover. When the damage is severe or the tree is not properly cared for, it usually dies over a period of three to five

years," she says. Sometimes the loss takes as long as 10 years.

Damage to the trunk and larger limbs by bulldozers or other equipment can also cause problems when the water and food conducting system, located just under the bark, is disrupted, resulting in less flow to portions of the tree. Wounds are excellent entry sites for canker and wood decay fungi.

Adding soil over existing root systems during final grading must be done with caution. One to 2 inches of coarse fill can be added over the root systems of most trees. But if more soil needs to be added, special provisions for adequate aeration of the existing root system must be made, Ash warns.

Ask your local extension office or the Dial U Clinic at the University of Minnesota for information on preventing construction damage to trees and on the control of construction-related tree diseases.

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V7,V8,I2

NAGR3439

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM

405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 19, 1990

Source: Cynthia Ash
612/624-4977
Writer: Mary Kay O'Hearn
612/625-2728

THINKING AHEAD CAN HALT DISEASES

Anticipating disease problems in the home landscape and garden is the first step in avoiding them. Here are some suggestions from Cynthia Ash, a plant pathologist with the University of Minnesota's Extension Service, on how to start your gardening and maintenance routines with disease prevention in mind.

--Diseases usually seriously damage only severely stressed plants. Start with healthy plant materials, plant them on proper sites and maintain them properly to keep them healthy.

--Long spans of moisture on the plant are necessary for the many plant diseases to develop. The secret is to water early in the day so plants can dry off quickly. When you can't avoid watering late in the day, water only at the base of the plant or use a sprinkler that doesn't throw the water high into the air. If you thin dense plantings of trees and shrubs this will increase light and wind penetration and dry them off more quickly. Mulching plants helps to maintain an even supply of moisture to the plant and decreases the amount of watering necessary.

--Select disease-resistant trees, shrubs, perennials, annuals and vegetables. Check seed packages, plant labels and gardening catalogs for this information.

--Rotate plant materials to different parts of the garden or landscape.

--Remove infected plant parts as soon as you notice them.

--Many diseases overwinter on infected plant parts. Removing last year's plant debris from the garden before you plant it will halt this.

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V7,V8,I2

NAGR3438

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 23, 1990

Source: Pete Anderson
612/624-4995
Writer: Joseph Kurtz
612/625-3168

EARLY BREEDING SEASON, AI HAVE ADVANTAGES FOR BEEF HEIFERS

Many beef cow-calf operators like to start the breeding season three weeks earlier for their heifers than for mature cows. There are several advantages to this practice, says Pete Anderson, extension beef scientist at the University of Minnesota.

"Heifers will calve earlier the following year," he notes. "This allows more time to observe them at calving time and more time between calving and rebreeding for their second calf."

Anderson says an early breeding season promotes selection for early puberty. It also makes it possible to get open heifers into the feedlot earlier.

Heifers should weigh at least 65 percent of their expected mature weight at the beginning of the breeding season, according to Anderson. If they don't, a high percentage will not cycle. "A few dollars spent on grain to increase the growth of lighter heifers prior to the breeding season can pay large dividends," he points out.

Anderson suggests that producers consider using artificial insemination. "If AI is not feasible for the entire cow herd, using it just for heifers may be profitable," he says. "Using AI on heifers for a short season--less than 45 days--will put a great deal of selection pressure on fertility. You can send heifers not serviced directly to the feedlot and, after 40 days, pregnancy check those serviced."

Anderson says AI makes it possible to breed proven, low-risk calving ease bulls without owning those bulls. He recommends checking birth weight EPDs (expected progeny differences), which are better indicators of calf birth weight than a bull's birth weight.

"If you use AI on heifers for a short season without exposure to a bull, only highly fertile females will enter your herd," he points out.

May, Anderson concludes, is a good month to check facilities, equipment and semen supply.

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AEA,BSS,CEO,A2

NAGR3464

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 23, 1990

Source: Cynthia Ash
612/625-7002
Editor: Mary Kay O'Hearn
612/625-2728

BLACK KNOT INFECTIONS ARE UNSIGHTLY, SAP TREE'S VIGOR

In spring, as new growth begins on cherries, chokecherries, plums and mayday trees, fungal infections called "black knot" could appear.

Older branches infected with the fungus may have slightly swollen areas with a velvety, olive green surface, while infected young twigs may have a very slight swelling, says Cynthia Ash, a plant pathologist with the University of Minnesota's Extension Service. After a second summer of growth, the swollen areas become elongated, black, woody galls. These galls produce spores that infect new growth or wounds in the spring.

While black knot is somewhat of a cosmetic problem, it can kill branches. And although it doesn't kill the tree, it certainly reduces its vigor, Ash says.

"If you see large, black swollen areas on a branch, that is a two-year growth," she says. The best control is to cut off the branch 3 to 4 inches below the swollen area, then look for a good spot beneath the cut where you can make another pruning cut that will maintain the shape of the tree.

This must be done in dry weather, before new growth begins. The problem can spread during wet weather. A dormant application of lime sulfur after pruning is also beneficial.

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 23, 1990

Source: Pete Anderson
612/624-4995
Writer: Joseph Kurtz
612/625-3168

MANAGEMENT CAN IMPROVE BEEF COWS' REPRODUCTIVE PERFORMANCE

Rapid rebreeding is a key profit factor in a beef cow operation. Success in this area is highly dependent on management, according to Pete Anderson, extension beef scientist at the University of Minnesota.

Anderson says it's important for cows to be gaining weight before and during the breeding season. He says, "Nursing cows that are not on pasture should get a full feed of corn silage or grass-legume hay. With corn silage, protein supplementation is necessary. Cows getting a full feed of grass hay also need 5 to 10 pounds of grain. Remember that large, heavy-milking cows may need up to twice energy as small, poor-milking cows."

He also recommends separating two-year-old cows nursing their first calves from mature cows. The first-calf cows are still growing and need more feed, and they may not compete well with the older cows for feed.

Adequate bull power is a must for top reproductive performance. Anderson says, "In a pasture breeding system, a yearling bull should be expected to breed 15 to 25 cows, a mature bull 25 to 40 cows. Be sure to have bulls semen-tested annually and to check their mouths, feet and legs, and condition at least a month before the breeding season."

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AEA,BSS,CEO,A2

NAGR3463

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 26, 1990

Source: John Lawrence
612/625-1273
Editor: Joseph Kurtz
612/625-3168

Editors, broadcasters: This was written by John Lawrence, University of Minnesota extension economist, for use during May Beef Month.

BEEF BRINGS BIG BOOST TO MINNESOTA'S ECONOMY

May is Beef Month, the time when many people like to put their favorite cut of beef on the grill outdoors. Beef Month is also a time to recognize the contribution of the men and women in Minnesota's beef industry to the state's economy.

Minnesota's 16,000 beef farms had nearly a billion dollars worth of cattle inventory on Jan. 1, 1990. Each year, beef cattle sales generate more than \$500 million dollars in income for the state's farmers. Nationally, Minnesota ranks eighth in the number of cattle on feed, with 300,000 head in feedlots on Jan. 1. The breeding herd included 360,000 cows and 65,000 replacement heifers. In addition, several hundred thousand head of calves and other cattle were on hand the first of the year.

A strong and profitable beef industry is important to Minnesota for more than just the dollars generated from sales. Beef cows help conserve our soil by grazing pastures on highly erodible land. Without the revenue from beef cattle, this marginal land might be planted to row crops, with an increase in erosion. In northern Minnesota, where much land is not suitable for row crops and the growing season is too short for many grains,

beef cattle provide a way to market farm-grown forage crops. Converting the forages to beef is a process of adding value to a low-value product.

Cattlefeeding is also a value-added process in the areas of southern and western Minnesota that produce the bulk of the state's grain. Cattlefeeding turns low-value grain into high-value fed cattle.

The beef industry creates thousands of jobs beyond the farm gate. Feed processing, trucking, livestock marketing and veterinary health care are all directly involved with producing and marketing beef cattle. Beef packing and processing is another value-added industry that employs thousands of Minnesotans. They turn the raw product, fed cattle, into retail cuts of beef for sale throughout the world.

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AEA,BSS,CEO,V2M,V4M,V7,V8M,A1M,A2M,E1M

NAGR3468

**NEWS/
INFORMATION**

April 26, 1990

Source: Richard Epley
612/624-1735
Writer: Joseph Kurtz
612/625-3168

Editors: This article was written for use during May Beef Month, but could be used later also.

WHEN BUYING BEEF, CHOOSE FAT LEVEL ACCORDING TO TASTE

It's a matter of taste--how much fat to include in the beef steaks you grill this summer, that is. However, eating steak doesn't have to be a high-fat proposition, says Richard Epley, extension meat scientist at the University of Minnesota.

"Fat is responsible for giving different kinds of meat their characteristic flavors," he says. "If all the fat were removed from beef, pork and lamb, these meats would all taste the same. As the amount of fat in meat increases, flavor also increases."

When selecting beef, Epley recommends choosing cuts that have no waste fat, or trimming off waste fat before eating the meat. "Choose a cut with the level of marbling (specks of fat within the lean) that gives you the level of taste you desire," he advises.

Epley says there's a wide variation in the percentage of fat in beef. "Taken together, all of the retail cuts from a Choice carcass average 23.8 percent fat," he points out. "However, this figure includes all of the fat on and in the cuts before any trimming. Trimming away all visible fat leaves beef muscle

containing only 6.6 percent fat. Muscle from a Prime carcass contains 8.8 percent fat, and from a Select carcass, 5.5 percent fat."

Epley adds that specific cuts within a grade, such as the Choice grade, contain different fat percentages within the lean. For example, separable lean from the blade portion of the chuck contains 9.5 percent fat. The top round has only 4.2 percent. Fat levels in cuts from the rib and loin are in between these percentages.

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AEA,BSS,CEO,V4,V7,V8,A2,H1,I1

NAGR3467

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM

405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

April 30, 1990

Source: David Noetzel
612/624-9272

Writer: Mary Kay O'Hearn
612/625-2728

TAKE CENSUS TO DETERMINE WHETHER 'HOPPER CONTROL IS NEEDED

While the nation moves on with the 1990 census, Minnesota farmers may need to take a census of their own this spring--counting grasshoppers.

Agricultural devastation wrought by grasshoppers in the 1930s were just horror stories until our own grasshopper increase of the late 1980s.

No one wants the 1930s repeated, but with dry soils, Minnesotans have had to deal each year since about 1986 with more obvious population levels of grasshoppers, commonly moving from maturing small grains and grasses to row crops.

Being prepared for a grasshopper outbreak is the subject of Grasshopper Management, a new Minnesota Extension Service publication.

Author David Noetzel, a University of Minnesota extension entomologist, describes some of the major grasshoppers to expect in Minnesota. "Of some 75 to 100 kinds of grasshoppers in the northern Great Plains, only four or five are important crop-damaging species," he says.

Color photos picture the five to watch out for: the two-striped grasshopper, migratory grasshopper, clearwinged grasshopper, redlegged grasshopper and the differential grasshopper.

Noetzel says surveying fields is the best pest management procedure to assure there will be economic benefit from attempting biological, cultural or chemical control.

The best way to survey a grasshopper population is to walk the fields and do a census of grasshopper nymphs (the slower moving, wingless stage) and adults. The publication tells how to determine whether there are light, threatening, severe or very severe levels of grasshoppers per square yard--and when control is usually necessary.

"Grasshoppers do not just happen all of a sudden," Noetzel notes. "Their numbers build up over three or more years." Spring nymph surveys can begin in early May and continue through June and even into July some seasons. The hatch time will vary from year to year, depending on weather conditions.

The publication lists the 11 grasshopper insecticides that are labeled for grasshopper control, and their toxicities. Beekeepers whose colonies could be affected by spraying should be informed before spraying takes place. "No current insecticide appears safe for honeybees when spraying is widespread and repeated," Noetzel says.

To obtain a copy of Grasshopper Management, Minnesotans should ask for item AG-F0-3936 at the nearest county extension office. The price is \$1.50 plus 6 percent sales tax for Minnesota residents. The publication can also be ordered from the Distribution Center, 3 Coffey Hall, University of Minnesota, St. Paul, MN 55108. Checks should be made payable to the University of Minnesota.

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UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

May 3, 1990

Source: Deborah Brown
612/624-7491
Editor: Mary Kay O'Hearn
612/625-2728

U OF M HORTICULTURIST ANSWERS SPRING LAWN CARE QUESTIONS

In this question-answer format, Deborah Brown, horticulturist with the University of Minnesota's Extension Service, reviews important lawn care activities:

Question: What is the cut-off date for applying crabgrass preventer? Is it worth using after I see the first few sprigs of crabgrass coming up?

Answer: Pre-emergent herbicide should be watered into the soil one to two weeks ahead of the anticipated germination time for crabgrass. If, for some reason, your timing is off, it still might be worthwhile to apply it, as long as a lot of crabgrass hasn't sprouted already. Crabgrass does not all come up at once, so there will still be some benefit from the product over the next couple of months.

Question: How can I get rid of tough perennial weeds like dandelions and creeping charlie?

Answer: Target broadleaf weeds with a spray meant specifically for that purpose. If you don't get good results, repeat the application every 10 days to two weeks, as long as temperatures don't exceed the mid-80s. Spray only when plants are dry and there's no rain expected for a day or two. Avoid spraying in windy weather; you can easily damage any nongrassy plant the spray contacts. When hot weather arrives, hold off using herbicides until fall.

Question: I've seen buffalo grass recommended because of its drought tolerance. Is this a good idea for Minnesota lawns?

Answer: Buffalo grass does tolerate hot, dry growing conditions, but it has several drawbacks that make it unsuitable as a replacement for traditional bluegrass, fescue and rye combinations. For example, it has a bunching-type growth, rather than a spreading pattern, so it's difficult to establish a thick, even lawn. Worse though, it's a warm season grass, which means it is slow to green up in spring, and it turns brown with the first frost in autumn. It grows well in heat, but very poorly or not at all in cool weather.

Question: If buffalo grass isn't a good choice, how about zoysia? I see ads for it every year, and it sounds too good to be true. Vendors couldn't advertise it if it didn't grow here, could they?

