News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 5, 1989

Source: Erlin Weness
507/372-8210
Writer: Jack Sperbeck
612/625-1794

FARM PROFIT TIPS: COMPUTERS ARE GOOD BUSINESS MANAGEMENT TOOL

More farmers are using computers. In the last few years, many farmers have purchased computers to help make business management decisions. And the trend will continue, says Erlin Weness, area farm management agent with the University of Minnesota's Extension Service.

Weness says about 60 of the 210 farmers in Minnesota's Southwest Farm Management Association have computers. Only three or four had computers as recently as 1986. Major farm uses include financial management, record keeping, herd management and ration balancing.

Check software first. Check for good farm business software programs before deciding which computer you'll buy.

"Many farmers are 'junking' record-keeping systems since they bought a computer that didn't have good programs available," says Erlin Weness, area farm management agent with the University of Minnesota's Extension Service.

Most farm business software programs are written for IBM computers. Weness recommends that beginning farm computer users purchase record-keeping and word-processing programs and possibly

a spread sheet.

Computer-buying tips. A computer with double disk drives and 640K memory will suffice for most farm computer users.

Tailor the purchase to your business needs, advises Erlin Weness, area farm management agent with the Minnesota Extension Service. "You can go with a hard-disk, but they're harder to operate. I get a few questions from farmers with double-disk systems, but many from the hard-disk users," he says.

A new-style keyboard with function keys at the top is preferable. For family use, consider a color monitor.

Computer-buying checklist. Here's a partial checklist to use if you're in the market to buy a computer for the farm business.

--Make sure good software programs are available. Farm record software should balance and reconcile records with your bank balance, print checks and reports at any time and keep track of many different bank accounts and loans. It should also handle many different items on one check. And, you'll want to be able to customize the program to your own code list.

"Most farm record software is being written for IBM systems," says Erlin Weness, area farm management specialist with the University of Minnesota's Extension Service.

--Find a dealer who can explain the programs. Manuals should be easy to follow and programs should be "user friendly"--easy to operate with helps on the screen.

# # #

AEA,BSS,CEO,A1,A2,D,P1,V1 NAGR2871

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 5, 1989

Source: William J. Boylan
612/624-1727
Writer: Sam Brungardt
612/625-6797

Editors, news directors: The version of this release we mailed to you on Dec. 22 incorrectly said the North American Sheep Symposium would be July 25-28, 1988. Please use this version of the release, which gives the correct dates. We regret any confusion or inconvenience this may have caused you.

NORTH AMERICAN DAIRY SHEEP SYMPOSIUM PLANNED FOR JULY

A symposium on sheep dairying will be held at the University of Minnesota, July 25-28, 1989.

The North American Dairy Sheep Symposium, which will be held on the university's St. Paul campus, is designed to provide information and expertise on dairy sheep milking and the manufacture of products from sheep milk. It is being sponsored by the University of Minnesota's Department of Animal Science, Center for Alternative Crops and Products and Minnesota Extension Service.

Among the topics that specialists from Europe and North America will cover are genetics and breeding; nutrition of the lactating ewe; management strategies for dairy sheep; machine milking techniques and equipment; manufacturing high-quality sheep milk products; economics, marketing strategies and developing a new business; dairy sheep health management; and a review of dairy sheep enterprises abroad.

There will also be a poster session that is expected to attract research papers from throughout the world, as well as a demonstration of the manufacture of cheese and yogurt from sheep milk. An optional tour of Minnesota agricultural and industrial enterprises and historic American Indian sites is also planned.

For more information, contact Gerald Wagner, Educational Development System, 405 Coffey Hall, University of Minnesota, St. Paul, MN 55108; telephone (612) 625-1978 or (800) 367-5363; Telex 5106013001 (INTAGSTPUQ); FAX (612) 625-0286.

# # #

AEA,BSS,CEO,E1,H2,O,V1,V2,V3,SelMedia NESP2860

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 5, 1989

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

U OF M STUDY SHOWS HEAVY HOGS ARE LESS PROFITABLE

Hogs going to market at weights between 220 and 240 pounds were more profitable than hogs sold at heavier weights, a recent University of Minnesota study found.

Charles J. Christians, animal scientist with the Minnesota Extension Service, conducted the study. He analyzed data from barrows placed on test at the New Ulm swine test station.

Hogs were grouped in 5-pound increments from 220 to 260 pounds. Christians used $40 per hundred as the market price and 8 cents per pound for feed cost.

"Hogs marketed between 220 and 240 pounds produced the greatest return," Christians said. "Profit decreased as hogs were fed to heavier weights at those prices for hogs and feed."

The return over feed costs was $3.20 per head higher for hogs sold in the 220-224-pound range than for those sold in the 250-260-pound range.

"Since the data presented are only returns over feed costs, producers should also consider the increase in cost due to nonfeed costs when feeding to heavier weights," Christians added.

He said average slaughter weights are continuing to increase

at most slaughter plants in Minnesota. He cautioned producers to evaluate their returns and reevaluate the weight and backfat of the hogs they are selling.

Christians also found the feed efficiency was lower for hogs going to market at heavier weights. The feed requirement per 100 pounds of gain was 50 pounds lower for hogs sold in the 220-224-pound range than for hogs sold in the 250-260-pound range.

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AEA,BSS,CEO,V1,V2,V3,P1 NAGR2873

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 9, 1989

CONTACT: Martin Moen
612/625-6243

NEWSLINE: 612/625-7720

MEMO TO NEWS PEOPLE

Here's the Minnesota Extension Service's Newsline schedule for Jan. 16-20. Watch the AP and UPI newswires for substitutions or additions.

Thursday, Jan. 19: 6 a.m. until 5 p.m.

University of Minnesota economist C. Ford Runge (612/625-9208) talks about the effect the trade war over beef produced with growth hormones will have on Minnesota producers.

# # #

V2,SelMedia

UM011689

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 9, 1989

Source: David W. Davis
612/624-9737
Writer: Sam Brungardt
612/625-6797

Editors: Call Carl Walker (612/624-3708) to obtain a b/w print or 35mm color transparency of 'Andover' roots.

UNIVERSITY OF MINNESOTA'S 'ANDOVER' PARSNIP RESISTS BROWN CANKER

The University of Minnesota's Agricultural Experiment Station has released 'Andover' parsnip for commercial, market garden and home garden production.

'Andover' is notable for its desirable root type and resistance to Itersonilia perplexans, a fungus that causes a leaf spot disease in the field and brown canker on stored roots. I. perplexans can be particularly damaging economically because parsnips are often stored three to five months until they can be marketed.

David W. Davis, University of Minnesota horticultural scientist who heads the Minnesota Agricultural Experiment Station's vegetable improvement project, says the root and plant characteristics plus its resistance to deterioration in long-term storage make 'Andover' well suited to commercial use.

Davis says 'Andover' resists I. perplexans better than 'Harris Model', the most popular commercial cultivar and leading standard. 'Andover' sprouts little, he says, during the normal, three- to five-month storage period and will remain dormant six months or

longer when it is stored at 32 to 37 degrees F.

In smoothness, firmness, color and internal quality, 'Andover' roots are comparable to those of 'Harris Model'. They are long (an 8- to 10-inch usable root length is common), slender and bayonnette shaped, fitting well "head-to-toe" on a shrink-film tray for retail sales. Other distinguishing features are the raised, clean crown and smooth-round shoulder, which facilitate cleaning in commercial washers. When grown at wider plant spacings, the shoulder is somewhat more prominent.

The foliage of 'Andover' tends to be more vigorous than that of either 'Harris Model' or 'Albino', and growers will appreciate its tenacity, which facilitates mechanical harvesting.

Minnesota growers have grown 'Andover' commercially on a trial basis for the past two years. At the same time, Harris Moran Seed Co. evaluated it in New York, Massachusetts and California.

Seed of 'Andover' is protected and is being marketed through Harris Moran. Commercial growers can order seed through their Harris Moran sales representatives, the names of whom may be obtained by calling Harris Moran Customer Service in Rochester, N.Y. (716/594-9411), or Salinas, Calif. (408/757-3651).

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AEA,BSS,CEO,L1 NAGR2874

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 9, 1988

Source: Robert M. Jordan
612/624-6784
Editor: Sam Brungardt
612/625-6797

U OF M SHEEP AND LAMB FEEDERS DAY WILL BE FEB. 2

The University of Minnesota's annual Sheep and Lamb Feeders Day will be Feb. 2 at Edson Hall on the University of Minnesota campus in Morris. The program will begin at 10 a.m. and conclude about 3:30 p.m.

A report on sheep production in Turkey by University of Minnesota animal scientist W. J. Boylan will lend international flavor to this year's program (the 61st). Boylan, who conducts research for the Minnesota Agricultural Experiment Station, recently visited Turkey to observe, among other things, sheep dairying there.

Dick Boniface of the North Central Wool Marketing Corporation will forecast the wool market and explain how skirting can improve wool income.

Also to be discussed are pioneering developments in management, breeding and nutrition arising from University of Minnesota research that have contributed to modern sheep husbandry.

Protein will be a major topic on the program, and the protein requirements for sheep--including creep-fed lambs, ewes nursing triplets, gestating ewes and feeder lambs--and Angora goats will be discussed.

There will also be a discussion of barley and intake enhancers in creep diets by R. M. Jordan, University of Minnesota animal scientist and extension sheep specialist, and R. J. Vatthauer, superintendent of the West Central Experiment Station, Morris.

# # #

AEA,BSS,CEO,O,V1,V2,V3 NAGR2877

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 12, 1989

Source: Florian Ledermann
612/762-8112
Writer: Joseph Kurtz
612/625-3168

COST-EFFECTIVE SWINE HEALTH PROGRAM MUST BOOST PROFITS

To be cost-effective, swine herd health programs must improve efficiency and profitability for pork producers.

That was the message of Florian Ledermann, a veterinarian from Alexandria, Minn., at the recent Central Minnesota Swine Health Clinic in St. Cloud.

For a veterinarian to provide a cost-effective health program, farm visits are essential, Ledermann said. "Farm visits establish the veterinarian-producer relationship which needs to start and grow before good things begin to happen," he commented.

Once the relationship is established, the veterinarian can diagnose health problems more accurately and make observations and recommendations, Ledermann pointed out.

He said records of health and production are part of the observations and "will become the most important measure of success of the health program."

Instructing producers on the proper use of drugs and feed additives is an important function of veterinarians, according to Ledermann. "Producers are constantly bombarded by information on health products, new equipment, record systems and lab tests," he

said. "The veterinarian is in an excellent position to advise clients on the usefulness of these things if a sound health program is in place."

Ledermann said the cost-effectiveness of health programs can be evaluated in terms of production factors related to profitability. These include death loss, percentage of disease incidence, number of pigs born live and weaned, days to market and feed efficiency.

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AEA,BSS,CEO,V1,V2,V3,P1 NAGR2880

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 12, 1989

Source: Florian Ledermann
612/762-8112
Writer: Joseph Kurtz
612/625-3168

CALM MANNER IS KEY IN HANDLING HOGS

A "cool, calm and collected" manner is the key to handling hogs in such procedures as sorting, loading, moving, giving injections and surgery.

That is what Florian Ledermann, a veterinarian from Alexandria, Minn., told pork producers attending the recent Central Minnesota Swine Health Clinic in St. Cloud.

"It is important to keep stress on both the pig and the person involved to a minimum," said Ledermann. "Loud voices, noisy equipment, sudden movements and general rough handling will always guarantee poor results."

Ledermann said the best time to perform procedures on an animal in the breeding herd is when the animal is being transported or has been placed in a new environment. "The sow or boar in a new pen, loading cage, crate, or in a pickup after a long ride is a picnic compared with an animal secure in its normal environment," he said.

If a procedure is necessary in the animals' normal environment, it is best to have the animals crowded into an area roughly two times the square footage they displace, according to

Ledermann. This allows room for the operator to work, but not enough for the animals to escape reach.

Ledermann recommended a medication program designed to eliminate multiple injections as much as possible.

He also recommended solid gates or panels over see-through panels when penning animals for injections. "The nature of a pig is to go through any hole big enough to get its snout into," he noted.

When putting a snare on hogs, be sure to get it at least four inches onto the upper jaw, advised Ledermann. "Many times snares are applied to both the top and bottom jaws or only to the soft snout of the pig," he said. "This is improper and results in more struggling, gasping and discomfort to the pig."