Answer: Zoysia does survive our winters, so vendors are technically correct in saying it grows here. However, it does not spread rapidly in cooler climates, so it would take many, many years to take over your existing lawn. Unfortunately, zoysia, is a warm season grass also. It will be brown and ugly in spring and fall, when everyone else's lawn will be green. Most people who plant zoysia plugs in this area end up using weedkillers to get rid of it.

#

V7,V8M,I2M

NAGR3471

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 3, 1990

Source: Cynthia Ash
612/625-6290
Editor: Mary Kay O'Hearn
612/625-2728

PRUNING OR WOUNDING OAKS NOW INVITES OAK WILT

Oak trees should not be pruned or wounded in any way from now until July 1. If a wound should occur, a tree wound dressing must be applied immediately, says Cynthia Ash, a plant pathologist with the University of Minnesota's Extension Service. For more information on how to apply dressings, contact your county's office of the Minnesota Extension Service office, or the Dial U Clinic at the University of Minnesota.

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V7,V8M,I2M

NAGR3470

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 7, 1990

Source: Jeffrey D. Hahn
612/624-4977Editor: Mary Kay O'Hearn
612/625-2728**LEAFMINERS MAKE BIRCH MORE SUSCEPTIBLE TO BIRCH BORER ATTACK**

Birch leafminers commonly attack birch, but typically do not harm the trees. Yet, coupled with the ongoing effects of the drought, leafminer defoliation in 1990 places birches' health at greater risk, says Jeffrey Hahn, entomology educator with the University of Minnesota's Extension Service.

The adult leafminers emerge in the spring as birch trees leaf out. The females lay eggs (singly in leaves), which hatch into small, caterpillar-like insects.

These larvae feed on the tissue between the upper and lower leaf surfaces, creating a "mine." The mines start out small but grow larger, sometimes covering the whole leaf. "Most people do not notice this damage until after the larvae are finished feeding and the leaves turn brown," Hahn says.

In normal years, birch leafminer defoliation does not stress healthy birch and control is applied to protect the trees' appearance. But with continued effects of the drought, birch leafminer feeding will further stress all but the river birch, making trees more susceptible to bronze birch borer attack. Bronze birch borers often kill unhealthy, stressed birch.

"Control birch leafminers with an insecticide, such as acephate (Orthene) when the mines are still small," Hahn advises. "A soil

injection with Meta-Systox-R2, using the Kiornitz system, can be applied by a plant health specialist also when the mines first appear."

A weather forecasting computer program this spring says that birch leafminer mines will first appear in the Twin Cities during the first week of May. "It could happen sooner if we receive above-average temperatures," Hahn says.

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V7,V8M,I2M

NAGR3480

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 7, 1990

Source: Vernon W. Ruttan
612/625-4701
Writer: Deane Morrison
612/624-2346

U OF M ECONOMIST RUTTAN ELECTED TO NATIONAL ACADEMY OF SCIENCES

Vernon W. Ruttan, Regents' Professor of Agricultural and Applied Economics at the University of Minnesota, has been elected to the National Academy of Sciences. Election to the academy is widely considered a very high honor for an American scientist, second only to the Nobel Prize.

Ruttan conducts research for the University's Agricultural Experiment Station on the technical and institutional constraints on agricultural production in foreign countries. He is well known in economics circles for his work on induced innovation, or technical change. Simply stated, his major theory in that area holds that when resources are limited, people invent new devices or systems to substitute for that which is scarce.

Among Ruttan's many awards are the U.S. Department of Agriculture's top honor, the Distinguished Service Award; the Alexander von Humboldt Award; and the American Agricultural Economics Association's Distinguished Policy Contribution award.

Ruttan has been a University faculty member since 1965. Besides his position as a professor of agricultural and applied economics on the St. Paul campus, he is a professor in the Department of Economics and in the Humphrey Institute on the Minneapolis campus.

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AEA, BSS, CEO, V2, A1

NEXP3496

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 7, 1990

Source: Deborah Brown
612/624-7491

Editor: Mary Kay O'Hearn
612/625-2728

MAY, JUNE ARE GOOD TIMES TO SELECT SPRING-FLOWERING TREES, SHRUBS

If you plan to replace old, overgrown shrubbery or you've decided to add plants to improve your landscape and add a touch of spring color, May and June are the times to visit a local nursery or garden center.

"A sure way to know what you are buying is to pick plants while they are in bloom," says Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

Minnesota-hardy azaleas are available in shades of pink, rose, white, lavender and apricot. PJM rhododendron is a lovely pinkish purple. Lilacs come in a whole range of blue and pinkish purples, as well as ivory and maroon. Even potentillas vary in color from white to pale lemon-yellow to rich yellow-gold. And there's a whole realm of flowering crabapples available, too, she says.

"When you plant trees or shrubs, mulch them with several inches of wood chips or shredded bark to help insulate the roots from summer's heat," Brown says. "Mulch will also help conserve moisture and cut down on weed competition."

Water newly planted trees and shrubs regularly, throughout the growing season, stopping only when rainfall takes over or the soil freezes in fall. Don't make the mistake of watering daily. Water deeply every seven to 14 days, depending on the weather. Never water when the soil still feels moist from the last soaking; too much water will rot the roots, Brown says.

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V7,V8,I2

NAGR3472

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
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DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 7, 1990

Source: Doug S. Foulk
612/624-6220
Editor: Mary Kay O'Hearn
612/625-2728**MINIMAL CARE IN MAY ENSURES STRAWBERRY HARVEST IN JUNE**

Strawberries--whether they be June-bearing, dayneutral or everbearing types--thrive under the cool conditions of May.

June bearing strawberry plants produce a large, concentrated crop in late spring; everbearing types bear a smaller crop once in spring and again in fall; and dayneutrals bear more or less continuously from spring until frost. June bearing types generally produce the largest crop. "Tribute" and "Tristar" are the highest quality dayneutral varieties for Minnesota.

The best fruit development generally occurs at soil temperatures ranging from 45 to 55 degrees F. To promote cool soil conditions, Doug S. Foulk, an assistant fruit specialist with the University of Minnesota's Extension Service, suggests placing a 2- to 3-inch-deep mulch of organic material, such as straw or compost, around strawberry plants. In addition to cooling the soil, an organic mulch will suppress weeds, conserve moisture and keep the fruit clean.

Foulk says early May is a good time to fertilize strawberry plantings. "Apply a balanced fertilizer, such as 10-10-10, at a rate of 2-1/2 pounds per 100 feet of row. If the weather is dry, irrigate strawberries, providing an inch of water per week," he says. By placing an inexpensive rain gauge next to the row, it is easy to know when that

inch is met. Do not water late in the day as this can increase disease problems.

Although strawberry plants can tolerate frost, flowers and developing berries often cannot. Once blooming has begun, the strawberry bed should be protected from frost. Do this with organic mulch, spunbonded polyester rowcover material or old blankets--all are fine at providing protection, Foulk says. Frost-damaged flowers have blackened and will be fruitless.

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V7,V8,I2

NAGR3474

NEWS/ INFORMATION

May 10, 1990

Source: Pete Anderson
612/624-4995
Writer: Joseph Kurtz
612/625-3168

AI HAS ADVANTAGES FOR BEEF PRODUCERS

Artificial insemination offers some important advantages for beef cow-calf operations, a University of Minnesota extension beef scientist points out.

"AI is not the right choice for everyone, but producers should weigh its pluses and minuses for their operations," says Pete Anderson.

The breeding cost per pregnant female is usually higher with AI than with natural service, says Anderson. The question to consider is, are AI-sired calves worth the extra cost?

Anderson lists these advantages of AI for beef producers:

--It may provide the opportunity to use superior bulls at a low cost.

--It allows the use of a variety of bulls. "This is a particular advantage in herds that keep only a few replacement heifers each year but need to mate them for calving ease," says Anderson. "Complicated crossbreeding systems in single pastures and small herds are also easier."

--Semen from proven bulls, those with high expected progeny difference (EPD) accuracy values, is available. Such bulls may be difficult to buy for natural service.

--Cows not serviced can be culled or go to a feedlot sooner, since a pregnancy check is not necessary.

--Knowing breeding dates makes it possible to predict calving dates.

Anderson says the main disadvantage of AI is that it takes more labor and facilities.

"Minnesota has an advantage among the leading beef states in availability of qualified AI technicians," he points out. "Because of our dairy industry, technicians are readily available to breed beef cows in most parts of the state at a reasonable cost."

AI requires adequate facilities for working, sorting and holding cows. Also, semen tanks and other equipment may be necessary when producers do the insemination.

"Proper heat detection is critical to the success of any AI program," Anderson points out. "Heat detection is not an 8-to-5 job; it requires knowledge and diligence."

Anderson says various heat synchronization techniques can reduce labor requirements for artificial insemination, but may not improve conception rates. He suggests consulting a veterinarian for assistance in working out a heat synchronization program.

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AEA,BSS,CEO,V2,A2

NAGR3498

NEWS/ INFORMATION

May 10, 1990

MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

Source: Anne Hanchek
612/443-2460

Writer: Joseph Kurtz
612/625-3168

RECOGNITION HIGHLIGHTS MASTER GARDENER CONFERENCE

Volunteer Master Gardeners from across Minnesota gathered new ideas, compared notes and received recognition recently when they met in St. Paul. They were attending the first state conference of Master Gardeners, a group that has donated thousands of hours of service to their fellow citizens. The conference took place on the University of Minnesota's St. Paul campus, with an evening banquet and awards program at Augsburg College.

Through the Master Gardener program, professional educators with the Minnesota Extension Service develop a high level of gardening expertise in volunteers. These volunteer Master Gardeners then share their knowledge with those who need gardening information.

One hundred thirty Master Gardeners and 40 guests representing 31 Minnesota counties attended the conference. Thirty-two Master Gardeners received special recognition for contributing 10 or more years or 1,000 or more hours of service.

Pat Borich, dean and director of the Minnesota Extension Service, underscored the importance of volunteers in helping extension carry out its educational mission. He said the use of volunteers will be a key aspect of extension work in the future, particularly in urban settings.

Those attending the conference also received updates on several topics, including the disposal of lawn clippings, leaves and other

garden wastes. Master Gardeners are receiving numerous questions on this subject as more communities enact tighter restrictions.

The first steps toward forming a state advisory committee for the Master Gardener program also took place at the conference. The advisory committee is expected to include 14 people, according to Anne Hanchek, University of Minnesota extension horticulturist. It will be made up of Master Gardeners and extension staff.

The 32 Master Gardeners honored for longtime service received a book and a certificate from Gov. Rudy Perpich. Perpich included the following statement in a letter to the Master Gardeners:

"Since its start in 1977, the Master Gardener program has grown to serve every county in the state. Your work in assisting your local county extension offices has been invaluable in helping to provide expertise to communities and individuals who wish to beautify their homes and their neighborhoods. Your work in consulting, conducting classes, writing publications, and planning community gardens has enabled county extension to provide greater services to our citizens. Your work in providing horticulture therapy for children, the elderly, and the disabled has brightened many lives."

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AEA,BSS,CEO,I2M

NAGR3499

NEWS/ INFORMATION

May 10, 1990

MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

Source: Cynthia Ash
612/625-6290

Editor: Mary Kay O'Hearn
612/625-2728

TO AVOID DISEASES, START WITH HEALTHY PLANTS

It's time to visit greenhouses or garden centers to purchase vegetable and bedding plants, trees and other plant materials. Naturally, you'll want to buy healthy plants and keep them that way. Here are some tips from Cynthia Ash, plant pathologist with the University of Minnesota's Extension Service, to help you do just that:

--Before you purchase, examine the plants closely. Avoid plants with yellow leaves and poor green color; stunted growth; missing, torn or spotted leaves and stems; and cell packs with missing plants. Don't buy bulbs, tubers or corms with scabs, sunken areas or moldy growth.

--Place the plant material where it "wants" to grow. Plants placed in poorly prepared sites or the wrong place (for example, a sunny rather than a shady location) will be under stress and much more likely to have serious disease problems. Ask about growing conditions where you buy them.

--Know how to maintain optimum plant health for all the plants in the garden or landscape. Water and fertilize regularly. Control weeds, which can harbor diseases.

--Water at the base of the plant or at least early in the day. Extended periods of moisture on the foliage are necessary for the development of many plant diseases. Thinning dense plantings of trees and shrubs will increase light and wind penetration and dry the area more quickly. Mulching helps to maintain an even supply of moisture to

the plant and reduces the need for watering.

--Purchase disease-resistant plant material when possible.

--Rotate the location of different types of plant materials each year.

--Develop an eye for problems. Many diseases can be prevented by removing the infected plant part early.

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V7,V8,I2

NAGR3478

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405 Coffey Hall
1420 Eckles Avenue
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May 10, 1990

Source: Doug S. Foulk
612/624-6220
Editor: Mary Kay O'Hearn
612/625-2728

WITH APPLES, IT NEEDN'T BE A MATTER OF FEAST OR FAMINE

Perhaps you have apple trees that bear heavily one year and not the next. This phenomenon, called biennial bearing, can be prevented by controlling the number of fruits allowed to develop each year.

"Thinning the fruits by hand is the simplest and most reliable method in the home garden," says Doug S. Foulk, assistant fruit specialist with the University of Minnesota's Extension Service.

Apples should be thinned early in the season. Fruit buds develop the summer before the flowers actually bloom, and the number of buds which form is affected by the number of fruits maturing on the tree at that time. In many apple cultivars, a heavy crop of developing fruit reduces the number of buds which are produced for the next year.

Foulk says, "Fruit should be thinned within three weeks of the time the trees reach maximum bloom. For example, if full bloom occurs on about May 10, fruits should be thinned by June 1."

Thin carefully to avoid damaging the spur, the small branch to which the apple stems are attached. Hold the spur between the thumb and forefinger and use the other hand to gently remove unwanted fruits. Leave only one or two fruits per cluster.

Thinning, in addition to preventing biennial bearing, results in larger, better flavored apples.

Apple trees may also be chemically thinned by applying the insecticide carbaryl (Sevin) at labeled rates; however, this method is less selective or predictable and useful only for larger plantings. When using any pesticide, read and follow all label directions, Foulk cautions.

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V7,V8,I2

NAGR3475

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 10, 1990

Source: Cynthia Ash
612/625-6290
Writer: Mary Kay O'Hearn
612/625-2728

BE PATIENT WITH BROWNEED EVERGREENS

Don't be hasty with drastic pruning or even cutting down evergreens which aren't greening up as fast as other trees this spring.

"Wait and see" suggests Cynthia Ash, a plant pathologist with the University of Minnesota's Extension Service. Most questions now coming into the University's Dial-U Insect and Plant Information Clinic concern red pines and the more shrub-like junipers (red cedar) and arborvitae (white cedar), Ash says. While she understands householders' alarm, particularly where large trees and bushes have been added to newly landscaped areas within the last few years, she reminds them that root systems take time to develop and even the trees and shrubs with large, established root systems are suffering from "lack of moisture, high soil temperatures and warm winters," Ash says.

"What we are seeing now is accumulated damage that first occurred during the summer of 1988 and has been complicated by continued poor growing conditions. The lack of moisture was problem enough, but plants have also had to endure high soil temperatures, which damage roots, and high air temperatures, which reduce photosynthesis--the process of food production," she explains. Then, even more damage has occurred when there is a sudden temperature drop and strong north winds chill tissues on the north side or deicing salts spray onto the foliage.

These problems are most obvious and permanently damaging on

evergreens because they have year-round foliage, making them subject to additional moisture loss. "Most evergreens do not replace damaged needles," she adds.

What can be done about this?

Ash says, "If branches are brittle and the area just under the bark is brown, branches are dead and should be removed. Do a test with your thumbnail--breaking gently through the bark of a small branch. If it is green beneath, give the branch the benefit of the doubt and don't prune it. After that, remove only the remaining dead or weak branches, then evaluate the tree or shrub. Additional pruning and growth this summer may result in a nice plant again. Evergreens pruned back into an area where needles are not present usually do not fill out again."

Although it may be too early to cut trees down just because they are brown looking, Ash says, if most branches are brittle and dead, it might be best to replace these specimens with new stock which will have more time to become established in our short summers.

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AEA,BSS,CEO,I2M,V8M

NAGR3501

UNIVERSITY OF MINNESOTA
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 405 Coffey Hall
 1420 Eckles Avenue
 St. Paul, Minnesota 55108

NEWS/ INFORMATION

May 14, 1990

Source: Jeffrey D. Hahn
 612/624-4977
 Editor: Mary Kay O'Hearn
 612/625-2728

1990 MAY BE A YEAR FOR CANKERWORMS

Cankerworms emerged as a problem to Minnesotans in the late 1970s. Their levels have been low since then, but recently they are becoming more numerous and approaching outbreak populations again, according to Jeffrey D. Hahn, entomology educator with the University of Minnesota's Extension Service.

Cankerworm eggs hatch in the spring, up to mid-May. (Early to mid-May is expected to be this year's hatch time in the Twin Cities.) After hatching, the larvae feed on the leaves of many hardwood trees, such as ash, oak, basswood, maple and hackberry, although they prefer elm and apple. Defoliation in one season can be severe, but healthy, mature trees are normally not injured, Hahn says.

"Effective control is necessary in the spring when the cankerworms are still small (1/2 inch or less) and before defoliation is severe (when more than 50 percent of the leaves are present). Ideally, control should be applied 10 days after the caterpillars hatch," Hahn says.

Target control particularly for young, recently transplanted trees, unhealthy trees and trees that have been heavily defoliated one or more consecutive years. Bacillus thuringiensis (Dipel, Thuricide), carbaryl (Sevin), malathion and acephate (Orthene) are effective insecticides, Hahn says.

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V7, V8M, I2M

NAGR3473

NEWS/ INFORMATION

May 14, 1990

Source: Cynthia Ash
612/625-6290

Editor: Mary Kay O'Hearn
612/625-2728

2 FUNGAL DISEASES ATTACK SPRUCE

Two fungal diseases, Cytospora canker and Rhizosphaera needlecast, can damage spruce trees in Minnesota, particularly when combined with adverse environmental conditions such as warm winters, poor sites and lack of moisture.

Such conditions spell "stress" for trees, and fungi which would not normally damage spruce trees infect them and are able to cause serious damage, says Cynthia Ash, plant pathologist with the University of Minnesota's Extension Service.

Cytospora canker invades branches of mature spruce, especially Colorado blue spruce, killing them back to the trunk. "The lower branches are usually killed first, then the upper branches until not much is left on the top of the tree," Ash describes.

To be sure it is Cytospora canker, look for large amounts of blue-to white-colored sap oozing from infected branches. Infected branches should be removed during dry weather as close to the trunk as possible. The best time to prune is late winter. "However, pruning now would still be beneficial," Ash says. Watering during dry periods and avoiding mechanical or chemical damage will help minimize stress to the tree and reduce the spread of the disease.

In Minnesota, Rhizosphaera needlecast infects needles of stressed spruce of all ages. The Colorado blue spruce is most susceptible, followed by black spruce, Norway spruce and white spruce. The fungus

invades new needles during spring and early summer, but infected needles do not turn brown or reddish until the next summer.

"To identify *Rhizosphaera* needlecast," Ash says, "use a magnifying glass or hand lens to look for the black, dot-like reproductive structures of the fungus. Look closely at the green needles for neat, little rows of white dots. These are the stomata or breathing pores of the healthy needles. If needles have been infected with the fungus, many of the white dots will be replaced with black dots."

Bordeaux mixture or a fungicide with the active ingredient chlorothalonil (such as Bravo 720, Ortho Multipurpose Disease Control and Daconil 2787) can be used to control *Rhizosphaera* needlecast. Spray when the new needles are 1/2 to 2 inches long, then again in three to four weeks. To minimize the impact of stress conditions on spruce, keep the trees well watered during dry periods and don't plant young trees too closely together, she concludes.

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V7,I2M

NAGR3479

MSC 6/22/90

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

**NEWS/
INFORMATION**

May 17, 1990

Source: Cynthia Ash
612/625-6290
Editor: Mary Kay O'Hearn
612/625-2728

MOWERS, WEED WHIPS CAN BE "MURDER" WEAPONS FOR TREES, SHRUBS

The trunk of a tree or shrub might be considered its "armor"-- protecting living tissue just beneath the bark.

"Wounds at the base of the trunk, caused by lawn mowers and weed whips, can break this protective barrier, let serious diseases, including wood decay, enter and sometimes kill the tree," says Cynthia Ash. A plant pathologist with the University of Minnesota's Extension Service, Ash considers mowers and weed whips potentially lethal weapons. They also destroy part of the water- and food-conducting system, reducing food and water movement within the plant.

Ash recommends preventing wounding whenever possible. Landscape materials can be placed around the base of trees to eliminate the need for weed whips or close mowing. If wounds do occur, healing can be improved if trees are kept in vigorous condition. Wound dressings are not necessary, except for oak trees (because of oak wilt).

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V7,V8,I2

NAGR3476

**NEWS/
INFORMATION**

May 17, 1990

Source: Cynthia Ash
612/625-6290
Editor: Mary Kay O'Hearn
612/625-2728**DON'T SPREAD PLANT DISEASES WITH COMPOSTING**

"Composting is a good way to recycle plant materials, but doing it the wrong way can spread plant diseases," says Cynthia Ash, a plant pathologist with the University of Minnesota's Extension Service.

Composting will kill pathogenic bacteria, fungi and nematodes if all portions of the compost pile reach 13⁰ to 16⁰ for several days. To make sure this happens, Ash says the pile must have a minimum volume of 1 cubic yard and be turned every two or three days. Keep the pile fairly moist but not wet.

If you don't give your compost pile the necessary attention to reach high temperatures, two things will happen: it will take longer for plant material to decompose and all the plant pathogens will not be killed. When composting this way, **do not** use diseased plant materials, Ash emphasizes.

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V7,V8,I2

NAGR3477

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
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1420 Eckles Avenue
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May 21, 1990

Source: Jeffrey D. Hahn
612/624-4977

Editor: Mary Kay O'Hearn
612/625-2728

WATCH FOR SAWFLIES ON MUGHO PINES

Caterpillar-like sawfly larvae feed on the needles of various evergreens. A sawfly, believed to be the European pine sawfly, fed on mugho pines last year and liked them so well they are expected to be a problem again this spring.

When fully grown, this larva has a dark head and is gray-green with several light and dark green stripes. It occurs from early to mid-May until mid-June.

Evergreens can tolerate low or moderate amounts of defoliation, according to Jeffrey D. Hahn, entomology educator with the University of Minnesota's Extension Service. "However, if sawfly feeding is severe, especially on new growth, the tree can be injured and control is justified," he says.

If you see large numbers of sawflies, Hahn recommends spraying with acephate (Orthene), carbaryl (Sevin) or malathion. Control will be most effective if the larvae are 1/2 inch or less in size.

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V7,V8M,I2M

NAGR3481

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

May 24, 1990

Source: Pamela McInnis
612/624-3298
Editor: Mary Kay O'Hearn
612/625-2728

DON'T DISTURB BABY WILD ANIMALS

It's the time of year when undeveloped, "baby" wild animals may suddenly appear in your yard or the park or other public areas and you wonder what to do to help them. Leaving them alone is probably the best action.

Often these are baby birds, but they could be rabbits, raccoons, squirrels, even woodchucks, says Pamela McInnes, assistant wildlife specialist with the University of Minnesota's Extension Service. "If an adult (parent animal) isn't seen in the area, they may be absent temporarily, either feeding themselves or gathering food for their young--or temporarily driven away from the young by some disturbance such as people or predators (including cats and dogs).

"The best thing a person can do is to stay away from the young and prevent other people or animals from disturbing them," McInnes says. Usually one or both parents will return to the young, then they may remain or move their young to another protected area. While it is not generally true that the human scent makes animals abandon their young, humans chasing and catching young animals is stressful to them and may result in more harm than good.

Young birds and mammals must have proper nutrition and temperatures for survival--something their parents can supply and most humans cannot.

A book on the topic, McInnes mentions, is William J. Weber's Wild Orphan Babies.

Wild animals make difficult pets when they become adults and their food and space requirements change as does their behavior. Animals raised by people can't survive in the wild if freed. They may harass people because they associate them with providers of food. In most instances it is illegal to possess captive wild animals without state or federal permits.

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V7,V8,I2

NAGR3503

**NEWS/
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UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 24, 1990

Source: Cynthia Ash
612/625-6290
Editor: Mary Kay O'Hearn
612/625-2728

NOTE: Temperature typos in second paragraph are now corrected. Please do not use earlier release dated May 17, 1990.

DON'T SPREAD PLANT DISEASES WITH COMPOSTING

"Composting is a good way to recycle plant materials, but doing it the wrong way can spread plant diseases," says Cynthia Ash, a plant pathologist with the University of Minnesota's Extension Service.

Composting will kill pathogenic bacteria, fungi and nematodes if all portions of the compost pile reach 130^o to 160^o F. for several days. To make sure this happens, Ash says the pile must have a minimum volume of 1 cubic yard and be turned every two or three days. Keep the pile fairly moist but not wet.

If you don't give your compost pile the necessary attention to reach high temperatures, two things will happen: it will take longer for plant material to decompose and all the plant pathogens will not be killed. When composting this way, **do not** use diseased plant materials, Ash emphasizes.

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V7,V8,I2

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UNIVERSITY OF MINNESOTA
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 24, 1990

Source: Jim Linn
612/624-4995
Writer: Joseph Kurtz
612/625-3168

TIMELY FORAGE HARVESTING IS KEY TO QUALITY

Many dairy producers are short on alfalfa this year and will be harvesting other crops to provide forage for their cows. Knowing the growth stages of these other crops and when to harvest for maximum quality is extremely important, according to Jim Linn, extension dairy scientist at the University of Minnesota.

"It's virtually impossible to get maximum milk production when feeding low-quality forage, regardless of what else is in the ration," says Linn.

Producers know alfalfa should be harvested in late bud to very early bloom stage for highest quality. But harvesting at the right stage is also crucial to quality with other crops, notes Linn.

"With small grains, harvesting at the boot stage will give high-quality silage," says Linn. "With grasses, harvest in the vegetative stage, before they head out. With sorghum-sudan grass, harvest before the plants become tall and mature."

Linn stresses the importance of testing forages when developing a dairy ration. "Because of all the different forages that will be used this year, testing is especially important," he says. "It's a good idea to sample forages going into storage for testing. Knowing the composition of stored forages allows for the establishment of a forage inventory by quality, and for consideration of other ration ingredients

before the forage is fed."

Linn says that since forages are usually the basic ingredient in dairy rations, timely harvesting can have a big effect in holding down rations costs. High quality forages contribute substantial protein and energy to rations, reducing the need to buy extra protein and energy sources to offset low quality forages.

"Harvesting high-quality alternative forages will be the most cost effective way of replacing high quality alfalfa, which may be in short supply in some parts of the Midwest this year," he concludes.

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AEA,BSS,CEO,V2,D

NAGR3505

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 31, 1990

Source: R. M. Jordan
612/624-6784
Editor: Sam Brungardt
612/625-6797

ANIMAL SCIENTIST: AMARANTH HAS LITTLE POTENTIAL AS FEED COMPONENT

Amaranth is one of the alternative crops suggested for Minnesota, but its grain apparently makes poor livestock feed, according to results of a University of Minnesota study.

In the study, conducted by animal scientist R. M. Jordan for the University's Agricultural Experiment Station, Angora goat kids refused to eat a diet of alfalfa and ground amaranth. When the minute amaranth seeds were left whole, the goats ate the ration, but more than twice as much (14.6 pounds) of the alfalfa-amaranth diet was required to produce a pound of gain than the control diet of alfalfa-corn, which produced a pound of gain for every 6.6 pounds of feed.

Says Jordan about the findings: "The results indicate that amaranth grain has little or no potential as livestock feed. Aside from its very low seed yield, the tiny size and hardness of the seed make grinding very difficult but essential."