For giving injections to large groups of heavy growing pigs, Ledermann recommended confining small bunches of five to ten animals in a corner and injecting. Then, he advised releasing and refilling from the main group.

"The environment needs to be clean and dry before, during and after injections to avoid problems with infections," Ledermann concluded.

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AEA,BSS,CEO,V1,V2,V3,P1 NAGR2879

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 9, 1989

Source: Roland Peterson
612/624-2221
Writer: Larry A. Etkin
612/625-4272

REPORTS EVALUATE RURAL VOCATIONAL EDUCATION ALTERNATIVES

The last of a series of six publications on alternatives for delivering vocational education in sparsely populated areas is now available from the University of Minnesota.

This sixth bulletin, titled "Access to Educational Opportunity in Rural Communities: Alternative Patterns of Delivering Vocational Education in Sparsely Populated Areas, Volume 6: Glencoe, Lester Prairie, Brownton, A Centralized Non-Center Agreement," examines an approach where two smaller high schools transport some students to a larger district for one or two classes at the beginning of the day.

This bulletin is available as item AD-SB-3401 from the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. Cost is $4, prepaid, and Minnesota orders should include 6 percent sales tax. Please include the complete title and item number with orders and make checks payable to the University of Minnesota.

The first five volumes in the series also remain available. Among them are four reports on case studies of other cooperative vocational education arrangements and a volume that defines and

describes the concept of each alternative and provides recommendations relating to them. Ordering procedures for them is the same as for Volume 6. The subtitles, item numbers and prices of these volumes are:

"Volume 1: Problem, Study Design and Procedures, Findings, Conclusion and Recommendations" (item AD-SB-2433; $2.50).

"Volume 2: The Heartland Vocational Center: A Decentralized Center" (item AD-SB-2714; $5).

"Volume 3: The Northwest Multi-District: A Mobile Facilities Center" (item AD-SB-2703; $3).

"Volume 4: The Inter-District Cooperative Center: A Centralized Center" (item AD-SB-2852; $3.50)

"Volume 5: The Clay-Wayne County Joint Agreement: A Decentralized Non-Center Agreement" (item AD-SB-2715; $4).

# # #

AEA,BSS,CEO,E1,SelMedia NCED2875

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 12, 1989

Source: Duane Fort
515/576-7311
Writer: Joseph Kurtz
612/625-3168

SOURCE OF SWINE BREEDING STOCK IS IMPORTANT CONSIDERATION

Pork producers purchasing replacement breeding stock should be more concerned about the source of the stock than the individual animals.

Duane Fort, general manager of Land O'Lakes Swine Genetics, Fort Dodge, Iowa, emphasized that during the recent Central Minnesota Swine Health Clinic at St. Cloud.

"The genetic merit of your herd will mirror the genetic merit of your supplier of seedstock," Fort said. "Select a supplier of breeding stock that has a selection program designed to improve the economic traits."

If you select breeding stock based on performance test records, select the best rather than selecting according to set standards, Fort advised.

"If you are purchasing from a company, insist on an explanation of their selection program," he said.

Fort said crossbreeding is the greatest tool producers have at their disposal to produce pork economically. He predicted that use of terminal crossbreeding systems using all purchased breeding stock will become the common practice of the future. He said

analysis of cost-of-production records from hundreds of herds of varying size indicates that least-cost producers are purchasing females.

For this system to be most effective, he said, the gilts must be unrelated to the boars. They should have no common ancestors through four generations.

"The gilts must fit your management, facilities and environment," Fort added. "There is a trend to develop female lines that contain blood of colored breeds, under the premise that they are more durable and will breed back easier."

# # #

AEA,BSS,CEO,V1,V2,V3,P1 NAGR2883

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 13, 1989

Source: Kevin Klair
612/625-1964
Writer: Jack Sperbeck
612/625-1794

FARM PROFIT TIPS: NEW SOFTWARE ANALYZES GOVERNMENT CROP PROGRAM

Risk management may be a strong incentive for farmers to sign up for the government crop program.

You can get help analyzing government crop programs through county offices of the Minnesota Extension Service. Extension agents have two new software programs--CROPROG and GPAY89.

CROPROG helps evaluate your alternatives on a whole-farm and composite-acre basis. It also gives sensitivity tables for changes in yields and prices.

GPAY89 calculates and schedules government crop program cash and certificate payments to help develop 1989 cash flow plans.

The programs are available for IBM and IBM-compatible computers.

You can use the programs by making arrangements to do so with a county or area extension office.

The programs are also for sale; $20 for one program, $40 for both. Please specify the program(s) you want as well as the needed disk size (5-1/4- or 3-1/2-inch) and send a check, payable to the University of Minnesota, to: Center for Farm Financial Management, 249 COB, University of Minnesota, 1994 Buford Ave., St. Paul, MN 55108.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 19, 1989

Source: Ronald L. Phillips
612/625-1213
Writer: Jennifer Obst
612/625-2741

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

U OF M SEEKS TO PATENT GENE THAT INCREASES PROTEIN CONTENT OF CORN

Corn is an important crop worldwide; somewhere in the world a corn crop matures every month of the year.

But despite its popularity and many advantages, corn is low in protein quantity and quality. On the average, corn kernels contain less than 10 percent protein, compared with 38 percent for legumes such as soybeans. And, corn protein is low in two nutritionally vital amino acids--lysine and tryptophan.

So, when University of Minnesota researchers started to investigate the potential of biotechnology techniques for agricultural crops, improving the protein composition of corn was one of the first concerns.

Building on that work, which begun in the 1970s, cytogeneticist Ron Phillips and graduate assistant Mike Benner have discovered in their research for the university's Agricultural Experiment Station a way to increase the lysine content of corn. They have identified a regulatory gene that influences the production of lysine in the kernel and have applied for a patent relating to that gene.

The story of their discovery began in 1974, when University of Minnesota researchers were the first to regenerate a corn plant from tissue-cultured cells. That work led to insight of how production of three amino acids--lysine, threonine and methionine --were regulated within the kernel.

Analysis of the biochemistry of production showed the three were mutually dependent. If only lysine and threonine were added to the culture medium, the corn cells didn't grow.

Phillips found the same thing happened to the germinating kernel. He says, "If we added lysine and threonine, growth was shut down, but if we added the three, everything was fine. So, that suggested to us a selection protocol. We could add lysine and threonine, and look for mutants that would grow in their presence. These mutants might represent a change in one of those key enzymes, and a way to get overproduction of these products."

Phillips and Benner found a promising naturally resistant line, and then discovered that when they removed the endosperm (the nutritional package that surrounds the embryo) from the kernel and germinated the embryo, the embryo would not grow. "So, our hypothesis was that the endosperm was furnishing methionine to the embryo," Phillips says.

So far the researchers were tracking down a line that overproduced methionine, not lysine. Further research showed that this extra methionine resided in a particular protein in the endosperm. "In fact, this protein was 21 percent methionine, and that's very rare," Phillips says.

Mapping the genetic structure of this protein, the researchers found they were dealing with two different genes. "One produces the protein, and another determines how much protein is produced," Benner says. "To our surprise, we found that in addition to increasing the methionine level, this regulatory gene also apparently elevated the level of other amino acids, most notably lysine.

"The next question was, could we incorporate this regulatory gene into other lines and promote the same overproduction that we saw in this line?"

So far, the answer has been "yes." The highest elevation of lysine levels the researchers have induced is 20 percent. Their patent application involves this regulatory gene, and refers to any high-lysine corn line that is produced by use of this gene.

Phillip and Benner's discovery comes just when there has been growing interest in the potential of increasing the protein level of corn. Part of this interest is due to the recent introduction, by researchers in Mexico, of an improved type of corn that is nearly twice as nutritious as normal corn.

First discovered in 1963, this corn unfortunately had several undesirable qualities. Among other things, it yielded less and its floury, soft kernels did not store well. However, Phillips says, it recently has been sufficiently improved to offer great potential benefit to Third World countries where farmers grow open-pollinated populations such as this type, rather than corn hybrids.

"The difficulty of that corn type is it is a complex genetic system, rather than one gene that gives high lysine. So, you can't just take and transfer it into other lines easily," Phillips says. "Our material is a much simpler genetic system. As far as we can tell, it brings with it no undesirable effects. The fertility and quality of corn with it is completely normal."

For the researchers, the discovery has been an illuminating example of the whole biotechnology process. Phillips says, "It's an example of laboratory screening techniques, biochemistry, classical and molecular genetics, and plant breeding all coming together. That's what we've always said, that we have to get all these disciplines together to make progress in biotechnology.

"Everything we see at this point looks very positive."

# # #

AEA,BSS,CEO,F1,M1,N2,V1,V2,V3 NAGR2888

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 19, 1989

Source: Mel Baughman
612/624-0734
Writer: Mary Kay O'Hearn
612/625-2728

CONFERENCE TO LOOK AT DROUGHT'S IMPACTS ON WOODLANDS

Helping landowners cope with the serious effects of the 1988 drought on some central Minnesota woodlands is one aim of a Woodland Owners and Users Conference Feb. 25 at St. John's University, Collegeville, Minn.

Mel Baughman, Minnesota Extension Service forester, describes the conference as "an excellent opportunity for private woodland owners and users and urban landowners to obtain practical information about managing land for wood, wildlife or recreation" as well as the impacts of the drought. Instructors are experienced professional forest and wildlife managers.

Registration from 8-9 a.m. will be followed by a keynote address, "How valuable are Minnesota's private woodlands?" Classes begin at 9:30 a.m., with the last getting under way at 3 p.m. Lunch is "on your own" at any of the cafeterias on the campus.

If weather permits, hikers or skiers who bring their skis can join a forestry field tour of St. John's woodlands to see a sugarbush, oak shelterwood harvests and the oldest pine plantation in the state.

Other concurrent classes during the day include landscaping for wildlife, managing oaks, managing pines, managing woodlands for wildlife, marketing timber, tax treatment of forestry income and expenses, trespass and other laws related to land ownership, weed control in tree plantings, caring for trees in your yard, central Minnesota's trees, dealing with drought, insects and diseases, evaluating your property's wildlife habitat, farming practices that benefit wildlife and financial assistance for forestry and wildlife projects.

Persons who register by Feb. 17 pay $12; after that date, the conference costs $15. Checks, made payable to the University of Minnesota, should be mailed to Extension Forest Resources, Department of Forest Resources, University of Minnesota, 1518 N. Cleveland Ave., St. Paul, MN 55108.

The conference is sponsored by the Minnesota Department of Natural Resources, the University of Minnesota's College of Natural Resources and Minnesota Extension Service, the Stearns County Agricultural Stabilization and Conservation Service, the Stearns County Soil and Water Conservation District and the Minnesota Forestry Assocation.

# # #

AEA,BSS,CEO,H4 NNRD2887

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 23, 1989

Source: Patrick Huelman
612/624-7291
Writer: Pam Barnard
612/625-4730

COLD-CLIMATE HOUSING WORKSHOP CAN BE KEY TO INCREASED PROFITS

Want to stay on the cutting edge of what's happening in building technology, energy efficiency, shifting consumer demand, and indoor air quality and health concerns? If you do, the 1989 Cold Climate Housing: Building Quality, Reputation, Profit Workshop is for you.

This workshop, intended for builders, material suppliers, lenders, building officials, designers, utility suppliers and educators, will offer timely information on building quality and profitability. It will be March 23 at the Earle Brown Center on the University of Minnesota's St. Paul campus.

Specialists from the University of Minnesota's Cold Climate Housing Information Center will present new developments in building envelope design and construction, indoor air quality problems (including radon, excessive humidity and carbon monoxide), and thermal comfort systems.

The Hennepin County Extension Office, Minneapolis Builders' Association and the Professional Builders' Association--MetroEast are sponsoring the workshop. Registration is $35 (materials and lunch included) and the deadline for signing up is March 16. For

more information about the one-day workshop, contact Diane Corrin at the Hennepin County Extension Office, 701 Decatur Ave. N., #105, Minneapolis, MN 55427 (telephone 612/542-1427).

# # #

V4,V7,E3,H3,I4 NNRD2890

nsc/9427p

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 26, 1989

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

NITROGEN FOR CORN IS PROFITABLE EVEN IN DRY YEARS

Using nitrogen fertilizers on corn is profitable--even when the weather is dry. Field trials last summer in Winona County, Minn., showed nitrogen fertilizers still produced a profitable production increase, even though yields were reduced by the drought.