Yet grinding, he notes, results in a fine, powdery substance that goats and sheep refuse to eat. When the seed was left whole, Jordan adds, about 40 percent of it was excreted, which seriously reduced feed utilization and weight gain.

"As a livestock feed," Jordan concludes, "amaranth will never be able to compete with corn or small grains."

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AEA,BSS,CEO,L3,N3

NAGR3518

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
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May 31, 1990

Source: Deborah Brown
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Writer: Mary Kay O'Hearn
612/625-2728

LAWN MUSHROOMS ARE SIGN OF ORGANIC RECYCLING

Outcroppings of mushrooms in lawns, a normal, natural occurrence, are common this spring.

"If you are worried that mushrooms may be attractive nuisances or slippery and could cause falls, rake them up daily with a heavy garden rake," suggests Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

Mushrooms are likely to pop up where trees were removed years ago or where wood and debris were left behind, perhaps buried, following construction, Brown says. The mushrooms are merely the reproductive parts of fungi beneath the ground which are working to recycle organic matter--that below-ground wood you can't see. It simply means that what the mushrooms are living off isn't fully decomposed.

"There is no chemical to use to destroy these mushrooms as there might be for a weed," Brown says. "The outcroppings will just continue until the weather becomes hot and dry. But expect to see them in future moist springs until what's beneath the surface is completely decomposed."

While it's the season for morels and other desirable mushrooms, Brown cautions never to eat any mushroom without absolute certainty it is not poisonous.

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MEDIA ADVISORY

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM

405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 31, 1990

Writer: Sam Brungardt
612/625-6797

SUMMER 1990 MINNESOTA AGRICULTURAL EXPERIMENT STATION EVENTS

Please add these events, to be held this summer at the branch stations of the University of Minnesota's Agricultural Experiment Station, to your calendar. All of them will be open to the public, and reporters are welcome to attend.

June 26--Crops and Soils Field Day at the Southern Experiment Station, Waseca. For more information, call (507) 835-3620.

June 27--Summer Field Day at the Southwest Experiment Station, Lamberton. For more information, call (507) 752-7372

July 12--Crops and Soils Field Day at the West Central Experiment Station, Morris. For more information, call (612) 589-1711.

July 18--Crops and Soils Field Day at the Northwest Experiment Station, Crookston. For more information, call (218) 281-6510, ext. 462.

July 19--Visitors Day at the North Central Experiment Station, Grand Rapids. For more information, call (218) 327-4490.

Aug. 29--Horticulture Night at the North Central Experiment Station, Grand Rapids. For more information, call (218) 327-4490.

Sept. 11--Fall Field Day at the West Central Experiment Station, Morris. For more information, call (612) 589-1711.

Sept. 12--Fall Field Day at the Southwest Experiment Station, Lamberton. For more information, call (507) 752-7372.

Sept. 13--Corn and Soybean Day at the Southern Experiment Station, Waseca. For more information, call (507) 835-3620.

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AEA, BSS, CEO, V2, V8M, A1, F1M, L1M, L3M

NAGR3521

NEWS/ INFORMATION

MSC 1-1-79
MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 31, 1990

Source: Joe Conlin
612/624-4995
Writer: Joseph Kurtz
612/625-3168

DAIRY INDUSTRY MEANS JOBS, MONEY FOR MINNESOTA ECONOMY

Lots of jobs and lots of money--that's what the business of producing, processing and distributing milk and milk products means to Minnesota's economy.

The dairy industry is in the spotlight during June Dairy Month. It's an industry that provides direct employment for some 40,000 Minnesotans, according to Joe Conlin, extension dairy scientist at the University of Minnesota. That total includes jobs in production, processing and distribution. Indirect employment providing supplies, equipment and services to the dairy industry accounts for many more jobs.

"In 1989, the sale of milk provided about \$1.4 billion in income to Minnesota farmers," says Conlin. "Milk is the largest producer of income for the state's farms, accounting for about 20 percent of the value of farm marketings in the state. Minnesota ranks fourth in the U.S. in number of dairy cows and in number of pounds of milk produced."

Conlin says about 18 percent of the Minnesota milk supply goes to provide fluid products...the milk we drink. Most of the rest goes into cheese production, with small amounts going into cottage cheese, butter, ice cream and dairy desserts.

Average annual per capita consumption of milk and dairy products in the United States is 576 pounds (72 gallons). Average annual milk

production in Minnesota is 13,771 pounds per cow, which means the average Minnesota cow supplies enough milk for 25 people. The top 400 dairy herds in the state average over 20,000 pounds of milk per cow per year. Cows producing at this level provide the yearly milk supply for 35 people.

"There are about 16,000 dairy herds in the state," says Conlin. "The average size of a dairy herd in the state is 50 cows. A typical dairy farm with a herd this size has \$350,000 invested and brings in \$90,000 per year from the sale of milk. Dairy farmers contribute to the economic base of Minnesota communities through the purchase of feed, machinery and other supplies and services."

Conlin says Minnesota is well suited to dairying, producing an abundant supply of low-cost feed. Much of the land is well suited to growing forage crops, which minimize soil erosion and provide ideal feed for dairy cows.

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AEA,BSS,CEO,V2M,V4M,V7M,V8M,DM

NAGR3515

NEWS/ INFORMATION

MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM

405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

May 31, 1990

Source: Jerry Wagner
612/625-1978

Writer: Joseph Kurtz
612/625-3168

ORGANIC MEAT WILL BE FOCUS OF U OF M SYMPOSIUM

Organic meat--defining it, producing it, regulating it, marketing it and consuming it--will be the subject of a University of Minnesota symposium in July.

The two-day event is designed to benefit meat processors, extension personnel, those in regulatory agencies, producers, applied academics, nutritionists and food retailers and wholesalers. It will be July 9-10 at the Hilton Inn-Minneapolis, 1330 Industrial Blvd.

The program will begin at 10 a.m. on Monday, July 9, and adjourn at 3 p.m. on Tuesday, July 10. Registration will be 8-10 a.m. Monday.

The Monday morning session will focus on conventional production practices of beef, swine and poultry. Speakers will be University of Minnesota animal scientists Pete Anderson, Jerry Hawton and Sally Noll.

The early afternoon session will include presentations on meat-borne pathogens, animal antibiotics and human health, and hormone use in animals and human health. Speakers will be Mike Pullen, University of Minnesota veterinarian; Virgil Hays, University of Kentucky animal scientist; and John Augsburg, Food and Drug Administration, Rockville, Md.

The late afternoon session will center on marketing organic meat and the profitability of organic meat production. Speakers will be Gil Johnson, New Hope Communications, Portland, Ore.; John Lawrence,

University of Minnesota extension economist; and Carol Kramer, Resources for the Future, Washington, D.C.

Federal and state regulations concerning organic meat will be the subject of Tuesday's opening session. Gail Black, U.S. Humane Society, Washington, D.C., and Mel Coleman, Coleman Natural Beef, Denver, Colo., will speak.

Later Tuesday morning, the topics and speakers will be feed and water resources for organic meat production, James Ryan, Balfour, N.D.; animal health concerns relating to organic production, John Anderson, University of Minnesota veterinarian; and management issues in organic poultry production, David Podoll, Fullerton, N.D.

The final session, on Tuesday afternoon, will feature a panel discussion on the future of organic meat, research needs and industry needs.

Fee for the symposium, if paid before July 1, is \$150 per person; \$175 thereafter. Fee for a second person in the immediate family (spouse or child) is \$100; \$125 after July 1. Registration and program information are available from Extension Special Programs, 405 Coffey Hall, University of Minnesota, St. Paul, MN 55108; telephone (612) 625-1214 or (800) 367-5363.

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AEA,BSS,CEO,V2,V4,V8,A2,H1,I1,L3,N1,N3,P1

NAGR3519

NEWS/ INFORMATION

May 31, 1990

Source: Jim Linn
612/624-4995
Writer: Joseph Kurtz
612/625-3168

FEED ADJUSTMENTS KEEP MILK PRODUCTION UP DURING HOT WEATHER

Some adjustments in feeding and management may be necessary to keep dairy cows at peak production during hot weather. Heat stress is likely when days get warmer than 80 degrees, according to Jim Linn, extension dairy scientist at the University of Minnesota.

"Cows tend to eat less during hot weather," says Linn. "If they eat less, they probably won't take in enough energy to keep milk production from dropping. Increasing the level of concentrates in the diet slightly to keep energy intake up can help. Adding fat to the diet may also help. Fat produces less heat in the cow during digestion than grain."

Linn also recommends avoiding feeding diets high in degradable protein during hot weather. "Keep the diet balanced, but use more bypass protein," he says. "Excess degradable protein produces extra heat during rumen fermentation and during the removal of excess protein from the body."

Adding buffers to the diet during hot weather is a good idea, says Lynn. Buffers can help keep milk fat tests up, but are also needed to replace elements lost from the body through sweating. Potassium is the element lost in the largest quantity during sweating, so be sure rations contain adequate potassium. Feeding buffers is also a good idea because of the higher energy or grain rations fed during hot weather.

Some producers put misting devices over cows' heads to keep them cool while eating during hot weather. Linn says such devices are useful, but he cautions against using too much water, as feed can become soggy. This can reduce consumption.

"It's important to keep feed bunks clean to keep feed intake up," he says. "Remove stale feed every day so it doesn't become moldy. Clean bunks every day, making sure to get old feed out of the corners. This is especially important when feeding animal byproducts."

With total mixed rations, Linn suggests feeding at least twice a day. When feeding forages separately, he recommends several feedings a day to maintain freshness and promote intake. A final reminder--make sure cows have access to plenty of fresh, clean water at all times.

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AEA,BSS,CEO,V2,D

NAGR3516

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

June 4, 1990

Source: Lee Johnston
612/589-1711

Editor: Sam Brungardt
612/625-6797

ANIMAL SCIENTISTS SEEK ALTERNATIVE GROWTH PROMOTANTS

Consumer concern about residues remaining in meat after antibiotics are used to pile pounds on animals has spurred the search for alternative growth promoters.

Although Lee Johnston, a swine researcher at the University of Minnesota's West Central Experiment Station, Morris, and many other animal scientists believe that the public often does not have accurate information on such controversial subjects as using antibiotics as growth promoters, they respect the concern and are seeking other means of increasing growth.

"If consumers are concerned about it, we have to be concerned about it," Johnston says. "However, my main concern is that consumers often get their information from nontechnical, emotional sources. Although they are aware of feed additives in general, many of them don't realize that there are many different classes of additives and that they are used at different levels for different purposes.

"For instance, high levels of antibiotics are used to combat diseases, but the level of antibiotics used to promote growth is rather low. Yet, consumers are afraid that animals are being pumped up with high levels consistently."

The Food and Drug Administration, the federal agency that regulates feed additives, as yet plans no widespread ban on antibiotics

as growth stimulants, Johnston says. Although antibiotics have been used for decades to promote growth, and have been thoroughly tested by the FDA, their use has become more controversial in recent years.

So, animal scientists are preparing for the possibility of a ban by testing substances that might be good substitutes for the antibiotics that are now fed at low levels to promote growth.

Johnston is testing the effectiveness of various types of zeolite on pig weight gain. Zeolite is a mineral that is mined, and so it may be considered safer than antibiotics, he says. It has reportedly been used to promote animal growth in Europe and Asia.

Although Johnston's research so far has not shown that the zeolite he's tested will increase growth, he will continue to test different kinds of zeolite to find one that consistently does.

Johnston says other researchers are evaluating whether organic acids could be used as growth promoters. However, most alternatives being tested do not appear to be as effective as antibiotics. Nevertheless, Johnston says, "We want to have alternatives if the FDA should ban antibiotics."

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AEA,BSS,CEO,V4,V8,H1,I1,N2

NAGR3523

**NEWS/
INFORMATION**

June 4, 1990

Source: Lee Johnston
612/589-1711
Editor: Sam Brungardt
612/625-6797**STUDIES EVALUATING ZEOLITE AS GROWTH PROMOTANT FOR SWINE CONTINUE**

If the use of antibiotics to promote swine growth is ever banned due to consumer concern, producers will need other means of putting pounds on pigs. But finding an adequate replacement for antibiotics is difficult, according to one University of Minnesota researcher engaged in this search.

Lee Johnston, animal scientist at the West Central Experiment Station, Morris, says his research shows that one zeolite composed primarily of clinoptilolite does not enhance swine growth despite reports that clinoptilolite has been used for that purpose in Europe and Asia. Zeolite is a mineral, and clinoptilolite is but one of many kinds of zeolite.

For his four-week-long study, Johnston divided 240 pigs that had been weaned at 28 days into heavy and light groups. Some in each group were used as controls and were fed a corn-soybean meal diet containing no antimicrobials. Other groups of light and heavy pigs were fed the same basal diet to which had been added either 2.5 or 5.0 percent zeolite, in which clinoptilolite was the primary species.

The pigs on the zeolite-supplemented diets, whether they were heavy or light, did not have any statistically significant different growth patterns than the control animals. Throughout the study, average daily gain, average daily feed intake and feed efficiency were unaffected by

the addition of dietary zeolite.

Other U.S. studies have had varying results, according to Johnston. Michigan researchers found that a 5 percent clinoptilolite-supplemented diet did not enhance growth performance, while a Nebraska study showed that clinoptilolite marginally improved the growth rate of growing pigs.

Johnston says the lack of growth response may be due to the characteristics of the particular kind of zeolite used in his study. "Zeolite is not zeolite is not zeolite," he cautions. "There is quite a bit of variation in characteristics, such as crystal size, ammonia-binding capacity and geologic makeup, and it's not yet clear which characteristics are responsible for growth promotion."

Johnston plans to continue his studies with a different form of zeolite. He says, "If we lose the use of antibiotics as a growth promoter and we've found a zeolite that elicits a respectable, consistent growth response and makes economic sense, producers might consider adding it to swine diets. But as long as we have antibiotics, it is probably not advisable to use zeolite as a replacement."