At one site, applying 120 pounds of nitrogen per acre produced a yield increase of 46 bushels per acre, says George Rehm, soils specialist with the University of Minnesota's Extension Service. If you value corn at $2.50 per bushel, this yield increase is worth $115 per acre.

The fertilizer cost $24 per acre. "By spending $24 per acre, the grower increased gross income by $115 per acre," Rehm says.

Minnesota farmers have always received more return for money invested in nitrogen fertilizer than any other nutrient. And you can expect this good return on nitrogen fertilizer investments to continue in the 1989 growing season.

In western Minnesota, nitrogen carryover from 1988 is higher than normal, so it may be possible to reduce rates for 1989. The soil nitrate test can be used to accurately predict fertilizer

nitrogen needs in western Minnesota.

But the soil nitrate test is not an accepted management tool for south-central and eastern Minnesota. Farmers in these areas should continue to base their decisions on nitrogen fertilizer rates on a realistic yield goal, previous crop in the rotation and the organic matter content of the soil.

"It's doubtful if the drought of 1988 will be repeated in 1989," Rehm says. Corn yields will be higher across the state, and nitrogen fertilizer use will be an important input for these high yields.

# # #

AEA,BSS,CEO,F1,V1 NAGR2894

News and Information

January 26, 1989

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

Source: Joanne Slavin
Peter Tallas
612/624-4735
Writer: Mary Kay O'Hearn
612/625-2728

OAT BRAN CAN HELP PROTECT AGAINST CHOLESTEROL

Scientific data says the claims are true; oat bran (the outer layers of oat groats) can cut back the LDL (low-density lipoproteins), which is about 70 percent of the bad kind of cholesterol in the body's blood.

"It's a unique fiber," Joanne Slavin says of oat bran, "but not a miracle one." The public interest in it is something like the interest in calcium in the early 1980s, says Slavin, a University of Minnesota food scientist and nutritionist.

Just how oat bran acts in the body isn't completely sorted out, Slavin says. However, she sees it as sort of a gum in the small intestine that may slow fat absorption. "It is different from wheat bran in that it acts more like a sponge and you can't add a lot of it in food," she says.

Slavin points out that reading labels for fiber content is important because the quantity of oat bran in something like muffins could be pretty low and could be counteracted with fat and sugar.

Putting a little oat bran in the diet daily isn't going to work miracles. People must already have reduced their fat

consumption and made other changes in their eating habits for it to be helpful. Fiber recommendations would probably be something like 25-35 grams a day and a third of this might be oat bran.

Legumes, such as dried beans and garbanzos (chickpeas) are all good for counteracting the LDL-type cholesterol, reminds Peter G. Tallas, food science and nutrition educator with the university's Minnesota Extension Service. The difficulty might be getting the proper quantity daily, he adds.

# # #

AEA,BSS,CEO,V8,I1 NAGR2893

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 26, 1989

Source: Deon Stuthman
612/625-3709
Writer: Mary Kay O'Hearn
612/625-2728

OAT GROWERS NEED HELP FROM FARM BILL

Oats are "in" in the parade of breakfast cereals, but while they may be fashionable to eat, it still isn't "in" to be growing them in the United States.

Canada, Argentina and Scandinavia are providing much of the oats. North Dakota, Minnesota, South Dakota, Iowa and Wisconsin oat producers are not providing much, says Deon Stuthman, University of Minnesota agronomist who heads the oat breeding program for the university's Agricultural Experiment Station.

He'd like to see this turned around. A major reason more oats aren't grown in the United States, he believes, is that the current farm bill "is very unfavorable toward oat production." It doesn't have the subsidy treatment of corn and barley, for example. Last summer, however, set a price record for oats in Minnesota when it shot up to $4.10 a bushel at the Minneapolis Grain Exchange. In the last three years it had bottomed out at $1 with the previous record high of $2.40 a bushel.

Carroll Rock, crop statistician with the Minnesota Department of Agriculture, believes farmers would grow oats if the price were high enough. Over the last 10 years, Minnesota's oat acreage has averaged about 1.7 million acres in comparison with 6 to 7 million acres for corn, 4 to 5

million acres for soybeans and 2 to 2.5 million acres for spring wheat.

"We're hoping the 1990 farm bill will be less unfavorable to oats," Stuthman says. While USDA has been saying to diversify the agricultural products being grown, the farm bill does exactly the opposite in narrowing choices. He would like to see oat acreage increase because "the infrastructure is already present, the markets already exist" rather than putting new ones in place with specialty crops discussed by USDA.

A target yield for oats is 120 bushels an acre (although it was half that in the 1988 drought), says Stuthman. "In North Dakota, where we have experimental plots near Langdon, it has reached 210 bushels an acre."

Stuthman is a member of a group that advocates greater federal support for germ plasm preservation. Crops that don't have strong advocacy groups "can get eaten alive," he remarks.

Lee Hardman, agronomist with the university's Minnesota Extension Service, says farmers are angry that oats are being imported, but can't lose their base of government support should they choose to grow crops on a supply and demand formula. "Farmers are farming the farm bill, rather than the land," he says.

If crop production choices could be made in the free market, both Stuthman and Hardman believe more oats would be grown in Minnesota and the United States.

The message to the government from the cereal industry must be modification of the 1990 farm bill to allow more oats to be produced and more research on oats to make it a more productive and valuable crop, says Stuthman.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 30, 1989

Source: Jean W. Bauer
612/625-1763
Writer: Pam Barnard
612/625-4730

TAX SEASON CAN BE GOOD TIME TO SAVE MONEY

If you're used to putting off doing your taxes, why not put them off a little longer and develop some skills that may help you save money?

"Managing Your Personal Finances" is a three-part publication prepared by Joyce M. Pitts, a home economist in the Family Economics Research Group of USDA's Agricultural Research Service, that can help you set your own financial goals and customized budget and plan for the future.

The guide is designed to help you develop money-management skills. Section one discusses financial management principles; section two addresses financial tools used in money management and section three offers help in coping with changes. The design and colorful appearance of the guide (with a different color for each section) makes it easy to use.

Says Jean Bauer, family resource management specialist with the University of Minnesota's Extension Service, "This publication is a very useful management tool that can help individuals develop a budget, use financial tools that will help carry out the budget and recognize financial and economic conditions that will affect

their budget."

The concept of substituting one resource for another is the idea behind section one of the guide, Bauer notes. "Effective management skills include increasing household income while decreasing what you are spending. Examples of this are spending time preparing food at home instead of spending money to eat out; or spending time fixing your car instead of spending money to have it fixed."

Worksheets are included at the end of section one that help individuals prepare a net worth statement, project goals, estimate their income, estimate expenses and balance their budget, keep a monthly expense record and keep a total yearly household expense record.

The tools that individuals can use to manage their financial situation, such as saving, investment, insurance and consumer credit, are the topic of section two. References on these topics are offered at the end of the section.

These days nothing seems to stay the same and eventually everyone will need to cope with some kind of change. Section three addresses retirement planning and economic, financial and household change. It ends with a list of references and two worksheets on retirement income and retirement expenses.

Copies of "Managing Your Personal Finances" are available through your local county extension office. Ask for item number HE-MI-3256.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 30, 1989

Sources: Diane Hedin
612/330-2347
Irl Carter
612/624-3700
Writer: Larry A. Etkin
612/625-4272

GENERATION GAP ISN'T, SAYS MINNESOTA YOUTH POLL

If you're the parent of a teenager who seems to give you little respect but plenty of trouble, take heart. Odds are your child thinks you do a pretty good job as a parent, knows that he or she doesn't always make the job of parenting easy and has deep ties to the family.

But that said, youths don't always grade their parents with A's. And, they find plenty of room for improvement in most parents.

These are some of the conclusions of the most recent of the Minnesota Youth Polls, which have been tracking the views of adolescents on issues important to them since 1977. The polls are conducted by the University of Minnesota's Center for Youth Development and Research with support from the Minnesota Agricultural Experiment Station.

"Youth polls are intended to provide a snapshot of the state of youth in Minnesota," says Irl Carter, acting director of the center. "Over time these snapshots are useful to assess the development of youth in general and to spotlight specific problems."

Contrary to the loudly lamented rebelliousness of youths and the often noted "generation gap," the current poll found the majority of

young Minnesotans living in families where the typical pattern was "harmony, not strife; affection, not alienation; and commitment to, not rejection of family life." Deep ties to the family was clearly the norm.

"It's kind of the great myth of life, that teenagers are in tremendous conflict with their parents," says poll author Diane Hedin. "Our poll was trying to achieve a picture of how teenagers think about their parents and their families. Our questions were, 'Is that really how it is?' 'Are most teenagers in kind of an open warfare with their parents?'

"What we found out that's most startling is that it's really not so. The general pattern is harmony and a lot of respect for the job their parents are doing. The usual picture of stress, conflict, disagreement, anger is really not the case."

However, the natural inclinations of "normal" adolescent development make some conflict nearly inevitable. Parents' tendencies to overprotect crash squarely into adolescents' desires for increasing doses of freedom and responsibility. This clash, the poll concludes, "is often distortedly viewed as evidence of disrespect for and disaffection from their parents."

The youth polls are destined to be incorporated into a general information data base the center will develop to give a broad picture of the state of youth in Minnesota. "In the past, the youth polls have been snapshots of various things that were of timely interest, but which didn't tie directly into a data base," Carter says.

"In general, what those youth polls have looked at have been

attitudes. In the sense of keeping a running tab on the pulse of attitudes, we will probably replicate some of those past polls, maybe every five years on specific topics, and in that sense get a flow on attitudes over the years."

Carter says only a few other states attempt seriously to maintain such a data base on youth.

Copies of "Minnesota Youth Poll: Youth's Views of the Family" are available for $3 each (Minnesota residents add 6 percent sales tax) as item AD-MR-3540 from the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. Checks should be made payable to the University of Minnesota.

Some earlier Minnesota Youth Polls remain available through the Distribution Center. Their titles, prices and item numbers are: "Minnesota Youth Poll: Youths' Views on the Nuclear Threat" ($2.50, item no. AD-MR-2667), "Minnesota Youth Poll: Youth Look at Themselves and the World" ($2, AD-MR-2666), "Minnesota Youth Poll: Aspirations, Future Plans, and Expectations of Young People in Minnesota" ($2.50, AD-MR-2512), "Minnesota Youth Poll: Youth's Views on Teenage Pregnancy and Parenthood ($1.50, AD-MR-1961), "Minnesota Youth Poll: Youth's Views on School and School Discipline" ($1, AD-MR-2155), "Minnesota Youth Poll: Youth's Views on Politics and Public Issues" ($1.50, AD-MR-2142) and "Minnesota Youth Poll: Youth's Views on Reputations & Delinquency" ($1.50, AD-MR-2134).

# # #

AEA,BSS,CEO,E5,E7,Y

NHEC2898

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

January 30, 1989

Source: Bob Appleman
612/624-4995
Writer: Joseph Kurtz
612/625-3168

SEMINAR TO FOCUS ON DAIRY HERD MANAGEMENT

A seminar on milking management entitled "Milking for Quality and Profit" will take place March 10 in St. Paul, Minn.

The seminar, to be held at the Earle Brown Center on the University of Minnesota campus, will feature extension specialists from Minnesota, Wisconsin, Iowa and Illinois. It is open to dairy producers and to those with an interest in the dairy industry.

"Markets are increasingly demanding quality milk from farmers and are offering quality premium incentives," says Bob Appleman, University of Minnesota extension dairy specialist. "This seminar will present research, ideas and recommendations concerning the efficient harvest of milk."

The seminar will begin with registration at 10 a.m. and will adjourn at 3 p.m. Appleman will make the first presentation at 10:30 a.m. He will discuss the mechanics of the milking system, including how, why and under what conditions new technology may be beneficial. He will emphasize tailoring the milking equipment to the size and type of dairy and will cover both stall barns and parlors.

Allan Bringe, University of Wisconsin extension dairy specialist, will review new developments and research on managed milking procedures. He will discuss ways to improve milk quality while applying labor-efficient techniques, and he will show ways to self-evaluate milking procedures.

Leo Timms, extension dairy specialist at Iowa State University, will discuss current and future tests and tools to evaluate milk quality. He will explain how to use the tests, interpret the results and apply them to milk quality management.

R. D. McQueen, University of Illinois extension veterinarian, will discuss milk culture--its cost, benefits, interpretations and limitations. He will look at the effectiveness of Staphylococcus aureus control programs and the failure of antibiotic treatment. He will use his farm consultative visits as examples of how the effectiveness of some mastitis control programs can be compromised.