The anti-antibiotic movement has made the future of antibiotic use somewhat shaky. However, the FDA, which governs the use of antibiotics in livestock production, has not yet banned any antibiotics. Nor is such a ban likely soon, according to Johnston. "But," he says, "in doing this research, we're trying to get ahead of the game in case we should lose the right to use antibiotics as growth promotants."

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AEA,BSS,CEO,L3,N2,P1

NAGR3524

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

June 4, 1990

Source: C. J. Christians
612/624-0766
Writer: Joseph Kurtz
612/625-3168

BEEF CATTLE CONFERENCE WILL BE JUNE 21 IN ROCHESTER

Calving ease, sire selection and animal rights are topics that will highlight a program for beef producers June 21 in Rochester.

The event is the annual Beef Cattle Conference sponsored by the Minnesota Extension Service and the Minnesota Beef Cattle Improvement Association. It will be held in the 4-H Building at the Fairgrounds in Rochester, and will begin with registration at 9:45 a.m.

In addition to educational presentations, the event will include tours of 21st Century Genetics at Stewartville and the Schmidt Hereford Ranch at Eyota.

The program will begin at 10 a.m. with presentations on animal rights and animal welfare issues. William Rempel, animal scientist with the Minnesota Agricultural Experiment Station, and Mark Moening, Minnesota Beef Council Director, will be the speakers.

Sire selection will be the topic of Ken Hartzell, 21st Century Genetics, and Richard Vrieze, a Simmental producer from Spring Valley, Minn.

Calving ease will be the focus of three afternoon presentations. Pete Anderson, University of Minnesota extension beef scientist, will discuss the influence of nutrition and environment on calving ease. Dale Haggard, University of Minnesota extension veterinarian, will discuss integrated reproductive management and use of pelvic

measurements. Elizabeth Wagstrom of Hoechst-Roussel Agri-Vet. Co. will discuss the influence of dewormers on growth and reproductive efficiency.

The tour of 21st Century Genetics will cover custom A.I. collection, beef bull observation, and synchronization technology and products, along with a facility tour. The ranch tour will feature a Hereford, Simmental and F₁ selection program, high-tensile fencing, renovated stock ponds, legume-grass pasture varieties, winter calf shelters, a pelvic measurement demonstration, and production of two crops per year for cash crop and beef production.

Registration fee for the Beef Cattle Conference is \$10 a person, payable to the Minnesota Beef Cattle Improvement Association. Preregistration by June 19 is encouraged. Checks in payment of registration fees should be sent to C. J. Christians, Department of Animal Science, 101 Peters Hall, University of Minnesota, St. Paul, MN 55108.

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AEA,BSS,CEO,V2,A2,Z4

NAGR3522

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

June 4, 1990

Source: Deborah Brown
612/624-7491Editor: Mary Kay O'Hearn
612/625-2728**WILL VINEGAR ZAP DANDELIONS?**

Newly sensitized to protecting the environment, many people prefer not to use any more pesticides than necessary. But in their zeal to be good conservators of the planet, Deborah Brown says gardeners are vulnerable to a certain amount of hype regarding untested theories of pest and weed control.

Killing dandelions by spraying them with a solution of one part vinegar and one part water is an example says Brown, horticulturist with the Minnesota Extension Service.

"If that solution were strong enough to kill the dandelion leaves, it would also kill any grass blades it fell on. But then, the thick dandelion taproot would send up some new leaves anyway," Brown says.

One of the county extension agents tried spraying vinegar on his dandelions, and reports they're looking great. Meanwhile, people who choose not to use herbicide can buy an old-fashioned, long-handled dandelion digger and try to get most of the root out, each time they dig.

Brown suggests watering regularly and fertilizing at least twice a year to keep the grass growing vigorously and spreading. She says, "There's no point in removing weeds unless grass will replace them; bare soil just invites invasion by more weeds."

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V7,V8,I2

NAGR3509

**NEWS/
INFORMATION**UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

June 4, 1990

Source: Jeffrey D. Hahn
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728**EXERCISE SIMPLE PRECAUTIONS TO AVOID DEER TICKS, LYME DISEASE**

Some common sense guidelines will allow you to enjoy outdoor summer activities without undue concern about deer ticks and Lyme disease.

The easiest way to avoid this tick is to stay away from places where they are known to be a problem, says Jeffrey D. Hahn, entomology educator with the University of Minnesota's Extension Service. "The deer tick is found primarily in hardwood forests and adjacent grasslands and is most common in the central and east areas of Minnesota," Hahn says.

If this is not possible, wear protective clothing, such as long-sleeved shirts and pants. Pants tucked into socks provides additional protection. Wear light-colored clothing so ticks are easier to spot. Walk in the middle of the trail and avoid nearby grassy areas.

Apply repellents to your clothing to discourage ticks. Products that contain DEET work well. A new repellent known as Permanone, which contains permethrin, is even more effective, killing the ticks on contact as well as repelling them. However, permanone may be difficult to find, he warns.

Periodic inspections for ticks on all parts of the body is important. Deer tick nymphs, the most prevalent stage during the summer, are very small and can be easily overlooked.

If an attached tick is found, carefully remove it with tweezers by

grasping it around the head as close to the skin as possible and gently yet firmly pulling it out. Home remedies, such as covering the tick with ointment or touching it with a lighted match, do not work and are discouraged, Hahn says.

Save any ticks that are found biting to be identified by an expert. Different stages of wood ticks and other ticks can be confused with the deer tick.

Knowledge and awareness are the most important methods of protection against deer ticks and Lyme disease. Know what to look for and what to expect and you can still enjoy the great outdoors, he sums up.

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V7,V8,L2,R

NAGR3506

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

June 7, 1990

Source: Ken Ostlie
612/624-9272
Writer: Mary Kay O'Hearn
612/625-2728

VOLUNTEERS HELP FARMERS FOIL CUTWORMS WITH MINIMAL INSECTICIDE USE

It's the season when cutworms and Minnesota farmers play a high-stake poker game, with crop yield and replanting costs on the table. Every year there's some risk of cutworm attack, but the unpredictability of infestations make this a game worth playing with skill.

Weather and cutworms hold the wild cards, with farmers holding a trump card--insecticides--that they'd rather not use. This is one game where farmers hate to be caught by surprise, forced to replant or have to apply insecticides when they don't need to.

Keeping the odds in farmers' favor is one reason why Ken Ostlie enlists the help of 95 volunteers throughout southern Minnesota each year for an integrated pest management (IPM) effort. Ostlie is an entomologist with the University of Minnesota's Extension Service. The volunteers monitor the arrival of the black cutworm, a highly destructive migratory species. This spring, they monitored pheromone traps from April 20 until May 23. The traps contained rubber capsules saturated with a pheromone, or sex attractant, that lures male black cutworm moths. The male moths find the pheromone, which is the same one released by female moths of their species, irresistible. "Black cutworms began arriving in larger numbers about May 9, when we started to get all the rain," Ostlie says.

One of the pheromone traps was in an apple tree in the yard of the Nancy and Don Nord farm near Goodhue. Nancy checked the trap daily and called Brian Schreiber at the Goodhue County Extension Office with the number of moths trapped. One day she caught 27. The Nord's have participated in the black cutworm IPM effort for three years. Nancy says it helps them know what to expect in their fields.

For farmers like the Nord's, the black cutworm IPM effort reduces the risk of yield loss and enables them to eliminate unnecessary and poorly timed pesticide applications.

For the average Minnesotan, such IPM efforts mean that pesticides will be used efficiently and only when necessary. The result is less pesticide residue in the environment, including the state's ground and surface water.

Reports from the Nord's and the other volunteer monitors go to Fritz Breitenbach in Rochester or Kevin Cavanaugh in Morris, area extension agents in integrated pest management, who in turn forward them to Ostlie. This allows him to chart arrivals and give the cooperators a map of counties with moth counts each week. The cooperators are a diverse group--agricultural chemical dealers, crop consultants, 4-H youth and county agents as well as farmers.

"If the traps capture more than eight moths in two nights, a significant moth flight has moved into the area," Ostlie says. Reports in hand, Ostlie checks with extension climatologist Mark Seeley's weather projections on when to expect cutworms to begin "cutting" (a term for when they chew through the underground portion of stems, thereby killing plants). Weather systems associated with spring rains whisk cutworm moths the 1,000 miles north from Mexico and Texas in two to three days. Knowing when flights arrive allows farmers to identify

fields attractive to egg-laying adults that need to be scouted later to determine whether cutworm populations have reached economically damaging levels.

Black cutworm moths prefer to lay eggs in crop debris, the plant material left in the field from the previous year. Once fields have been tilled in spring, they become unattractive to the moths. Conservation tillage, which reduces soil erosion, leaves a lot of crop debris on the surface of the soil. For this reason, fields farmed with conservation tillage methods are most likely to be attacked by black cutworms.

When flights arrive, the race is on between the cutworms and the crop. Cutting by the larvae begins about a month after a flight arrives. How much damage the larvae do depends on the timing of flights and the weather. Earlier flights mean hungry cutworms just waiting for the crops to emerge. Later flights find the crops with a head start. Cool, wet weather that slows crop growth favors the black cutworm and more extensive damage. Warm, sunny weather favors rapid crop growth and lessens crop damage.

From observing the cutworm flights this year, Ostlie recommends that farmers scout their fields until about June 21. Black cutworms aren't the only insect that farmers keep an eye on each spring. Several other species of cutworm, wireworms and white grubs can damage corn and soybeans. Environmentally sound management strategies for each of these pests depend on correctly identifying the pest.

If cutworm populations warrant treatment (when worms have cut 3-6 percent of the corn plants or 20 percent of the soybean plants), farmers can apply one of several insecticides approved by the Environmental Protection Agency.

"In Minnesota, we began monitoring black cutworms with pheromone traps in 1986, after a cutworm outbreak the year before," says Ostlie. "Predictions were excellent in 1986, giving farmers ample warning and the opportunity to effectively manage this pest."

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AEA,BSS,CEO,V4M,V7,F1M,L3,25

NAGR3527

NEWS/ INFORMATION

June 7, 1990

Source: Cynthia Ash
612/625-6290
Editor: Mary Kay O'Hearn
612/625-2728

WET WEATHER BRINGS ON LILAC DISEASES

Bacterial blight hit lilacs, especially white-flowered varieties this last month with the cool wet conditions and could continue to spread under similar conditions. The blight resembles fireblight: young, succulent leaves and stems turn black and shrivel. Young shoots may be marked by a black strip or cankered areas.

But something can be done about bacterial blight says Cynthia Ash, plant pathologist with the University of Minnesota's Extension Service. She recommends pruning out diseased shoots. Sterilize the pruning shears between cuts by dipping it for two seconds in a 10 percent bleach solution (nine parts water to 1 part household bleach).

Applying a copper fungicide as soon as the disease is detected has been found to be helpful also. However, copper fungicides can cause some leaf burn under certain conditions. "Always check the label for precautions," Ash says.

Other steps are not applying excess fertilizer, including manure, and watering only at the base of the plant. Thinning older bushes to increase air circulation helps also.

Powdery mildew is a common fungal disease on many plants including lilacs. Ash describes it as, "a white-to-gray, powdery fungal growth that can be seen on the surface or bottom of the leaf." The disease

seldom causes severe damage and can be kept to minimum with pruning, and watering only at the base.

During periods of adequate rainfall and high humidity, mildew will be more abundant and a fungicide such as sulfur or benomyl (Benlate) could be used to prevent new infections, Ash concludes.

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V7,V8M,I2M

NAGR3507

UNIVERSITY OF MINNESOTA
EDUCATIONAL
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405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

June 7, 1990

Source: Jeffrey D. Hahn
612/624-4977

Editor: Mary Kay O'Hearn
612/625-2728

FEEDING OF INSECTS CAUSES GALLS ON MANY TREES, SHRUBS

Although odd-looking growths may cause trees to look like they are stricken with a disease, these deformities, called galls, are really caused by insects.

Galls form when insects feed on plants in the spring. Insect saliva stimulates the otherwise normal plant cells to deform as they grow. These cells multiply and surround the insect, creating a haven where it lives during the summer, describes Jeffrey D. Hahn, entomology educator with the University of Minnesota's Extension Service.

"Virtually all plants have galls but we see them most often on maples, oaks, ash, hackberry, roses and spruce," Hahn says. "Some of the common galls encountered in Minnesota include maple velvet gall, jumping oak gall, ash flower gall, hackberry blister gall and cooley spruce gall."

Healthy, mature trees are not normally weakened or stressed by galls, and control measures are needed only to protect their appearance. Once galls are seen, it is too late for control during that season.

If a very young tree or an evergreen is heavily infested, control is justified for next year, Hahn says. Healthy, mature trees that suffer through several consecutive years of heavy gall formation should also be treated.

"The best time to spray a tree varies with the specific gall. If it is desirable to treat your tree or shrub next year, identify the gall for the best time to spray in the spring," he says.

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**NEWS/
INFORMATION**

June 7, 1990

Source: Dave French
612/625-8194
Editor: Sam Brungardt
612/625-6797**ASH OVERPLANTED, THREATENED BY DISEASES**

When Dutch elm disease felled so many stately elms, many Minnesotans turned to the fast-growing ash as a substitute. Now the ash trees, which make up more than one-third of the replacements, are threatened by diseases too.

University of Minnesota plant pathologist Dave French, who tried to discourage the planting of such a large proportion of ash, says ash yellows and Verticillium wilt are potentially fatal threats.

French, who conducts research on tree diseases for the University's Agricultural Experiment Station, says ash yellows can affect all species of ash. It is caused by a mycoplasma-like organism that is spread from tree to tree by a variety of insects, rather than one particular insect, as in case of Dutch elm disease. Ash yellows is characterized by cupped, greenish-yellow leaves, "witches broom" growths and a thinning crown.

French and colleagues only recently identified ash yellows in a woodlot in Olmsted County in southern Minnesota, although the disease has already caused great damage in nearby states. "There are very few ash left in northeastern Iowa," says French.

Ash are also susceptible to the Verticillium fungus, which lives in the soil. "This fungus attacks and kills maples as well as ash," French explains. It first attacks a portion of the tree's crown and,

unchecked, it will eventually kill the entire tree. Its spread may be halted by removing dead branches and fertilizing trees with nitrogen, French says.