Registration forms for the seminar are available from county extension offices. Fee for the seminar, including lunch and materials, is $15. The fee must be included with the registration form, with checks payable to the University of Minnesota. Registration forms are also available from Animal Science Extension, 101 Haecker Hall, University of Minnesota, 1364 Eckles Ave., St. Paul MN 55108.

# # #

AEA,BSS,CEO,V1,V2,V3,D NAGR2896

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

February 2, 1989

Source: Brian Larson
612/624-4995
Writer: Joseph Kurtz
612/625-3168

PROGRAMS WILL FOCUS ON DAIRY BEEF PRODUCTION

A series of four one-day programs focusing on the production of dairy beef will be presented in Minnesota and Wisconsin during February.

The programs will be Feb. 20 at the Community Center in Ruthton, Minn.; Feb. 21 in the auditorium at the University of Minnesota Technical College, Waseca; Feb. 22 at the Ranch House restaurant on Highway 21 north of Sparta, Wis.; and Feb. 23 at the American Legion in Pine Island, Minn.

All of the programs have registration from 9:30-10 a.m., followed by the program from 10 a.m.-3 p.m.

The presentations scheduled at Ruthton and Pine Island are:

--Nutrition and Management of Young Holstein Calves, by Hugh Chester-Jones, animal scientist at the Southern Experiment Station, Waseca.

--Feeding Strategies for Dairy Beef, 400-lbs. Plus, and Pasturing Dairy Beef Steers, by Brian Larson, assistant extension specialist, University of Minnesota.

--Producer Panel Discussing Dairy Beef, by area dairy beef producers.

--Marketing of Dairy Beef, by Chester-Jones and Larson.

The presentations at Waseca, Minn., and Sparta, Wis., will include:

--Meat Quality Considerations in Raising Dairy Beef, by Dennis Buege, extension meats specialist, University of Wisconsin-Madison.

--Feeding Strategies for Dairy Beef, by Woody Lane, extension livestock specialist, University of Wisconsin-Madison.

--Marketing Options for Fed Cattle, by Dick Vilstrup, extension marketing specialist, University of Wisconsin-Madison.

--Nutrition and Management of Young Holstein Calves, by Chester-Jones.

All of the programs are open to all interested persons.

# # #

AEA,BSS,CEO,V1,V2,V3,A2,D NAGR2900

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

February 6, 1989

Source: Ray Arthaud
612/624-9791
Writer: Joseph Kurtz
612/625-3168

FEED BEEF COWS WELL DURING LATE GESTATION

Most beef cows in Minnesota are now in the last third of gestation. That's a critical time for meeting their nutritional needs, according to Ray Arthaud, extension beef specialist at the University of Minnesota.

"Nutrient deficiencies during late gestation can result in delayed estrus after calving, late breeding and even poor conception," Arthaud points out.

He says pregnant "yearling" heifers are the most vulnerable to nutritional shortcomings. Heifers that will calve at about 24 months of age are still trying to grow while developing a fetus. They must also get ready to provide milk, come into heat and conceive.

"These females should gain about 1 pound per day during the last third of gestation," Arthaud says. "To do this and meet their other demands, they need about 10 pounds of total digestible nutrients (TDN), 1.5 pounds of protein from all sources and 24,000 I.U. of vitamin A per day. In addition, they need minerals and other vitamins."

Arthaud says a full feed of grade # 3 grass-legume hay (57 percent TDN, 14 percent protein) will provide about 10.7 pounds of TDN and 2.6 pounds of protein. This easily meets the energy needs and far exceeds the protein requirements.

A full feed of corn silage (45-50 pounds per day) would meet the energy needs of these animals, but would be low in protein, according to Arthaud. He suggests limiting corn silage to 30 pounds per head per day and adding 6 pounds of grade # 2 alfalfa or clover hay. This combination would provide adequate protein and energy.

The mature, dry, pregnant cow requires 11 to 13 pounds of TDN, 1.6 to 1.9 pounds of protein and about 30,000 I.U. of vitamin A per day during late pregnancy, depending on size. Even poor quality, grade # 5 grass hay (52 percent TDN, 9 percent protein) will meet her nutrient needs, says Arthaud.

For cows that were on poor pastures in 1988 and are now getting old or poor quality hay, vitamin A deficiency is more likely during late pregnancy and during lactation. The need for vitamin A increases to 35,000 to 40,000 I.U. per day during lactation. Arthaud says commercial protein supplements usually provide enough vitamin A. Also, vitamin A premixes can be added to the cows' salt or minerals.

# # #

AEA,BSS,CEO,V1,V2,V3,A2 NAGR2901

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

February 9, 1989

Source: Mel Baughman
612/624-0734
Writer: Mary Kay O'Hearn
612/625-2728

WOODLAND OWNERS, USERS TO MEET AT VIRGINIA, MINN.

Private woodland owners and users can learn more about managing property for timber, wildlife and recreation during a Mar. 4 conference at Mesabi Community College, Virginia, Minn.

Those attending the Woodland Owners and Users Conference will be able to participate in up to five concurrent sessions. Topics include management planning, sources of funding, knowing your land through use of legal descriptions and survey maps, controlling weeds and brush, successful tree planting, marketing and use of timber, open land wildlife management, wildlife and aspen management, timber harvesting, and selling timber.

Sessions begin at 8:45 a.m. after an 8 a.m. registration and coffee and the final session starts at 2:45 p.m. Sponsors of the event are the Minnesota Extension Service, Minnesota Department of Natural Resources, USDA Soil Conservation Service, Blandin Paper Co., Potlatch Corp. and Koski Logging, Inc.

Experienced natural resource professionals will lead discussion of the topics. Registration postmarked by Feb. 25 is $10 and after that registration is $13. Checks should be made payable to Minnesota Department of Natural Resources and sent to Greg Russell, Department of Natural Resources, 1208 E. Howard St., Hibbing, MN 55746. Registration does not include lunch.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

February 9, 1989

Source: Stanley Stevens
612/625-8770
Writer: Martin Moen
612/625-6243

ALLEGED ILLEGAL TRADING ACTIVITY OF LITTLE CONCERN TO INDIVIDUALS

Large commodities trading firms appear to be the biggest losers in alleged illegal trading activities at the Chicago Board of Trade and the Chicago Mercantile Exchange.

Losses suffered by individual farmers and local elevators as a result of the alleged trading abuses would likely be small, says Stan Stevens, a grain marketing specialist with the Minnesota Extension Service.

The federal investigation is continuing, but there seem to be two issues: pit traders designed special transactions to avoid paying taxes or to skim profits from the trading activity.

Stevens says, "Frequent users of the futures markets, such as large speculators and commodity funds, suffer significantly if frequent poor fills accumulate into substantial losses.

"But, a farmer who hedges his crop or forward contracts to an elevator that in turn hedges the sale would likely be affected by only one-quarter to one-half cent per bushel."

Stevens adds that in the case of hogs or cattle, the most that individual farmers lost was probably 5 to 10 cents per hundredweight.

Farmers and grain elevator managers should not be concerned about getting a fair price at this time, according to Stevens. He says, "If abuses have in fact occurred in the past, the current investigation has caused so much anxiety among pit traders that they are handling current trades as fairly as possible."

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AEA,CEO,V1,V2,V4,A1 NAGR2902

News and Information

February 16, 1989

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

Source: Ray Arthaud
612/624-9791
Writer: Joseph Kurtz
612/625-3168

BEEF HERDS NEED VITAMIN A

Conditions that result in vitamin A deficiency are present in many Minnesota beef herds this winter as the calving season approaches. Cow-calf producers should make sure their breeding stock is getting enough vitamin A, says Ray Arthaud, extension beef specialist at the University of Minnesota.

"Feedstuffs do not contain vitamin A," Arthaud explains. "They may contain carotenoids or other compounds that an animal's body can convert to vitamin A. Cattle can store vitamin A in their liver and body fat. Under normal conditions they store enough to be protected from deficiency for two to four months."

Arthaud says drought-stricken pastures and poor-quality forages are usually low in the compounds that provide cattle with vitamin A. "Even good-quality hay may not provide enough vitamin A after it has been stored for several months," he adds.

Pregnant cows require 20,000-30,000 I.U. of vitamin A per head per day, according to Arthaud. During lactation, the requirement increases to 35,000-40,000 I.U., depending on a cow's size and milk production.

Signs of vitamin A deficiency include reduced feed intake, rough

hair coat, edema of the joints and brisket and "watery" eyes. Symptoms are more severe with advanced deficiency. However, an animal may have suffered considerable harm before any symptoms become noticeable.

"The worst damage may be to the fetus and newborn calf," says Arthaud. "Calves from a vitamin A deficient cow may be blind, weak, susceptible to disease, or have a variety of other problems."

The U of M specialist says most commercial protein supplements (cubes, blocks, licks, etc.) provide enough vitamin A if cattle get them at or near recommended levels. Cattle not receiving such supplements need to get vitamin A in some other way.

"You can provide vitamin A by injection, but this requires handling the cattle, which is stressful," says Arthaud. "When you observe vitamin A deficiency or are handling the cattle for other reasons, injection of vitamin A is a good option. A single injection of 2 million to 4 million I.U. will probably 'carry' a cow until pasture is available."

You can also add vitamin A to the salt or salt-mineral mixture. However, don't mix too much at one time. After a few weeks in the mix, some of the vitamin A may be lost, says Arthaud.

"Cows will eat 1.5 to 3 pounds of salt per month," Arthaud points out. "If you add 400,000-500,000 I.U. of vitamin A to each pound of salt to be fed until pasture season, the needs of the cows should be met."

# # #

AEA,BSS,CEO,V2,V3,A2 NAGR2907

News
and
Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

February 23, 1988

Source: Robert Busch
612/625-1975
Writer: Sam Brungardt
612/625-6797

U OF M, USDA RELEASE 2 SEMIDWARF WHEAT VARIETIES

The University of Minnesota's Agricultural Experiment Station and the U.S. Department of Agriculture have released Vance and Minnpro, two semidwarf hard red spring wheat varieties.

Vance is notable for its high yields while Minnpro excels in protein content, says Robert Busch, USDA-Agricultural Research Service wheat geneticist who heads the experiment station's wheat improvement program.

Although certified seed producers can buy foundation seed of Vance and Minnpro this spring from the Minnesota Crop Improvement Association, seed will not be available to farmers for general production until the winter of 1989-90.

Both Vance and Minnpro are awned, midseason varieties that mature with Wheaton, or one day earlier than Marshall. Busch says they exemplify the improvements that have been made in protein content, yield and agronomic traits since the Minnesota Agricultural Experiment Station introduced Era, its first semidwarf variety, in 1970. Minnesota wheat producers should also receive credit, he says, because they have helped fund the

breeding program through a checkoff administered by the Minnesota Wheat Research and Promotion Council.

Although Vance (which was tested as MN 32354) grows 1 inch taller than Marshall, it has excellent resistance to lodging. Its protein content is 0.5 percent higher than that of Marshall (Minnesota's most grown wheat) and slightly higher than that of Stoa. Busch says Vance may eventually replace Stoa (the state's second most grown wheat): "It can compete with Stoa protein-wise and it's less likely to go down because of its stiff straw, making it easier to harvest and manage."

Vance is resistant to leaf rust and stem rust, tolerant to loose smut and moderately tolerant to leaf spotting diseases.

In tests at 20 locations across Minnesota during 1986 through 1988, Vance's average yield was 38 bushels an acre (similar to that of Marshall) and its mean test weight was 59 pounds per bushel. In southern Minnesota, Vance's yields averaged 35 bushels; in northern Minnesota, 45 bushels.

In regional trials in eight states and Manitoba over the past three years, Vance's mean yield was 41 bushels per acre and its mean test weight was 58 pounds per bushel.

Minnpro, Busch says, is for farmers who want to grow a wheat for which they will be paid a premium. With a protein content and overall quality comparable to Chris, Minnpro is higher in protein than any other variety recommended for Minnesota.

Busch says, "The introduction of Minnpro gives farmers the alternative of growing a semidwarf, high-protein wheat with medium

to high yields. Except for 1988, Minnesota farmers have received a premium for protein in recent years. A premium's generally paid for wheat that has more than 14 percent protein, and that should frequently be the case with Minnpro."

According to Busch, Minnpro yields about as well as Era--more than Len but less than Marshall. In trials across Minnesota, Minnpro (which was tested as MN 81110) averaged 35 bushels an acre. Mean yields in the southern part of the state were 33 bushels; in the northern part, 39 bushels. Mean test weight for the 20 Minnesota locations was 58 pounds per bushel.

Minnpro also grows about 1 inch taller than Marshall, but is not as resistant to lodging. It has excellent resistance to leaf and stem rust, but is moderately susceptible to loose smut. It is similar to Wheaton in its susceptibility to scab, and it has good tolerance to leaf spotting.

In regional trials over the past three years, Minnpro yielded an average of 37 bushels and had a mean test weight of 56 pounds.

# # #

AEA,BSS,CEO,F1,V1 NAGR2908

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

February 23, 1989

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

DROUGHT PROMPTS MORE USE OF SOIL NITRATE TEST

The 1988 drought has prompted more farmers to use the soil nitrate test to measure carryover nitrogen.

Some western Minnesota farmers found more carryover nitrogen than they expected. But can you believe the high tests? And will high amounts of carryover nitrogen found last fall be there this spring?

The answer should be yes to both questions, says George Rehm, soils specialist with the University of Minnesota's Extension Service. Soil samples taken last fall showed carryover nitrogen amounts were higher than usual--especially for fields planted to small grains in 1988.

"The carryover nitrogen found last fall will still be in the root zone this spring," Rehm says. "You can lose carryover nitrogen by either leaching or denitrification, but both require high amounts of soil moisture.

"The subsoil in western Minnesota has not recharged and can absorb large amounts of rainfall before becoming saturated. So there's only a minor risk of losing any carryover nitrogen found last fall."

Farmers can still take soil samples this spring to measure nitrogen carryover. "You may be surprised at the results," Rehm says.

Details on soil nitrate tests are available from county extension offices, fertilizer dealers and consultants.

The soil nitrate test is only appropriate for western Minnesota, Rehm says. "This test is not reliable with sandy soils and has not been proven in south central and southeastern Minnesota," he adds.

# # #

AEA,BSS,CEO,V1,F1 NAGR2911

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

February 23, 1989

Source: Jerry Fruin
612/625-8720
Writer: Pam Barnard
612/625-4730

RECYCLING MAY NOT ADDRESS POLLUTION CONCERN

Trash used to be a simple thing. Not so in today's age of high technology and consumerism. Batteries with lithium and cadmium, motor oil, pesticides, solvents and household cleaning solutions are just some of the things that pose significant health risks when not disposed of properly. And according to Jerry Fruin, extension economist, University of Minnesota, recycling may even be increasing the environmental impact of hazardous wastes.

Fruin praises recent efforts by many communities to develop regular weekly or monthly recycling programs. But he also notes that the smaller amounts of inert materials going to landfills means there are higher concentrations of hazardous materials at our waste sites.

"If we bury aluminum, plastic, glass or newspaper it decomposes very slowly, but has little or no impact now or in the future on the environment," he says. "It doesn't poison the groundwater, for example. What does happen is that by removing newspapers and containers from the waste stream, the dangerous stuff is more concentrated than it was before."

To help alleviate some of the hazardous waste problem, Fruin says he would like to see deposit systems set up for hazardous materials like batteries, and for the containers from a variety of household chemicals. "Other things aren't really going to hurt us in society, but a little lithium battery (used in hearing aids, for example) really has the potential in the long run to be dangerous."

Fruin says a system needs to be set up to make it worth the consumer's time and energy to bring the most hazardous items, such as batteries, back to their points of purchase. Then the items can be returned to manufacturers for recovery of any valuable materials that remain in the used product. And after that the items can be disposed of properly.

He suggests, for example, that "a $5 or $10 deposit on these sorts of batteries might encourage the development of channels that would allow an effective recycling program to work."

Another barrier to effective recycling in the past has been cumbersome regulation of recycling firms. Fruin notes that in 1980, almost 95 percent of the car batteries in the country were being recycled. But stricter regulations on handling used lead acid batteries, along with depressed lead prices, have caused many businesses to stop handling them.

Battery recycling dropped to around 65% in 1984. It has remained below 80%, despite leveling off of lead prices. The rest may have ended in our landfills.

With incineration becoming more popular for waste-disposal, we may be forced to pay proper attention to hazardous waste, says Fruin. "If we're going to tell people that the air from the incinerator is safe, we have to have good control over what we're burning. I think it is going to take that sort of technological movement before we start to wrestle with the important issue of hazardous waste."

# # #

AEA,BSS,CEO,V4,V7,V8,R NHEC2910

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

February 23, 1989

Source: John J. Waelti
612/625-7737
Writer: Pam Barnard
612/625-4730

U OF M ECONOMIST: NO EASY OUT FROM DEFICITS, DILEMMAS

"An actual balanced federal budget is neither necessary, desirable nor feasible at this time," writes John Waelti, University of Minnesota extension economist, in the December issue of "Minnesota Agricultural Economist."

Taken out of context, this might sound like a radical theory. However, Waelti's point is that the United States needs to move toward a structurally balanced budget, without clouding the issue with political rhetoric on how to balance the current budget.

Waelti notes that despite high employment, low inflation and good corporate profits, "many suspect that not all is as well as it seems. One can point to regional disparities in income--the nation's interior lagging behind the coasts, loss of manufacturing jobs, low incomes in agriculture, and the continuing decline of many small towns in the nation's heartland."

Other signs of trouble include the problems some of the nation's financial institutions are having, high federal budget deficits and continuing trade deficits, low levels of national saving and a high level of private as well as public debt.

According to Waelti, the near panic of the stock market crisis in October 1987 was partially due to the prospect that as the U.S. economy moved toward full employment, budget deficits were also continuing to increase. This was creating the impression of an economy out of control. "Getting budget deficits under control, not eliminating them, is fundamental to restoring confidence in the ability of the U.S. to manage its economy," says Waelti.

To do this, tough decisions need to be made. Waelti says the "options are few and unpleasant, and generally point to higher federal taxes." He sees some options for reducing the trade deficit (such as expanding U.S. exports relative to imports) offering long-run possibilities, although they do not "relieve the Congress and the new president of making extremely difficult decisions by mid-'89 at the very latest." A tighter fiscal policy would have the salutary effect of reducing the trade deficit, in addition to reducing the budget deficit.

Waelti adds, "The realities of the American political system are such that leadership for difficult national choices, such as tax increases and cuts in government expenditures, must emanate from the White House." If the new administration does not "impose the required fiscal discipline," we risk the discipline being "imposed from without, by forces over which we have less control." The result of this could be the continued erosion of U.S. economic leadership by its "tough, and apparently more disciplined, competitors."

Copies of the December 1988 issue (No. 656) of "Minnesota Agricultural Economist" are available by writing Waite Library, 232 Classroom-Office Building, 1994 Buford Ave., University of Minnesota, St. Paul, MN 55108. The February 1989 (No. 657) issue is also available and features a discussion of the Uruguay Round Negotiations and agricultural trade. The March issue will feature Minnesota's rural real estate in 1988.

# # #

AEA,BSS,CEO,A1,V2,V3,V4,V8 NAGR2912

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
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March 2, 1989

Source: Wanda Olson
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Writer: Jennifer Obst
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Editors: To obtain a b/w print or 35mm color transparency to use with this story, call Carl Walker at (612) 624-3708.

THE WRONG KITCHEN EXHAUST CAN COST

If you can't take the heat, get out of the kitchen...or, get a good kitchen exhaust system. That's what Wanda Olson, a housing design researcher for the University of Minnesota's Agricultural Experiment Station, says.

A kitchen range exhaust system eliminates excessive cooking moisture that encourages mold and mildew in the home. And, range exhausts remove cooking contaminants from the air and greatly improve air quality. But, says Olson, some exhaust systems work better than others and some require more energy for the same effect.

Popular downdraft units make possible a cooking island without an overhead hood. But they are not as effective as overhead units. And, Olson says, because they require a higher air flow rate, they use more energy.

Olson recently collaborated on a videotape that illustrates the testing of several types of kitchen range exhausts. The testing was done by Jim Ramsey and Tom Kuehn, researchers with the

university's Department of Mechanical Engineering.

The researchers tested several wall-mounted overhead hoods, a microwave hood, island hood and three types of downdraft units with different locations of exhaust grill. They looked at how effectively the units captured cooking contaminants and at air flow rates, which depend on the size and length of duct work. Olson looks at kitchen ventilation as part of a whole house system. She points out that cooking exhaust fans put stress on that system. In older, leaky homes, enough fresh air circulates to compensate for air exhaust.

"But," she says, "in new, more tightly built homes, these large kitchen fans can be the largest exhaust fans in the house, and create the need for more fresh air. You have to have a special duct to bring in air, and you may have to heat that air. So, we need to look at capturing the contaminants with the lowest air flow." Capturing cooking contaminants is especially important, Olson adds, for air quality in newer, tighter homes.

Downdraft units are quite good at eliminating cooking steam and contaminants from grilling and frying in low pans, but are not as effective with high pan boiling. Island hoods need a higher air flow rate due to crossdrafts. Downdraft units need a higher flow rate to overcome thermal buoyancy and they take more energy.

Kuehn says, "The range exhaust system that seemed to work the best was the standard overhead wall-mounted hood. The choice will be a tradeoff between esthetic appeal and performance."

Information from the tests should be useful not only to

consumers, but to the kitchen appliance industry, kitchendesigners and general contractors.

Olson says the best system takes into account the air quality needs of the whole house, and uses the least energy to do the job. "If for whatever reason you don't want to choose the lowest air filter, then you have to make sure you are matching make-up air with your range exhaust system to have a safe system," she says.

# # #

CEO,BSS,E3,I3,I4 NHEC2916

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
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March 6, 1989

Sources: Alan Ek
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Editors: Call Carl Walker (612/624-3708) to obtain a b/w print or 35mm color transparency to use with this feature.

TIMBERRR! WILL MINNESOTA HAVE ENOUGH?

Minnesota's forest industry is large. In 1988, it generated about $4 billion in sales and employed more than 52,000 people, who, in turn, provided employment for nearly 127,000 more.

The industry is diverse. Pulp and printing-grade paper account for two-thirds of the receipts from basic forest products, but bolts, board, lumber, logs, fuelwood, specialty products and Christmas greenery are also important. The economic contribution of secondary manufacturing (such as producing furniture, fixtures and paper products) is twice that of all basic forest products combined.

The industry is also growing. During the 10 years before 1987, $911 million was invested for expansion and improvements. Since then, companies have announced plans to invest almost $1.43 billion more.

Although this will mean that considerably more timber will be

harvested than in recent years, not all industry expansion calls for more trees to be harvested. Alan Ek, head of the University of Minnesota's Department of Forest Resources, and Jim Bowyer, head of its Department of Forest Products, point out that processing technology is improving and more species and parts of trees are being used more efficiently.

Still, is Minnesota's forest industry outpacing the state's ability to produce the raw materials it needs?

The experts agree that, except for aspen, supply is expected to meet demand. Ek says, "Though there is some disagreement about the adequacy of aspen reserves in Minnesota, it appears that supplies will be limited some time in the future unless there is a marked improvement in current growth rates."

This, he explains, is because the acreage of aspen near maturity is greater than the acreage of young stands. "Assuming consumption by present and planned industrial installations, it looks as though there may be a window of time when there will not be enough aspen to maintain favorable pricing--beginning about 2010 to 2020 and continuing for 10 to 15 years," Ek says. Then, industry will have to consider using other species, at least until more of the aspen matures. "Once overmature stands are replaced with young, more vigorous ones, aspen will likely be more abundant than ever," Ek adds.

The size and type of forest industry that Minnesota will be able to support in the future will be determined largely by what land managers do now, the researchers say. Harvesting aspen today

is the single most effective way to insure supplies in the future, Ek points out. Also, increased harvesting of other species can increase the supply of aspen in areas where it is a minor component of forest cover.

Ek and Bowyer say many factors are already having an influence on Minnesota's timber supply, or could in the future:

--Per-acre yields will increase due to the increasing availability of genetically improved planting stock, and bioengineering will figure significantly in this. Improved site preparations and weed control practices will also improve stand establishment success and productivity.

--The public will continue to value abundant wildlife, and water resources and forests will have to be managed with sensitivity to this. "Through research, we are seeking timber management practices that are compatible with other forest uses," Ek says.