He recommends that homeowners who suspect that their ash trees may have either disease should contact him or the city foresters in their communities before attempting to treat the trees.

The obvious solution to the problem, French says, is to not plant so many ash and to rely more on a variety of trees to lessen the potential damage that overplanting any one species could cause.

"I wouldn't fix on any species," French says. "I think people should take a closer look at our native trees. And, nurseries should diversify so people can have a wider choice."

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AEA,BSS,CEO,V7,V8,I2,I4

NAGR3525

**NEWS/
INFORMATION**

June 7, 1990

Source: Mike Schmitt
612/625-7017Writer: Jack Sperbeck
612/625-1794**SOME FIELDS MAY NEED SUPPLEMENTAL NITROGEN**

Excessive soil moisture is causing nitrogen losses in some fields. As a result, some farmers may need to apply supplemental nitrogen, according to soil scientists with the University of Minnesota's Extension Service.

Asking yourself a few questions can help determine whether nitrogen loss is a significant problem, say Mike Schmitt and George Rehm.

--When was nitrogen applied? Earlier applied nitrogen is a higher risk for loss, since nitrification is more complete. It also helps to know what your soil temperatures have been this spring.

--What nitrogen source did you use? Anhydrous ammonia is converted to nitrate much more slowly than is urea. That means there's more potential for nitrogen loss with preplant urea.

--Did you use a nitrification inhibitor such as N-Serve? Losses aren't much of a concern if you used preplant anhydrous with an inhibitor.

--What's your soil texture? Sandy, coarse-textured soils probably had nitrate losses if you received more than 3 inches of rain in a week and you applied preplant nitrogen.

"The amount of nitrate loss is impossible to predict," Schmitt says. With fine-textured soils, ask yourself how long water stood on the soil surface or how long the soil was completely saturated.

Schmitt and Rehm say if wet areas have persisted for at least three days, losses of nitrate-nitrogen can range from 5 to 25 percent per day, starting on the fourth day. Knowing how much rainfall you've had since the middle of May can also help indicate your loss potential.

Applying some supplemental nitrogen may be in order if you had nitrogen losses. If it's needed, an additional 40 to 50 pounds of nitrogen per acre should be applied as soon as possible.

If you planned on split applications, include this supplemental nitrogen in the second split. Otherwise, use your cultivator to inject/incorporate UAN-28%, or just to incorporate broadcast urea.

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AEA,BSS,CEO,V2,F1

NAGR3528

**NEWS/
INFORMATION**

June 7, 1990

Source: Ken Ostlie
612/624-9272
Writer: Mary Kay O'Hearn
612/625-2728**VOLUNTEERS HELP FARMERS FOIL CUTWORMS WITH MINIMAL INSECTICIDE USE**

It's the season when cutworms and Minnesota farmers play a high-stake poker game, with crop yield and replanting costs on the table. Every year there's some risk of cutworm attack, but the unpredictability of infestations make this a game worth playing with skill.

Weather and cutworms hold the wild cards, with farmers holding a trump card--insecticides--that they'd rather not use. This is one game where farmers hate to be caught by surprise, forced to replant or have to apply insecticides when they don't need to.

Keeping the odds in farmers' favor is one reason why Ken Ostlie enlists the help of 95 volunteers throughout southern Minnesota each year for an integrated pest management (IPM) effort. Ostlie is an entomologist with the University of Minnesota's Extension Service. The volunteers monitor the arrival of the black cutworm, a highly destructive migratory species. This spring, they monitored pheromone traps from April 20 until May 23. The traps contained rubber capsules saturated with a pheromone, or sex attractant, that lures male black cutworm moths. The male moths find the pheromone, which is the same one released by female moths of their species, irresistible. "Black cutworms began arriving in larger numbers about May 9, when we started to get all the rain," Ostlie says.

One of the pheromone traps was in an apple tree in the yard of the Nancy and Don Nord farm near Goodhue. Nancy checked the trap daily and called Brian Schreiber at the Goodhue County Extension Office with the number of moths trapped. One day she caught 27. The Nord's have participated in the black cutworm IPM effort for three years. Nancy says it helps them know what to expect in their fields.

For farmers like the Nord's, the black cutworm IPM effort reduces the risk of yield loss and enables them to eliminate unnecessary and poorly timed pesticide applications.

For the average Minnesotan, such IPM efforts mean that pesticides will be used efficiently and only when necessary. The result is less pesticide residue in the environment, including the state's ground and surface water.

Reports from the Nord's and the other volunteer monitors go to Fritz Breitenbach in Rochester or Kevin Cavanaugh in Morris, area extension agents in integrated pest management, who in turn forward them to Ostlie. This allows him to chart arrivals and give the cooperators a map of counties with moth counts each week. The cooperators are a diverse group--agricultural chemical dealers, crop consultants, 4-H youth and county agents as well as farmers.

"If the traps capture more than eight moths in two nights, a significant moth flight has moved into the area," Ostlie says. Reports in hand, Ostlie checks with extension climatologist Mark Seeley's weather projections on when to expect cutworms to begin "cutting" (a term for when they chew through the underground portion of stems, thereby killing plants). Weather systems associated with spring rains whisk cutworm moths the 1,000 miles north from Mexico and Texas in two to three days. Knowing when flights arrive allows farmers to identify

fields attractive to egg-laying adults that need to be scouted later to determine whether cutworm populations have reached economically damaging levels.

Black cutworm moths prefer to lay eggs in crop debris, the plant material left in the field from the previous year. Once fields have been tilled in spring, they become unattractive to the moths. Conservation tillage, which reduces soil erosion, leaves a lot of crop debris on the surface of the soil. For this reason, fields farmed with conservation tillage methods are most likely to be attacked by black cutworms.

When flights arrive, the race is on between the cutworms and the crop. Cutting by the larvae begins about a month after a flight arrives. How much damage the larvae do depends on the timing of flights and the weather. Earlier flights mean hungry cutworms just waiting for the crops to emerge. Later flights find the crops with a head start. Cool, wet weather that slows crop growth favors the black cutworm and more extensive damage. Warm, sunny weather favors rapid crop growth and lessens crop damage.

From observing the cutworm flights this year, Ostlie recommends that farmers scout their fields until about June 21. Black cutworms aren't the only insect that farmers keep an eye on each spring. Several other species of cutworm, wireworms and white grubs can damage corn and soybeans. Environmentally sound management strategies for each of these pests depend on correctly identifying the pest.

If cutworm populations warrant treatment (when worms have cut 3-6 percent of the corn plants or 20 percent of the soybean plants), farmers can apply one of several insecticides approved by the Environmental Protection Agency.

"In Minnesota, we began monitoring black cutworms with pheromone traps in 1986, after a cutworm outbreak the year before," says Ostlie. "Predictions were excellent in 1986, giving farmers ample warning and the opportunity to effectively manage this pest."

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AEA,BSS,CEO,V4M,V7,F1M,L3,25

NAGR3527

NEWS/ INFORMATION

June 7, 1990

MSO/9A27p
MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM

405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

Source: John Lamb
218/281-6510

Editor: Sam Brungardt
612/625-6797

VERY ACID FERTILIZER WON'T ALTER SOYBEAN MICRONUTRIENT UPTAKE

Soybean growers in northwestern Minnesota, where the soil is apt to be calcareous, shouldn't spend money on very acid fertilizer in the hope of increasing yields by making micronutrients more available, says soil scientist John Lamb.

"They can use cheaper fertilizer sources than the highly acidic kind that is being marketed by a certain company and they'll get the same results," says Lamb, a researcher with the University of Minnesota's Northwest Experiment Station, Crookston.

Lamb's recommendation is based on field studies that were undertaken in 1986 and 1987 to test the theory that, by adding very acid fertilizer, the pH of northwestern Minnesota soils could be manipulated to increase phosphorus, zinc and iron uptake by soybeans. Lamb notes, "The soil is very calcareous here, and phosphorus, zinc and iron aren't as available as they would be in a more acid soil."

However, study results show that the buffering capacity of the calcareous soil is so much greater than anticipated that even a highly acidic fertilizer cannot alter the soil pH for long and increase the availability of micronutrients to soybeans. "That little bit of acid isn't going to do it," Lamb observes.

The studies were done at four on-farm locations. Treatments included a nonfertilized control; a conventional fertilizer consisting of ammonia polyphosphate and ammonium thiosulfate; and a very acid

fertilizer, made up of urea, phosphoric acid and sulfuric acid--all applied without micronutrients, with zinc, with iron, and with both zinc and iron.

Soybean yields were similar for both fertilizer treatments and there was no difference in iron concentration at any of the four locations, Lamb reports.

He says the attempt to change soil pH by adding highly acidic fertilizer could be compared to an attempt to change a fresh-water lake to salt water by adding a teaspoon of salt.

The research was funded in part by a grant from the Soybean Research and Promotion Council. No follow-up studies are planned.

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AEA,BSS,CEO,F1,L3

NAGR3529

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

June 7, 1990

Source: Jean Kinsey
612/625-7028
Editor: Sam Brungardt
612/525-6797

AS POPULATION AGES, SENIOR CITIZEN DISCOUNTS MAY DWINDLE

Senior citizen discounts, which are offered most often by pharmacies and restaurants, are likely to become scarcer as the population ages, a survey of selected Minnesota businesses has found.

The survey, which involved more than 400 businesses of seven types in five Minnesota communities, was done in 1987 by Lorna V. Perkins under the supervision of Jean Kinsey, an agricultural economist who conducts research for the University of Minnesota's Agricultural Experiment Station.

Survey analysis produced the surprising finding that businesses with the lowest percentage of senior citizen customers were the most likely to offer senior citizens discounts.

"On the basis of these findings," says Kinsey, "we think that, as an increasing proportion of the population becomes senior citizens, we will be less likely to see discounts extended to them."

The first of the baby boomers, Kinsey adds, will turn 50 in 1996 and 65 in 2011. With so many people in the senior category, businesses won't feel as great a need to compete for customers. The reluctance of people to identify themselves publicly as senior citizens to claim a discount will also be a factor, Kinsey says.

The survey found that urban retail businesses were three times as

likely (32 percent) to offer discounts as small town businesses (11 percent).

Which types of businesses are most likely to offer senior citizens a break in costs? The survey found that pharmacies lead the list (74 percent), followed by restaurants (31 percent), then dry cleaners (26 percent) and supermarkets (10 percent).

Businesses in direct competition with other businesses in the same category (such as two pharmacies on opposite sides of a street) were more likely to give discounts. And, stores that were members of large chains were more likely to give discounts than individually owned stores, Kinsey adds.

Sixty-three percent of the businesses offering discounts said they did so to build loyalty, and only 10 percent said the discounts were given to increase profits.

Half of the businesses giving discounts offered an average of 10 percent off the total bill, while 4 percent gave cents-off discounts--which averaged 79 cents off--and 10 percent offered seniors free goods with an average value of 57 cents.

Although these amounts may be small, Kinsey says they add up: if all senior citizens in the country were to eat their customary meals out only at restaurants that offer senior discounts, the savings would be a whopping \$489 million per year.

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AEA,BSS,CEO,V7,V8,E2,E6

NHEC3526

M0519A27p

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

June 7, 1990

Source: John Lawrence
612/625-1273
Writer: Jack Sperbeck
612/625-1794

ECONOMIST ADVISES HOG PRODUCERS TO DEVELOP GOOD MARKETING PLANS

Record high cash hog prices should not hypnotize farmers into forgetting the importance of a marketing plan.

"Southern Minnesota-interior Iowa hog prices over \$60 are like late April snow--they don't stay around long," says John Lawrence, livestock marketing economist with the University of Minnesota's Extension Service, who sites these examples:

--In an eight-week period in 1982, weekly average cash prices fell from a peak of \$64.70 to \$53.40, a drop of \$11.40.

--In just six weeks in 1986, weekly average prices fell \$10.94.

--In 10 weeks during 1987, prices fell \$11.64 from a peak of \$63.17. They dropped another \$10.72, to \$41.81, in the next five weeks.

Lawrence advises producers to use this opportunity to lock in prices for their production over the coming months. He says, "Prices are expected to stay above \$60 into August, but the market top is likely to occur earlier than usual this year."

The next USDA Hogs and Pigs report will be released June 29. "While research shows that reports don't force the market either up or down, prices become more volatile near a report. Hog producers may benefit from some form of price protection," Lawrence advises.

"You have three tools to take advantage of high prices--even if your hogs aren't ready to sell when the market peaks. They are forward cash contracts

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and, for farmers who understand them, futures markets and options."

Forward cash contracts are agreements made with a packer or commission firm for delivery of hogs at a guaranteed price. The set price is typically at a discount to the futures market, but is simple and does not require a margin account with a broker.

The futures market also gives the producer a guaranteed price, but requires that the farmer maintain a margin account. Buying a put option gives the farmer a price floor, but allows him or her to take advantage of higher prices, should they arise. Farmers using put options can choose the level and cost of price protection at the time they make the pricing decision.

"Before choosing a pricing tool, develop a marketing plan," Lawrence advises. A good marketing plan includes objectives, actions and contingency plans. For example, the short-term objective may be to price August sales at \$62 or better before the next Hog and Pig report. The action could be to buy a put option if it allows a net \$62 floor. The contingency plan may read: "If August hogs reach \$66, sell futures and resell the put option to lock in the higher price."

Pricing hogs well into the future reduces a producer's price risk. But Lawrence says there are other factors to consider:

--Locking in a price does not guarantee a profit. A dry summer could dramatically increase feed prices and erase any expected profit.

--Options allow the producer to take advantage of price increases, but they are relatively expensive in the distant months and are often thinly traded.

--Volatility of the underlying futures contract is one of the factors that influences option premiums. As future price volatility increases near a pig crop report, so does the option premium.

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**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

June 11, 1990

Source: Cynthia Ash
612/625-6290
Writer: Mary Kay O'Hearn
612/625-2728

APPLE SCAB IS SERIOUS THIS YEAR; CAN BE CONFUSED WITH FIREBLIGHT

Due to prolonged wet weather, apple scab is affecting both eating and ornamental apple cultivars, causing leafdrop and misshapen fruit with spotted and cracked skin.

Established, healthy trees won't be seriously harmed, says Cynthia Ash, plant pathologist with the University of Minnesota's Extension Service.

When tree owners first see wilting leaves, says Ash, they may confuse this fungal disease with fireblight. Other signs of scab are brown-to-olive, fibrous or mold-like spots on stems and leaves, especially along the main veins. Wet weather gives scab a boost, and infected leaves eventually yellow and drop. Several ornamental crabapples, including Adams, Dolgo, Harvest Gold and Prairie Fire, have good scab resistance, Ash says.

Late winter pruning that promotes air movement through the tree to hasten the drying of foliage reduces the likelihood of scab infection. Ash mentions the publication, Pruning Fruit Trees, item AG-MI-0556 (available from the Extension Distribution Center at \$1 a copy, plus 6 percent sales tax for Minnesota residents), as a good source of pruning information.

It's important to rake and remove fallen leaves during the rest of this growing season and particularly this fall to reduce the spores

available to cause infection next season, she says.

If wet weather continues, application of a fungicide will protect remaining healthy foliage. Homeowners with serious apple scab problems this year may want to consider spraying earlier next year. The first application should be right after flowering, followed by a second spray 10 to 14 days later and a third (for highly susceptible cultivars) 10 to 14 days after that. Captan (sold under many trade names) or benomyl (Benomy1, Benlate) can be used according to label directions. "Benomy1 should not be used repeatedly as the apple scab fungus develops resistance to it," Ash warns.

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AEA,BSS,CEO,L1,V7,I2

NAGR3534

NEWS/ INFORMATION

June 11, 1990

Source: Dave Davis
612/624-9737
Editor: Sam Brungardt
612/625-6797

SCIENTIST EVALUATES PIGEON PEA, SOUTHERNPEA AS ALTERNATIVE CROPS

University of Minnesota horticultural scientist Dave Davis hopes that the public's changing dietary habits and farmers' search for new crops will give his work a boost.

Davis, who works on the genetic improvement of vegetables for chancy northern climates for the University's Agricultural Experiment Station, is interested in introducing alternative crops to producers to diversify the crops grown in Minnesota. Several of the vegetables he's working with are legumes not traditionally grown so far north--the southernpea (crowder pea), pigeon pea and mung bean.

"Legumes are important world plant resources," he notes, "because they're high-value food items for people and livestock, they fix nitrogen in the soil, they can be used either for their seed or for forage and they make good cover crops."

All three of the legumes Davis is working with need more genetic modification before they'll be completely at home in Upper Midwest environments. But even if he succeeds in making them totally adapted, Davis says people must be willing to use them. Luckily, he adds, since the early 1980s, farmers and consumers have been willing to experiment, trying new products and new foods, including more exotic ones, such as various peas and beans.

Davis says, "This is a very dynamic time in terms of the acceptance

of new foods. There has been a gradual change in eating habits. People are becoming more oriented to vegetables for several reasons. The proliferation of ethnic restaurants in the Twin Cities metro area has provided more exposure to new foods, and more people are taking the time to prepare unusual foods at home as a hobby. You can find pigeon peas on the menu at a Caribbean restaurant in Minneapolis, and a few ethnic food stores sell dried, canned or frozen pigeon peas. Even more stores sell canned, frozen or dried southernpeas."

Davis has had the most success breeding southernpeas. He has produced two breeding lines that mature faster than traditional varieties and thus are better suited to Minnesota's relatively short growing season. Southern peas come in several colors, including green, brown, red and black and calico variations of those colors. Many people are familiar with the type that's cream-colored with a black spot, the black-eyed pea.

"We need to identify seed firms that are willing to market seed to farmers; the seed industry is a necessary link between the plant breeder and the farmer," Davis notes. "Growers are always looking for something new, and they're willing to try it if it looks as though they can make money with it."

This summer, Davis is evaluating 39 advanced breeding lines of southernpea in replicated field trials. Southernpeas seem best adapted to sandy soil, he says, and can tolerate dry conditions.

The pigeon pea, even more tropical in adaptation than the southernpea, is widely grown in subtropical and tropical regions as an edible and forage legume. So far, Davis has not released any adapted breeding lines of pigeon pea, although he has selected types that mature under Minnesota conditions.

The pigeon peas Davis has been working with are mutant, dwarf types that mature early. Last year, irrigated plots at the Sand Plain Research Farm at Becker, yielded about 1,300 pounds of dry seed per acre. The peas were planted in 30-inch rows, with four plants per foot of row. Pigeon peas are extremely drought and heat tolerant; in the exceptionally hot, dry summer of 1988, yields from unirrigated plots at Becker nearly equalled those from irrigated plots.

Davis cautions that even these early maturing types of pigeon peas may not always mature fast enough in this climate to warrant growing them.

Davis will continue his breeding work with both southern and pigeon peas. But although the mung bean varieties he has evaluated did fairly well in field trials, he will not be breeding mung beans as the market, typically to produce bean sprouts, is limited. "The mung bean may be most useful as a forage or cover crop," he notes. "We know it can be grown here, the greater challenge may be to find a use for it."

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AEA,BSS,CEO,V2,F1,H1,L3

NAGR3530

**NEWS/
INFORMATION**

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

June 11, 1990

Source: Cynthia Ash
612/625-6290
Editor: Mary Kay O'Hearn
612/625-2728

LEAVES DROPPING FROM ASH TREES COULD BE ANTHRACNOSE

If the leaves are falling from your ash trees, it probably means a fungal disease, ash anthracnose, has hit them.

It's probably too late to apply the fungicides used to prevent the disease because this must be done at bud break (just as the five or more compound leaflet leaves are opening) and on a regular basis thereafter during cool, wet weather. "This would be like purchasing an insurance policy, especially if the tree is not vigorous. It would have been time and money well spent if the problem could have been anticipated," says Cynthia Ash, a plant pathologist with the University of Minnesota's Extension Service.

It's during cool wet weather when spores of the fungus germinate and grow into the leaf and succulent stem tissue. The first clue that it is ash anthracnose is the appearance of small purple spots, pinhead size, which enlarge rapidly into brown to black blotches or dead areas over much of the leaf, she says. When the leaves shed--only the mid rib or stemmy portion of the leaves remain.

"Tough, healthy, established trees can withstand this defoliation. But if it is repeated in successive years, trees can be drained of normal vigor. It's a year to be concerned because most trees in Minnesota are still coming back from the drought and adverse environmental conditions of the last few years." Trees' food reserves

(within the tree) are low and much of it was emptied to produce leaves this spring--little remains to fight disease.

Although it is too late to save infected foliage, if continued cool wet weather is in your forecast, a fungicide such as benomyl (Benlate) or mancozeb used according to label directions will protect uninfected foliage, Ash says.

Keep trees well watered during dry weather: this is the most important aid to any tree. It's also beneficial to rake up fallen leaves, she concludes.

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V7,V8,I2

NAGR3532

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

NEWS/ INFORMATION

June 14, 1990

Source: Patrick Borich
612/624-2703
Writer: Deedee Nagy
612/625-0288

EXTENSION'S TEENS IN DISTRESS PROGRAM WINS USDA HONOR

The Minnesota Extension Service's (MES) Teens in Distress Program has received the U.S. Department of Agriculture's Distinguished Service Award, one of the department's highest commendations. This is the third such national award presented to a University of Minnesota program in three years. The award was presented to a team from MES in ceremonies in Washington, D.C., on Wednesday, June 13.

The Teens in Distress Program, which began about five years ago, is a community-based program of research and education developed in response to an increase in stress, depression and suicide among youth in Minnesota and around the country. Seminars, workshops and teaching materials developed out of the Teens in Distress effort are being used in 35 states and Canada in schools, mental health centers, universities, camps, churches and other youth-oriented organizations.

It is estimated that more than 300,000 young people have learned mental health coping skills through the Teens in Distress curriculum, known as "Tackling Tough Stuff." The program was begun by MES specialists Joyce Walker, 4-H, and Joanne Hunter, program development, working with University of Minnesota School of Medicine faculty Barry Garfinkel and Harry Hoberman. That team, plus MES Associate Director Gail Skinner, accepted the award in ceremonies at the U.S. Department of Agriculture.

Only six such awards went to extension programs from across the country this year.

Last year, Minnesota's Farm Credit Mediation program won a USDA Service Award for helping thousands of debt-ridden Minnesota farmers and their creditors find alternatives to foreclosure. In 1988, MES's Center for Farm Financial Management won the same award for its widely-used computer program to aid farmers in financial planning.

Among the acclaimed materials developed as part of the Teens in Distress effort are a 30-minute video documentary, "Fragile Time," which has won several national video awards for its high quality. The project's statewide video teleconference, "Responding to High Risk Youth," was honored by the Minnesota Association of Adult and Continuing Education. The "Tackling Tough Stuff" curriculum recently received a private foundation grant in excess of \$220,000 for updating and expansion of its message to youth, parents and adults who work with young people.

Also receiving a USDA service award was George R. Foster, head of the University of Minnesota's Department of Agricultural Engineering. He was part of a Purdue University-based effort to develop techniques for predicting water erosion. The technology is now in use across the country by a variety of agencies. Foster was a Purdue faculty member before coming to the University of Minnesota about two years ago.

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AEA,BSS,CEO,V2,V4,V7,V8,Y

NEXT3535

NEWS/ INFORMATION

June 14, 1990

Source: Jeffrey D. Hahn
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

KEEPING BIRCH FROM BEING STRESSED IS BEST WEAPON AGAINST BORERS

Bronze birch borers can attack stressed birch, girdling the phloem (the trunk's food-conducting layer) until the trees die. In normal years, birch planted in unfavorable, open sites are frequently stressed. Drought has intensified these conditions, placing many birch at risk, says Jeffrey D. Hahn, entomology educator with the Minnesota Extension Service.

"Only the river birch is apparently resistant to borer attack," Hahn says.

Prevention is the best control as bronze birch borers do not survive in healthy trees. Maintain the birches' vigor, especially through regular watering when there isn't adequate rainfall, Hahn says. Place mulch or wood chips on the ground over the roots to help keep the soil cool and moist.

If small, dead limbs are found, they should be pruned in August after the adult borers are no longer active. If a main limb or the trunk is infested, the tree is probably past the point of being saved.

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V7,V8,I2

NAGR3510

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
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NEWS/ INFORMATION

June 14, 1990

Source: Jerry Hawton
612/624-2270
Writer: Joseph Kurtz
612/625-3168

FEEDING CANOLA MEAL MAY REDUCE SWINE FEED COSTS

Feeding canola meal may be one way to cut feed costs for hogs, says Jerry Hawton, extension swine scientist at the University of Minnesota. Whether using this feed will save money depends on its price relative to other protein sources, such as soybean meal.

As production and processing of canola expands, more of the meal is becoming available, according to Hawton. "The nutritional value of canola meal is similar to that of soybean meal," he says. "Canola meal can be used in diets for all classes of swine. Based on studies with gilts and sows, it appears that it can be used to supply all of the supplemental protein for females during gestation and lactation without hurting reproductive performance.

"For finishing hogs, most studies have shown no problems with replacing all the soybean meal in the diet with canola meal."

Hawton recommends caution in feeding canola meal to starting and growing pigs. "Even partial substitution of canola meal for soybean meal decreases pig performance during the starting and growing periods," he says. "Most researchers recommend that canola meal should not make up more than 6-8 percent of the total diet for starter (12-40 pounds) pigs or more than 12 percent of the total diet for growing (40-120 pounds) pigs to obtain reasonable performance."

Hawton says reasonable performance is no more than a 5-10 percent reduction in daily gain and feed efficiency with canola meal compared with a standard corn-soybean meal diet.

He adds, "If canola meal lowers diet cost enough to offset any reduction in growth, it's an economical protein source."

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AEA,BSS,CEO,V2,P1

NAGR3536

MSC:AF-7p

NEWS/ INFORMATION

June 14, 1990

Source: Mike Schmitt
612/625-7017
Writer: Jack Sperbeck
612/625-1794

YOU DON'T NEED TO REPLACE ALL APPLIED NITROGEN

There's potential for considerable nitrogen losses if you applied fertilizer last fall or preplant this spring.

But you don't need to "replace" all of your applied nitrogen, say soil scientists Mike Schmitt and George Rehm of the University of Minnesota's Extension Service. "In a wet year, release of soil nitrogen due to mineralization is generally higher and will compensate for some nitrogen losses," Schmitt says.

Applications of 40 to 50 pounds of nitrogen should be adequate supplemental nitrogen, he says.

Soil nitrogen losses continue in the southern half of Minnesota. As of mid-June, almost all preplant fertilizer nitrogen has been converted to nitrate and susceptible to loss.

With already saturated soil conditions, denitrification is probably more prevalent than leaching for most soils. Soils saturated for at least three days will start having significant denitrification losses, Schmitt says.

Denitrification losses are expressed on a percentage basis. So, soils with more nitrate have losses proportionately higher than soils with less nitrate. Losses range from 5 to 25 percent of the nitrate-nitrogen in the soil, starting on the fourth day the soil is saturated.

"This means if you put on an extra 30 pounds of 'insurance' nitrogen, the losses are higher for this field," Schmitt says.

If you calculate actual nitrogen losses in fields, they may add up to more than the 40 to 50 pounds per acre being recommended as a supplemental treatment. "Mineralization of soil nitrogen should be high enough to compensate for some of these nitrogen losses," Schmitt says.

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AEA,BSS,CEO,V2,F1M

NAGR3538

NEWS/ INFORMATION

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

June 18, 1990

Source: C. J. Christians
612/624-0766
Writer: Joseph Kurtz
612/625-3168

HIGH BIRTH WEIGHT IS MAJOR CAUSE OF CALVING PROBLEMS

Beef producers should look at factors that affect calf birth weights if they want to reduce calving problems. High birth weight is the major cause of calving problems, according to C. J. Christians, extension animal scientist at the University of Minnesota.

"Genetics and sire breed are key factors influencing calf birth weights," says Christians. "Nutrition and management of the cow herd prior to calving are also important."