--New technologies will allow fuller use of raw material harvested or of species not being used now. "For example," Bowyer says, "we've worked out a way here to substitute birch for 15 percent of the aspen in waferboard and other composite panels. This is one way that the projected aspen shortfall will be avoided."

--New technologies will create new markets. "Engineered" products, such as parallel strand lumber, laminated veneer lumber and wooden I-beams, will compete increasingly with solid wood and even steel building materials. These products are stronger than

solid-wood products, can be made in large cross-sectional dimensions from small-diameter trees, can be made in any length and do not vary in their strength and other properties.

"The United States is on the verge of a major wood chemical industry--plastics, resins, all kinds of things made from wood," Bowyer predicts. "One firm in Michigan, for example, is experimenting with wood-nonwood composites to use in external and internal auto parts." Experimental Corvette door panels have been produced that are 62 percent wood fiber, 12 percent three-denier Orlon and 26 percent phenolic resin.

--New technologies will also address environmental concerns. It may be possible to conserve petroleum by using lignin to make industrial plastics; to save energy by using biodeterioration to pulp wood; and to eliminate the production of dioxins and other hazardous or polluting substances by using fungi to bleach pulp. Vigorously growing forests may also play a role in ameliorating atmospheric carbon dioxide increases and global warming.

The extent to which Minnesota's forest industry will remain competitive with other states and regions depends largely on the industry's willingness to continue to invest in new technology and the state's dedication to a strong forest management program.

"There is also a real need for public education," Bowyer says. "For example, people need to learn that commercial forestry and tourism can be very compatible activities and land uses. Timber management can maintain the forest cover types and wildlife habitat that is important to tourism.

"Realistically, some lands will be reserved mainly for single uses, for example, as wilderness, park, wildlife or recreation areas. However, much of our land base can be managed for timber and still provide for other uses and benefits, especially wildlife and recreation. In many cases, the areas that were hunting, picnic and hiking grounds of yesterday can be the timber harvest zones of today, and recreational areas again in a few decades."

# # #

AEA,BSS,CEO,E1,H3,H4,R NNRD2924

News and Information

Educational Development System
Minnesota Extension Service
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March 6, 1989

Source: George Rehm
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Writer: Jack Sperbeck
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PRECISION FERTILIZER PLACEMENT MAY BOOST CORN YIELDS

Potassium-deficient corn in ridge-till planting systems doesn't have to be a problem in 1989. Precision fertilizer placement may help solve a common problem in many fields where ridge-till planting systems were used last summer.

Although soil test values for potassium were medium to high in these fields, young corn plants still showed potassium deficiency symptoms. There was an ample supply of potassium in the soil. But due to dry soil and compaction, the potassium was not absorbed or taken up fast enough to meet the demands of the young crop.

"Applying small amounts of potassium in a band near the seed should solve the problem," says George Rehm, soils specialist with the University of Minnesota's Extension Service. For soils with a medium to high soil test value for K, 10 to 20 pounds of potash per acre should be adequate. Higher rates will be needed as soil test values go lower.

Applying banded or starter fertilizer at planting time has frequently been a problem for farmers who use the ridge-till planting system for corn. But recent advances in application

equipment should help, Rehm says.

Equipment should be adjusted so the starter containing potash is not applied with the seed. According to Rehm, "A precision placed band somewhere below and to the side of the seed is ideal."

# # #

AEA,BSS,CEO,V1,F1 NAGR2919

News
and
Information

Educational Development System
Minnesota Extension Service
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March 6, 1989

Source: Dale Haggard
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MOST COWS CAN CALVE WITHOUT ASSISTANCE

Spring's the time when most new calves arrive in Minnesota beef herds. While most cows can give birth without assistance, calving difficulty and calf losses are more common with heifers having their first calf.

"Recognizing a normal calving is just as important as knowing when a calving is abnormal," says Dale Haggard, University of Minnesota extension veterinarian. "Applying traction to a calf too early, before natural dilation of the birth tract occurs, may injure the cow and injure or kill the calf."

Haggard says the best advice is to allow the cow to complete the birth by herself, but only if the calf is in the normal presentation position.

The veterinarian says there is a danger in interfering with the birth process too soon: "During the initial stage of labor, cervical enlargement depends entirely on the water bag pressure. Any premature interference might lead to rupture of the water bag, retarding the cervical enlargement and setting back the birth process."

Haggard says a cattleman and his veterinarian should have a plan for handling calf delivery problems. The cattleman can handle some problems himself, but should call in professional help for others.

"Proper animal restraint and strict sanitation are absolutely essential," says Haggard. "Then, you must diagnose and recognize the problem. Know when you are making progress and should continue as well as when you are not and should call for help. A good guideline to follow is to call for professional help when there has been little or no progress after you have worked a half-hour or more."

# # #

AEA,BSS,CEO,A2,V1,V2,V3 NAGR2923

News and Information

Educational Development System
Minnesota Extension Service
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March 9, 1989

Source: Willis Peterson
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U OF M ECONOMIST SAYS SALES TAX COULD REPLACE INCOME TAXES

It's that time of year when an alternative to the personal income tax sounds so appealing. What if those forms just went away?

What could raise the revenue with less wrangling? Filling out the forms (despite the yearly hype that it's getting easier) is almost worse than paying the tax.

"There are almost as many ways to earn income as there are people. In many instances there is no clear-cut answer as to what constitutes taxable income," says Willis Peterson, professor of agricultural and applied economics at the University of Minnesota.

Peterson's suggestion: a 12 percent sales tax levied on all consumer and investment goods and services sold in the United States. Peterson says, "In 1988, this would have raised about the same revenue as the federal personal and corporate income taxes combined. This low, 12 percent rate (compared with the 33 percent maximum income tax rate in 1988) wouldn't overburden most individuals and firms."

A national sales tax is not a gimmick to either raise or lower taxes, but a simpler, more efficient and fairer way to operate the tax system while achieving socially desirable results, Peterson believes.

For states with income taxes, in 1988 an additional 2 percent broad- based sales tax tacked on to the national sales tax would have raised about the same revenue as the combined state income taxes.

Peterson sees this national sales tax as relatively simple to enact and administer (the Internal Revenue Service could merely convert its operation to this system).

First, Peterson says, the tax would only be levied on final goods and services--items not for resale. Sales of raw materials and goods to be further processed would not be taxed. Durable goods, such as cars and machinery, would not be taxed when sold if they had been previously used. Each item would be taxed once. Housing and commercial property would be treated the same way. During a transition time, items purchased before the tax probably should be taxed once when sold second hand the first time. To account for inflation, real estate would be taxed on the excess of the sales price over the purchase price plus improvements after the initial sale. Contrary to what people may think, sales tax is not paid entirely by the buyer now. Sellers pay a part as a decrease in the net, after-tax price received. A 14 percent combined federal and state sales tax would, therefore, not increase prices 14 percent, more likely 8 to 10 percent. "People

would have more take-home pay, so the higher prices would not make them worse off," Peterson says. "Also, the price increase would be a one-time thing, not inflationary."

With the sales tax, gone would be the complexities, anxieties and much of the expensive paperwork of the income tax. Taxpayers would be paying the tax of their own free will each time they made a purchase. It would not be today's income tax intimidation of paying or jailing.

Peterson says it would also encourage savings and have the resulting effect of lowering interest rates and stimulating investment. With the present income tax, savings are taxed three times: First, when the saved money is earned; second, when corporations pay the corporate income tax on earnings of equity capital; and third, when taxpayers receive interest and dividends obtained from savings. The income tax encourages consumer borrowing because some interest can be deducted from taxable income--this adds to the concern over low rates of saving and large amounts of outstanding debt from borrowing.

Peterson says a sales tax such as he proposes could also reach into the profits of the illegal drug industry and income legally hidden by loopholes of the income tax law. Profits of the drug industry would be taxed when spent.

On another level, it would put to rest the distrust Americans have of the income tax system itself. "There is a nagging suspicion that if one can afford a good tax lawyer, ways can be found to reduce one's tax bill as is done by large corporations

and the super-rich," Peterson says. With a sales tax, business firms could turn their attention to producing--rather than looking for ways to reduce their taxes.

Profits earned by foreign companies on goods coming into the United States would be taxed. Virtually all U.S. goods going to other countries are now subject to relatively high excise and sales taxes.

What about the poor--wouldn't this be damaging to them? Because low-income people tend to spend a larger proportion of their income than those with higher incomes, sales taxes are thought to be a greater relative burden on the poor. "This income distribution problem can be overcome by refunding all or part of the estimated taxes paid by low-income people on a graduated scale. Further adjustments to the income distribution can be made by issuing commodity-specific money, such as food, clothing and shelter stamps, to those in need," Peterson concludes.

# # #

AEA,BSS,CEO,E6,V4,V7,V8,SelMedia NHEC2928

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
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March 9, 1989

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Editor: Sam Brungardt
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Editors: Call Carl Walker (612/624-=3708) to obtain a b/w print or 35mm color slide to use with this feature.

SOIL CONSERVATION PIONEER HAS SEEN THE HORIZON CHANGE

Bill Larson and the soil conservation movement grew up together. During his long career as a soil scientist, Larson saw the zeal for soil conservation grow, diminish and finally rise again. Through it all, he and his colleagues kept up the research that's now paying off for the environment.

Larson, who recently retired as head of the University of Minnesota's Department of Soil Science, was a farm boy in eastern Nebraska during the devastating drought years of the 1930s, the effects of which spurred the soil conservation movement.

"Wind and water erosion were rampant then," Larson recalls. "Creeks went dry, ponds went dry; it was really tough."

Larson had to work his way through college. A job helping a soils professor lead him to specialize in the relatively new field of soil science. He worked in Montana and Iowa before landing at the University of Minnesota 22 years ago, attached to USDA's Agricultural Research Service. Seven years ago, he joined the faculty, and some of his research is funded by the university's Agricultural Experiment Station.

As Larson was starting his career, President Franklin D. Roosevelt inaugurated the first government set-aside program to encourage soil conservation. Programs of one sort or another have been running ever since.

"Most programs weren't very effective," says Larson, "because they let the farmers choose what land they wanted to put in the program. The choice was usually made on economic grounds, not conservation."

Current reserve programs, including the Reinvest in Minnesota (RIM) program (which Larson helped design), use guidelines obtained from soils research to determine which lands should be enrolled.

Soil conservation was just getting established when World War II broke out. Then, Larson notes, the emphasis quickly switched from conservation to production. The production orientation continued in the postwar years. Low-cost fertilizers, aided by soil fertility studies, boosted production enormously. Before World War II, Larson notes, the average per acre corn yield was 40 bushels; now the average--thanks to hybrid seed, soil research, fertilizers and pesticides--is 115 bushels.

During the production phase, Larson says, "they kind of forgot about conservation, but we kept onn with our research."

Production was increasing, but cropland acreage was decreasing, due in part to erosion caused by weather and to poor management. In the early thirties, there were more than 500 million acres of cropland in the United States; now there are 420

million. "Much of the Cotton Belt in the Southeast has gone back to trees and pasture, mostly due to erosion and other land abuse," Larson says.

But even 420 million acres may be too much. Larson notes, "About 10 percent of that total should be taken out of production, either because it's low quality or because it's prone to erosion." And, he says, about 2.3 million of Minnesota's 23 million acres of cropland should be enrolled in RIM. These acres are nonproductive and subject to erosion.

Larson praises Minnesota's RIM program, which is separate from the federally sponsored Conservation Reserve Program. RIM's aim is to control soil erosion, improve water quality and enhance wildlife habitat. Says Larson, "RIM is an excellent example of how agricultural and environmental people got together and supported a conservation program."

Larson says that although several million acres of Minnesota's cropland have been lost since the 1930s, the rate is declining due partly to the increasing use of conservation tillage and because growers are retiring unsuitable land.

University of Minnesota soil scientists continue to add to growers' knowledge of their land's fertility and productivity possibilities by a project to produce detailed, computerized soil maps of all Minnesota counties. This huge task is complicated by the fact that Minnesota has 600 distinct soil types. Mapping has been done in most of the counties and 23 of them have now been computerized.

The maps enable growers to "farm by soil," tailoring fertilizer, pesticide and tillage treatments to soil types. This custom treatment can cut production costs and minimize leaching.

Larson predicts that "future land use in general will be much more site specific. Information from soils surveys can be used in siting sewage systems and housing developments, for instance."

Larson's research has also benefited urban dwellers. Municipalities have used what has been learned from research on using sewage sludge and on composting. Current research includes measuring how fast biodegradable sacks, made from standard plastics and cornstarch, decompose in the soil.

Larson is modest about his role in soils research, but happy that conservation is ascendant again. "We feel we've made some progress," he says. "It's certainly an educational process, but we think we can contribute, not only in agriculture, but for the population at large."

# # #

AEA,BSS,CEO,C,R,V1 NAGR2925

News and Information

Educational Development System
Minnesota Extension Service
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March 9, 1989

Source: Jerry Hammond
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Editors: Call Carl Walker (612/624-3708) to obtain a b/w print or 35mm color slide to use with this story.

NEW FORMULA DETERMINES FAIRER PRICE FOR MILK

Over 30 percent of the milk produced in Minnesota goes to cheese production, and the price farmers receive for that milk is based on long-established formulas derived from its butterfat content.

Jerry Hammond and Jay Coggins, agricultural economists who do research for the University of Minnesota's Agricultural Experiment Station, have determined a fairer formula for determining the value of milk used in the production of cheese. It takes into account all the components contained in the milk, not just butterfat.

Historically, the researchers say, the price paid for milk was established with little regard for variations in its nonfat or protein content, mainly because it was difficult to test for protein. Now, however, these fractions can be determined quite easily and inexpensively.

Hammond explains, "The base price is for milk with 3.5 percent butterfat, and the producer currently receives about 16 cents more per tenth of a point of butterfat above that or 16 cents less per tenth of a point below that."

However, other solids are also important in the production of cheese, so cheese plants have begun various schemes to figure nonfat solids or protein into their pricing formulas. Those schemes vary from state to state, the economists say.

"The problem has been to get a good measure of how that nonfat content changes the yield of cheese," Hammond says. The traditional formula was developed about 80 years ago, and it often is a poor representation of the cheese-milk component relationship.

Hammond and Coggins obtained data on cheddar cheese yield from several Minnesota plants for a two-year period. Hammond says, "The formulas that have been used are linear, which implies you can substitute fat and protein at a constant rate in producing cheese. It implies you could produce cheddar cheese with all fat and no protein or vice versa, and of course you can't."

Hammond and Coggins used the data to estimate the milk content-cheese yield relationship, and used this relationship to construct a pricing scheme for milk which more accurately reflects the value of the components in the milk.

"We used an estimated yield formula," Hammond says, "together with prices for cheese, butter and whey products, to determine what the value of milk would be, and we produced a table showing how pricing based on those yields would compare with the traditional fat-basis pricing plan. It shows that the traditional plan underprices high-fat milk for the producer and overprices low-fat milk."

The new formula pays dairy farmers more for higher quality raw material. But Hammond notes that the formula also benefits cheese producers. It can accurately predict yield in an individual plant. He says, "Suppose a plant was paying for milk with a certain fat content, but low nonfat solids. It's competing with a plant that buys milk with the same fat content milk, but higher protein. The two cheese plants pay the same price under the old scheme, but the first plant is losing. On the other hand, if they were paying according to what is in the milk, the plant with the lower solids would be paying less."

The pricing schedule is practical for cheese producers. Over time, Hammond sees it providing farmers with an incentive to adjust their production in favor of the more valuable milk components by breeding and feeding their cows for this purpose.

# # #

AEA,BSS,CEO,A1,D,H2,V1 NAGR2926

News and Information

Educational Development System
Minnesota Extension Service
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March 13, 1989

Source: George Rehm
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Writer: Jack Sperbeck
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OATS REQUIRE PLANNED FERTILIZER PROGRAM

You need a soil test and a planned fertilizer program to make oats a money-maker.

Current prices and government programs have stimulated considerable interest in oats, says George Rehm, soils specialist with the University of Minnesota Extension Service. An effective, yet efficient fertilizer program is the cornerstone for top management, he says.

Adequate nitrogen is essential for both grain and straw production. In western Minnesota, nitrogen rates for oats should be based on results of the soil nitrate test. "If fields weren't sampled last fall, make it a top priority this spring," Rehm says. Nitrogen recommendations for the rest of the state should be based on yield goal, cropping history and the soil's organic matter content.

Maturity may be delayed if phosphate fertilizers aren't used in recommended amounts where soil phosphorus tests are low to very low. And, oats are likely to lodge if inadequate amounts of

potash fertilizer are added where soil test levels for potassium are low to very low.

If you're not sure of soil needs for phosphate or potash, you can easily get recommendations from soil test results. There's plenty of time to take the sample this spring.

Micronutrients usually aren't needed for oats in Minnesota. Using sulfur at 10 to 25 pounds per acre may be profitable only where oats are grown on very sandy soils.

"Oats do not fit all farm enterprises. But if you're growing the crop in 1989, start a good management program with a soil test," Rehm advises.

# # #

AEA,BSS,CEO,FI,V1 NAGR2929

News and Information

Educational Development System
Minnesota Extension Service
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March 13, 1989

Source: Lance Buoen
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Editors: Call Carl Walker (612/624-3708) to obtain a b/w print or 35mm color transparency to use with this story.

SCIENTISTS HELPING TO ERADICATE GENETIC DEFECT FROM BEEF HERDS

A University of Minnesota veterinary biologist is working with beef cattle breeders to detect and eventually eliminate animals from their herds that carry a genetic defect that causes early embryo mortality.

The scientist, Lance Buoen, discovered the condition while testing heifer calves of male-female twins for infertility. In nine of ten such cases, the female twin will be infertile because blood has mixed between the two in early embryonic development. "So," Buoen explains, "a chromosome test is routinely done to check for male cells."

While running such a test, Buoen found evidence of a condition called "1/29 Robertsonian translocation," which is caused by fused chromosomes. It's thought the fusion occurred in continental European cattle in the Middle Ages.

Buoen says, "What happens is, because this chromosome does not split apart as it should, there are four of six potential

combinations of sperm and egg that are lethal. One too few chromosomes or one too many will create a genetically unbalanced embryo which will die a few weeks after implantation; the embryo is absorbed and the cow recycles. The infertility is therefore due to early embryonic loss.

"Research with affected cattle has shown an 18.5-day-longer calving-to-conception interval than in normal animals, thus requiring more inseminations to get a pregnancy."

Buoen says the condition causes a 5 to 10 percent reduction in herd fertility. He says, "Over the years, that adds up. But the problem can go undetected because the animals are not dropping dead in the fields as they would from an infectious agent."

Buoen was the first to discover the condition in the Charolais breed in the United States. "There hadn't been any interest in the 1/29 condition in the United States because it's very rare in a dairy breed and it hadn't yet been found in any beef breed," he says.

"The main reservoir of the condition now is European cattle," says veterinary biologist Alvin Weber, who conducts research for the Minnesota Agricultural Experiment Station. "The problem is well known there in a score of different breeds. But Europe has almost eradicated the problem over the last 20 years by testing and culling."

In North America, there's growing concern that serious consequences can result from the presence of undetected chromosomal aberrations in herds. Because of the increasing use

artificial insemination and embryo transfer, one affected bull can cause major problems.

"Norway had 10 percent of the animals of one of its breeds with the 1/29 condition, and all the cases came from the semen of one bull," Buoen says.

So far, Buoen has found the condition in about 20 percent of the Charolais bulls he has tested. But the problem is not evenly distributed. Fifty percent of one herd was affected, another not at all.

This has not been good news to some breeders. "If you have a $50,000 bull that's affected...the problem is how to get the testing program generally accepted, and not hurt the animal breeders and producers economically," Buoen says.

"There is a practical solution," Weber says. "A producer could have all the offspring from a bull checked as soon as they are born. If they test negative for the condition, the producer knows the bull can be used."

"A few producers have already done this," Buoen says. "They don't want to lose the genetic qualities that have been bred for generations into a prize bull, so they check all their animals. We try to keep the test cost down."

The condition has now been found in Charolais from five other states and from Canada. As a consequence, more and more producers are testing their cattle. "For example, I recently got a call from a Colorado auctioneer who had three animals to auction, and wanted to know if any were carriers. The president of the

Charolais association is working with us on this problem," Buoen says.

"We're working with a university agricultural economist to get the figures on what a carrier bull could cost a producer in lost fertility over the years. Without testing, the problem is not going to go away, it's going to get worse."

# # #

AEA,BSS,CEO,A2,N2,V1 NAGR2927

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 16, 1989

Source: Donna Scheffert
612/625-9255
Writer: Jack Sperbeck
612/625-1794

Editors: A list of Minnesota MI LEAD participants is at the end of this release for you to use in localizing it.

1 PERSON CAN MAKE DIFFERENCE WITH FEDERAL GOVERNMENT

Rural leaders from Minnesota and Iowa got a close look at how the federal government works during a special study tour in February in the nation's capital.

Public policy, agriculture and rural development was the topic for 21 Minnesotans and a similar-sized Iowa group who are participating in a two-year program called MI LEAD (Minnesota-Iowa Leadership Empowerment for Agricultural Development).

The group met with top officials in both government and private voluntary agencies, according to Donna Rae Scheffert, program coordinator with the Minnesota Extension Service. "Our people felt they were listened to and their input could make a difference," she says.

The group met with former Iowa Congressman Cooper Evans in his second day on the job as Special Assistant to the President on Agricultural Trade and Food Assistance. The session with Evans gave the group an early look at Bush Administration agricultural and rural development policies.

"The chief lobbyist for the proposed congressional pay raise discussed the lobbying process with the group on the evening the legislation was defeated,"

Scheffert says.

The rural leaders also spent a day on Capitol Hill meeting with Minnesota representatives, senators and staff members. They met with U.S. Department of Agriculture officials to discuss agricultural trade and credit issues, rural development policy and extension service national initiatives.

Programs also were held at the World Bank, the Morocco Embassy, the National Center for Food and Agricultural Policy and the Center for Creative Non-Violence (a shelter for the homeless).

Some group members were able to meet with the agricultural attache at the Soviet Embassy, and many had appointments with officials. "One member of the delegation had an appointment with a Texas congressman to discuss farm credit legislation. The congressman listened intently, asked questions and the 15-minute session went for over an hour," Scheffert says.

National security was also on the agenda. "We had an interesting session with a Justice Department official who's the nation's top spy-catcher. He narrated a video showing a prisoner exchange with the Soviet Union," Scheffert says.

The Washington trip was the third of four sessions organized as part of the MI LEAD program to develop leadership in rural communities. Participants spent a week at the University of Minnesota in 1988 studying leadership and public policy issues.

The second session was held in Ames, Iowa, last November. A fourth session is planned for next November. The program is designed to give participants a better understanding of agricultural and rural development issues and how to influence decision-making at the local, state and national levels.

# # #

MINNESOTA MI LEAD PARTICIPANTS

Carver County		
Carol Molnau 495 Pioneer Trail Chaska, MN 55318	(612) 448-3513	Dairy & crop farmer
Joel Vinkemeier 6685 Union Ave. Mayer, MN 55360	(612) 657-2121	Grain farmer
Chippewa County		
Galen Rud R.R. 2, Box 72 Montevideo, MN 56265	(612) 269-7044	Grain farmer/computer operator
Dakota County		
LaVonne Nicolai 1016 Fourth St. Farmington, MN 55024	(612) 463-8726	Ag. lender/Bank vice pres./ Cash crop farmer
Dodge County		
Mark Moenning Rt. 2, Box 183 Dodge Center, MN 55927	(507) 374-2740	Hog, beef & corn farmer
Goodhue County		
Curtis Schrimpf R.R. 3, Box 6 Goodhue, MN 55027	(612) 923-4821	Dairy farmer
Grant County		
Alan J. Brutlag R.R. 1, Box 41 Wendell, MN 56590	(218) 458-2114	Cash crop farmer/Shortline Equipment sales & service
Lac Qui Parle County		
Jeffrey Olson R.R. 2, Box 70 Madison, MN 56256	(612) 752-4422	Cash grain & hog farmer
Martin County		
John Bohnker 517 Independence Drive Fairmont, MN 56031	(507) 235-3587	Agricultural extension agent
Michael Mulder P.O. Box 101 Trimont, MN 56176	(507) 639-3781	Ag. loan officer/Development

Nicollet County

Judy Hanson Rt. 3, Box 32A St. Peter, MN 56082	(507) 246-5388	Crop & livestock farmer, Free-lance writer

Norman County

Ronald Johnson 508 E. Second Ave. Ada, MN 56510	(218) 784-4319	City clerk

Otter Tail County

Jonathan Piekarski 611 First Ave. N. Fergus Falls, MN 56537	(218) 739-2908	Cash grain farmer

Ramsey County

Patricia J. Brand 760 Larson Court Shoreview, MN 55126	(612) 483-1367	St. Paul Area Farmers Market manager/Beekeeper

Redwood County

Dennis Fultz R.R. 2, Box 177A Tracy, MN 56175	(507) 629-3564	Hog operation/Corn & soybean farmer

Todd County

Rebecca Sellnow P.O. Box 155 Bertha, MN 56437	(218) 924-2881	Business developer/Petroleum plant-convenience store-car wash-laundromat

Traverse County

Marcie Conroy Rt. 2, Box 2 Wheaton, MN 56296	(612) 563-8688	Garden-lawn center landscape design/Grain farmer

Wabasha County

Edward Zabel R.R. 1, Box 119 Plainview, MN 55964	(507) 534-2487	Dairy & crop farmer/Seed production & marketing

Yellow Medicine County

Scott Beukelman 709 St. Olaf Ave. N. Canby, MN 56230	(507) 223-7712	Farmers Co-op Assn. general manager
Curtis Eischens R.R. 1, Box 59 Minneota, MN 56264	(507) 224-2212	Feeder cattleman/ Grocery-hardware- feed business owner-manager

News
and
Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 16, 1989

Source: Les B. Hansen
612/624-2277
Writer: Joseph Kurtz
612/625-3168

PRIORITIZE TRAITS WHEN SELECTING DAIRY BULLS

Dairy producers should generally disregard all but a few high-priority traits when choosing bulls in artificial insemination (AI) programs.