Christians says the heritability of birth weight is 48 percent, which is higher than most other traits. Thus, selecting bulls for birth weight and calving ease is important in alleviating calving problems in a herd.

"It is especially important not to mate high birth weight heifers to bulls with a genetic history for high birth weight," says Christians. "Because birth weight is so heritable, such matings can result in extremely large birth weights in the progeny and serious calving problems."

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AEA,BSS,CEO,V2,A2

NAGR3537

MS06/23p

UNIVERSITY OF MINNESOTA
EDUCATIONAL
DEVELOPMENT SYSTEM
405 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

**NEWS/
INFORMATION**

June 18, 1990

Source: Mike Schmitt
612/625-7017
Writer: Jack Sperbeck
612/625-1794

SOIL NITRATE TESTS MAY BE DIFFICULT TO INTERPRET

In eastern and southern Minnesota, the University of Minnesota does not require a soil nitrate test to make fertilizer nitrogen recommendations.

It's hard to get a clear interpretation of soil nitrate data in eastern and southern Minnesota, say Mike Schmitt and George Rehm, soil scientists with the University of Minnesota's Extension Service.

But if you're testing nitrates, here are some guidelines to help evaluate the data:

--Any nitrogen recommendation using a nitrate test--whether preplant or presidedress--is only as good as the nitrate value. Take soil samples carefully and use high-quality control standards in sample preparation and analysis. Or, send samples to a lab for insured analytical precision.

--A good interpretation is a special problem this year due to leaching and denitrification. Preplant nitrate data for any depth told you what was in the soil at that time. But residual nitrates in the top foot of soil may denitrify due to saturated soil conditions, while any elevated nitrate levels at lower depths are more prone to leaching.

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--A nitrate test taken at presidedressing time may be misleading (if you applied some preplant nitrogen other than starter N). With the cool May temperatures, all of the ammonium may not have been converted to nitrate and you could get lower-than-expected readings.

--Cool spring temperatures also will delay the release of legume or manure nitrogen. That's another complicating factor in making recommendations this year when using a sidedress nitrate test.

If all of your nitrogen program was to be sidedressed, the nitrate test could be used to assess the nitrates still in the soil. "But remember that depth of sampling is now important," Schmitt says. Any residual nitrates may have moved down.

If you only sample to a 1-foot depth, the resulting recommendation should not result in any underapplications this year. It could cause an overapplication. A 2-foot sample would have been better.

"The higher the nitrate reading at sidedress time, the more confidence you should have in the nitrogen recommendation," Schmitt says.

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AEA,BSS,CEO,V2,F1M

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NEWS/ INFORMATION

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Source: Cynthia L. Ash
612/625-6290

Editor: Mary Kay O'Hearn
612/625-2728

VERTICILLIUM WILT CAN KILL SHADE TREES

If your shade trees show acute symptoms of curling, drying, wilting or abnormal red or yellow leaf color, verticillium wilt might be the cause.

Verticillium wilt is a fungal disease that interferes with the water-conducting system of many shade trees including ash, maple, catalpa, cherry, lilac and Russian olive. The fungus is present in the soil and enters plants through the roots.

Verticillium wilt has acute and chronic phases. Acute symptoms include defoliation, wilting, dieback and sudden death of individual branches or the entire plant. Trees may display these symptoms one year and appear healthy the next, says Cynthia Ash, plant pathologist with the University of Minnesota's Extension Service.

Chronic symptoms, such as slow growth, sparse foliage, stunted leaves and twigs, leaf scorch, abnormally heavy seed crops and dieback, may appear on certain limbs or the entire tree.

Presence of the fungus in the xylem (water-conducting tissues) results in a greenish to gray-brown discoloration of the xylem. This streaking may appear in the part of the tree displaying the acute or chronic symptoms but is more likely to be found further down, in the trunk or larger limbs which support the symptomatic branches, Ash says.

The infection becomes worse under adverse environmental conditions,

such as water stress, high salt levels in the soil, transplant stress, poor soils and nutrient deficiencies.

Try to alleviate or prevent these conditions, Ash suggests. "Replace trees lost to disease with species resistant or immune to verticillium wilt. Examples include ginkgo, juniper, larch, pine, spruce, apple, crabapple, mountain ash, birch, hackberry, hawthorn, linden, honeylocust, oak and poplar."

For more information, ask your county extension office for a copy of the Minnesota Extension Service fact sheet Verticillium Wilt of Trees and Shrubs (item AG-FS-1164).

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V7,V8M,I2M

NAGR3512

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Source: Deborah Brown
612/624-7491
Editor: Mary Kay O'Hearn
612/625-2728

EFFECT OF HARD WINTER, DROUGHT SHOWING UP IN LANDSCAPE PLANTS

Last fall and winter combined with the past two years' drought to leave us a legacy of injury, die-back and outright death of plants in the landscape.

The first hint that something was amiss were the many people who called the Minnesota Extension Service's Dial-U clinic at the University of Minnesota to complain that daffodils they planted last autumn didn't even appear this spring. Horticulturist Deborah Brown says when they were advised to dig where they had planted the bulbs, all they found were the soft, rotted remnants of firm bulbs that had been so full of promise last September.

Statewide, arborvitae suffered a similar fate. These evergreens looked fine all winter long, but as soon as the weather started to be warm and windy, their exposed south or west sides turned yellow, then brown and brittle. Most often, these plants will have to be replaced, Brown says.

"Now, we're getting calls about trees that have leafed out slowly, sporadically or not at all," she says. "Sometimes it is the upper quarter of the tree that has died back. In others, only the lower quarter remains alive. Shrub roses that have been perfectly hardy for years died down to the base, where tiny new shoots are just coming out. Other trees and shrubs have leafed out, but are drying and dying back."

You may want to fertilize these ragged-looking plants, but this will only add to their stress by forcing them to send out new growth at a time when they haven't even the ability to put out normal spring growth, Brown says. "All you can do is prune out dead, brittle growth and water regularly once weather turns hot and dry. Some plants will come back; others will have to be removed and replaced," she adds.

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V7,V8M,I2M

NAGR3513

NEWS/ INFORMATION

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Source: Dave French
612/625-8194
Editor: Sam Brungardt
612/625-6797

NEW ELM CULTIVARS ARE RESISTANT TO DUTCH ELM DISEASE

Elm trees can again grace our cities if recently developed cultivars resistant to Dutch elm disease are planted and good sanitation procedures are used for existing elms, says University of Minnesota plant pathologist Dave French.

French, an extension specialist who also conducts research on tree diseases for the University's Agricultural Experiment Station, champions the graceful elm: "Currently, people have given up on the elm and yet this tree species will survive and continue to serve us if we are willing to deal with a small number of diseased trees each year and remove dead and dying trees as they appear.

"We now realize it was foolish to rely almost exclusively on the elm as our street tree, and now we're planting a variety of trees.

"Obviously," French says, "it would be unwise to plant large numbers of elms and yet the elm excellent credentials in many ways. In communities where there are not a lot of elms being infected and killed by Dutch elm disease, people should consider planting elms again."

French does not recommend planting Siberian or Chinese elms. He says, "Although these species are resistant to Dutch elm disease, they are subject to winter injury and are not attractive. Instead, people should try the disease-resistant elms developed at the University of Wisconsin."

Among those elms are the American Liberty elms, developed from American elm strains that showed resistance to the Dutch elm disease (DED) pathogen. When young, American Liberty elms may be killed by DED, but they will usually survive if infected when more mature. However, French notes, they are not as resistant to DED as cultivars bred from Asian or European stock.

American Liberty elms are of typical American elm size and shape, which may make them more desirable to the public than cultivars derived from Asian species, which have different growth habits and shapes. The most distinctive of the American Liberty elms has been patented, and bears the name Independence.

The other DED-resistant elms developed at the University of Wisconsin--New Horizon, Sapporo Autumn Gold and Regal--were developed from Asian and European species.

New Horizon, just released this year, grows well, tolerates harsh conditions and has a dense crown and excellent DED resistance.

Although it's a hybrid of two Asian species, Sapporo Autumn Gold has a form similar to that of an American elm, with a strong central trunk. It does, however, require pruning when young to remove excessively vigorous side shoots.

Regal has a columnar form and high DED resistance. It grows vigorously and may need top pruning under very good growing conditions to reduce top growth that otherwise would be susceptible to damage in wind and ice storms.

French says information on obtaining these disease-resistant elms is available from McKay Nursery Co., Waterloo, WI 53594.

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**NEWS/
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June 21, 1990

Source: Cynthia Ash
612/625-6290
Editor: Mary Kay O'Hearn
612/625-2728

ANTHRACNOSE IS ABUNDANT FOLLOWING COOL, WET WEATHER

Anthracnose is a fungal disease that infects ash, maple, sycamore, walnut, bur and white oak. This spring's prolonged, cool, wet weather encouraged its growth resulting in abundant leaf spot and defoliation.

Purple-to-brown spots the diameter of a pencil lead appear as the new leaves emerge and expand rapidly to blight the entire leaf. The tree sheds these infected leaves quickly and this alarms the owner, says Cynthia Ash, plant pathologist with the University of Minnesota's Extension Service. Persistent cool, wet conditions may cause dieback of new growth in ash, oak, sycamore and walnut.

"If anthracnose appears for several seasons, it can weaken a healthy tree, making it vulnerable to attack by insects and diseases, Ash says. Defoliation by anthracnose in an already weakened tree can result in decreased vigor and decline.

Generally, fungicides are not necessary. Benomyl (Benlate) is labeled for preventive application to shade trees. A preventive application means the fungicide must be applied before the fungal infection occurs and reapplied regularly through the cool, wet weather.

Maintain tree vigor by proper watering during dry periods. Fertilizer should be applied to soils deficient in nutrients. Removing fallen leaves and dead branches may limit disease spread especially on isolated trees.

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V7,V8,I2

NAGR3511

NEWS/ INFORMATION

MS 19 627p
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Source: Deborah Brown
612/624-7491
Editor: Mary Kay O'Hearn
612/625-2728

CLIPPINGS DON'T CONTRIBUTE TO THATCH BUILD-UP

The controversy over whether or not to catch and bag lawn clippings has been brewing for years, says Deborah Brown, horticulturist with the Minnesota Extension Service.

There have always been proponents of letting the clippings fall back into the lawn to decompose and return nutrients to the soil. But most people felt it was better for the lawn to bag the clippings; they feared they would create a thatch buildup.

"Nothing could be further from the truth," Brown says. "Thatch consists of the wiry remains of grass roots and stems that are very slow to decompose. Clippings decompose easily and quickly.

"And now there's a real economic incentive to stop the bagging. Yard waste, including grass clippings, can no longer go into public landfills in the Twin Cities metro area. Come 1992 they will no longer be accepted in public landfills anywhere in the state. Private haulers will still collect bags of grass, but they will charge a hefty fee to haul them to private landfills."

Clippings should be allowed to fall back to the lawn, evenly distributed rather than in thick rows that can smother the grass. Mulching mowers do a particularly good job of cutting the clippings into small pieces, but other mowers can be used also. Bagging mowers should be fitted with a safety device to keep them from picking up stones or

other hard objects and throwing them out at high speed, which could injure someone.

The real key to letting clippings fall back to the lawn is to mow often enough so you never remove more than one-third of the grass height at any one time. If, for some reason, you still choose to bag your clippings, dump them at a municipal compost site or start a compost pile in your yard. Mix grass with leaves and vegetable debris before composting it. Solid grass in a compost pile packs down tightly and smells pretty "ripe" as it decomposes.

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V7,V8,I2

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**NEWS/
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Source: C. J. Christians
 612/624-0766
 Writer: Joseph Kurtz
 612/625-3168

PERFORMANCE AWARDS HONOR MINNESOTA BEEF PRODUCERS

Awards for outstanding performance recently went to four Minnesota beef producers at the annual Beef Cattle Conference in Rochester.

Paul and Shari Boyum, Utica, received the Commercial Producer of the Year award. Larry Wakefield, New Richland, was named Purebred Producer of the Year. Mark Moening, Dodge Center, received the Young Producer of the Year award. The awards were presented by the Minnesota Beef Cattle Improvement Association in conjunction with the University of Minnesota's Extension Service.

The Boyum operation, located on the boundary between Winona and Fillmore counties, includes corn, hay, beef cattle and hogs. The Boyums have 130 cows on three farms. Calves are weaned in early fall and backgrounded on corn silage until February.

The Boyums started in 1968 with grade Hereford and Angus cows. Their daughters, Kari and Christine, are developing a purebred Simmental herd that began as a 4-H and FFA project.

Paul is a director of the Fillmore County Cattlemen's Association, regional director of the Minnesota State Cattlemen's Association, president of the local school board and the Lutheran Church Council and a Fillmore County 4-H beef project leader. Shari is president of the Fillmore County Cattlewomen and has chaired the state cattlemen's beef certificate program.

Larry Wakefield, who has bred Charolais for some 30 years, added Salers a few years ago. He was a founder of the Minnesota Charolais Association, and served as its first vice president. He is also president of the Minnesota Salers Association.

Wakefield emphasizes performance selection, and has entered this year's top-indexing Charolais bulls in the Minnesota and Iowa central bull test stations. One of his herd bulls was the top sale bull at the National Western Livestock Show in Denver.

In 1970, the 205-day weaning weight of Wakefield's calves was 524 pounds. Last year, it had increased to 685 pounds. Yearling weights, primarily on heifers, went from 798 to 1,100 pounds during the same time.

Mark Moenning has a Simmental-Angus cow herd in partnership with his father and two brothers. The weaning weight of calves from the herd went from 456 pounds in 1981 to 656 pounds last year. The cows winter and calve in drylot, then graze on grass-legume pastures.

Moenning is director and treasurer of the Minnesota Beef Council, past president of the Dairyland Cattlemen's Association, and a member of the Minnesota State Cattlemen's Association's legislative and animal welfare committees. He serves on the Dodge County Community Health Services Board, the Dodge County Fair Board and the Dodge County Farm Bureau and has participated in the University of Minnesota's LEAD Program.

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