That's the conclusion of Les B. Hansen, a University of Minnesota animal scientist who does research on dairy cattle breeding for the Minnesota Agricultural Experiment Station.

"As more traits are considered for genetic selection, the less progress can be expected for each," says Hansen. "Common sense says that selecting for just one trait, such as production, will result in more improvement for that trait than selecting for numerous traits at the same time."

Hansen says the importance of production for evaluating dairy cattle is overwhelming, since the milk check pays the bills. "We've increased genetic potential for annual milk production about 1 ton per cow over the last decade," he points out. "About 85 percent of this improvement has been through selection of AI sires."

Hansen is involved in research to evaluate the importance of

selecting bulls for traits other than ability to sire high-producing daughters. Some of these traits are solids content of milk, calving ease, nonreturn (conception) rates for bulls, fertility of cows, digestive disorders, mastitis resistance, milking speed, temperament and type.

Solids content of milk is receiving increasing attention in the dairy industry. However, total milk volume is still the critical factor under the present pricing system, according to Hansen.

The scientist says selecting bulls on the basis of calving ease is not justified in most situations. "A dairy producer normally should select a group of AI bulls to use in the herd," he says. "Among the bulls in this group, some should happen to sire calves that are born with ease. The sires with this trait can be mated to first-calf heifers."

Hansen says many producers overemphasize cow size in their genetics programs. "Don't select for size," he advises. "Big cows are more prone to health problems and more costly to maintain. Let the cow's production tell you what her size needs to be."

Scrutinizing AI bulls for the udder depth, teat placement and perhaps rear udders of their daughters probably is justified, according to Hansen. However, the value of other type traits that do not influence the survival of cows is questionable, he adds.

Hansen says high production, conception rates and semen prices often deserve consideration in sire selection. "Start at the top of bull rankings for production, then look at the other factors," he concludes.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 16, 1989

Source: Bob Appleman
612/624-4995
Writer: Joseph Kurtz
612/625-3168

EUROPEANS SEEK TO AUTOMATE MILKING

Is it possible to milk cows successfully with robots? Some European dairy scientists think so, according to Bob Appleman, extension dairy specialist at the University of Minnesota.

Appleman spent three months in Europe in 1988 studying dairy operations and exchanging ideas with scientists. He says European researchers are seeking to automate the entire milking process by developing the necessary equipment and management practices.

"Their research has several objectives," says Appleman. "They want to lower the cost of producing milk, improve the working conditions of dairy farmers, improve animal welfare, improve milk quality and provide better protection for the environment."

In one European study, cows voluntarily came to a simulated robotic system to be milked several times a day at varying time intervals. Some of the findings from this study are:

--Cows will voluntarily approach a milking stall from four to seven times daily when they are offered a grain mix.

--Cows will be milked an average of four times daily.

--Cows produce more milk when milked more frequently. This is particularly true for high-producing cows.

--Milk yield and total protein production isn't particularly affected by variable milking intervals. However, fat production surpasses expectation when the milking interval is less than six hours and is less than expected when the interval exceeds seven hours.

--Cows milked several times a day at varying intervals did not differ significantly from those milked twice a day in reproductive performance, incidence of mastitis, somatic cell count or teat health.

Appleman says the Europeans have not solved all the technical problems involved in milking with robots. "The greatest challenges appear to be in the robot locating the teat, washing the udder for milking, and cleaning and sanitizing the entire milk transfer system during periods when no milk is flowing in the system," he says.

Cost estimates for a robotic milking system for a 60-cow herd range above $100,000, according to the University of Minnesota specialist.

Appleman says milking with robots is yet to become a practical farming practice. "My guess is that practical systems will not appear in the U.S. or Canada before 1995, perhaps not until the year 2000," he concludes.

# # #

AEA,BSS,CEO,V1,V2,V3,D,E4 NAGR2935

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 20, 1989

Source: Sherri Wright
612/625-7246
Writer: Evelyn Anderson
612/624-3770

4-H PILOT PROGRAM ADDRESSES TEEN PREGNANCY

When a teenager is pregnant, she's not the only one who has problems to face--her pregnancy also affects her family, the father and his family, the unborn child and society.

When the young mother raises her baby, it may be the beginning of a long cycle of poverty, illiteracy and unemployment. It's a big problem throughout Minnesota, and 4-H is doing something about it.

Teenagers in Chisago County, along with parents and professionals who work with youth, will be part of a one-year pilot of the Minnesota Teen Pregnancy Prevention Project.

The project's aim, according to Sherri Wright, 4-H specialist with the University of Minnesota's Extension Service, is to reduce teen pregnancy and break the cycle of poverty, illiteracy and unemployment. The project is funded by a grant to Minnesota 4-H Youth Development and the Junior League of Minneapolis from the U.S. Department of Health and Human Services.

The project is countywide and comprehensive, according to Wright. It

will train professionals and volunteers who have contact with all eighth graders in Chisago County.

Training for adults will include a conference for youth professionals on healthy sexuality and seminars in which parents teach other parents how to communicate with adolescents about sexuality. Teachers will learn about the Teen Outreach Program, a Junior League curriculum that helps them involve high-risk youth in volunteer service in the community.

Teenagers will participate in Project 4-Teens, a program sponsored by Minnesota 4-H and Hazelden Health Promotion Services (a program of Hazelden Services, Inc.) that is adapted to the teen pregnancy issue. In this program, teenagers learn about adolescent development and sexuality, gender roles, self-esteem and decision-making skills, then work as role models with their peers and younger children.

Middle school students will see a video, "Too Far Too Fast," and work with a manual on teen pregnancy, both produced by the Junior League.

All these programs will be piloted in Chisago County, then presented to University of Minnesota Extension Service agents in 4-H and home economics for possible use in other counties.

Wright says, "The teens who are trained in Project 4-Teens become a powerful source of support and serve as role models for younger children. This program can make a difference."

Minnesota 4-H Youth Development is the state's largest out-of-school educational program, serving 209,000 young people in cities, towns and rural areas. It is a program of the University of Minnesota's Extension Service.

# # #

AEA,CEO,E5,E7,Y,02,13,30,33,59,87 N4-H2932

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 23, 1989

Source: Jim Linn
612/624-4995
Writer: Joseph Kurtz
612/625-3168

NEW, REVISED UNIVERSITY OF MINNESOTA DAIRY PUBLICATIONS AVAILABLE

A varied array of information for dairy producers is available in four new or revised publications currently available from the University of Minnesota.

The "1988-89 Minnesota Dairy Report" is a 46-page publication containing management information and reports on Minnesota Agricultural Experiment Station dairy research. Included are articles on managing dairy farm personnel, drug residues in milk, heifer growth, yeast culture, premilking teat sanitation and heat detection. The price of this publication is $3.

"Feeding the Dairy Herd" is a 45-page bulletin providing the most recent information on feeding calves, heifers, dry cows and lactating dairy cows. This publication contains information on the digestive process in dairy cattle, nutrient content of feeds, ration balancing and general feeding management. This bulletin costs $3.

Proceedings of a recent four-state dairy management seminar titled "Milking for Quality and Profit" are also available. This

publication contains articles on milking systems and equipment, techniques for harvesting quality milk, evaluating milk quality and fine tuning individual herd mastitis control programs. The authors are extension specialists from Minnesota, Wisconsin, Iowa and Illinois. The proceedings cost $5 each, $3 each for orders of 10 or more copies.

The fourth publication, "Bypass Protein in Dairy Rations," is the proceedings of a research conference held earlier this year at the University of Minnesota-Morris. This 47-page publication contains information on how protein is used by dairy cows, a summary of research on protein in dairy rations and information on feeding protein to dairy cows. The price of this publication is $5.

These publications are available from Animal Science Extension, 101 Haecker Hall, University of Minnesota, 1364 Eckles Ave., St. Paul MN 55108. Checks should be made payable to the University of Minnesota.

# # #

AEA,BSS,CEO,V1,D NAGR2947

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 23, 1989

Source: Dale Haggard
612/625-4273
Writer: Joseph Kurtz
612/625-3168

MAKE SURE COWS GET ENOUGH MAGNESIUM

Beef producers whose cows are grazing lush, young grass during the early spring should make sure the animals are getting enough magnesium. A shortage of magnesium can result in grass tetany, according to Dale Haggard, extension veterinarian at the University of Minnesota.

Haggard says early-spring grass is often high in potassium and other nutrients which can interfere with the absorption of magnesium by cattle. To correct this, he suggests providing a mineral supplement containing magnesium. He says a mineral block containing an equal mixture of salt and magnesium oxide is a good option.

Initial signs of grass tetany may include reduced feed intake and loss of coordination. More advanced signs may include muscular twitching, labored breathing and convulsions. A beef producer who observes these advanced signs should consult a veterinarian. Animals with advanced symptoms are likely to die

within a few hours unless they receive treatment, according to Haggard.

The University of Minnesota veterinarian says feedlot cattle and dry cows need a magnesium level of 0.10 percent of dry matter in their diet, while heifers and lactating cows need a level of 0.18 to 0.20 percent.

# # #

AEA,BSS,CEO,V1,V2,V3,A2 NAGR2946

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 23, 1989

Source: Joyce Walker
612/625-2701
Writer: Sam Brungardt
612/625-6797

NEW 4-H CURRICULUM HELPS MINNESOTA YOUTH PLAN THEIR FUTURES

The University of Minnesota's 4-H Youth Development program has developed a curriculum called "I'll Take Charge" that should help teenagers make better-informed decisions about their futures.

Says youth development specialist Joyce Walker, who heads the new program in career and life planning, "I'll Take Charge provides teenagers with a realistic and hands-on experience in exploring the directions their lives will take."

According to Walker, the program was developed to empower teenagers, especially those from rural areas, to take responsibility for their lives. She says, "It helps them realize that their future success depends less on a specific job than on responsible planning for lifestyle, family, work and education--concerns we all must deal with throughout our lives.

"When we talk to kids about their futures, we tend to talk to them only in terms of jobs, and that's a mistake. Things have changed: girls need advanced education; boys need to learn parenting skills. Family life today calls for new kinds of partnerships."

Walker says the I'll Take Charge program is especially effective because it calls for adults and young people to interact and learn from one another. It is designed to get young people and adults to share ideas and experiences about the past and future. She says, "Kids learn best from other people. It's the older generations who can best teach them about dreams, successes and mistakes."

I'll Take Charge employs learning games, interviews, small group discussions and videotapes that are designed to make life exploration an exciting and enjoyable experience.

The Pillsbury Co. and Farm Credit Services supported the development of the I'll Take Charge curriculum.

# # #

AEA,BSS,CEO,E5,Y N4-H2943

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 27, 1989

Source: JoEllen Park
612/624-1751
Writer: Deedee Nagy
612/625-0288

ALCOHOL DECISIONS PROGRAM PUTS TEENAGERS TO WORK AS TEACHERS

In Minnesota, traffic deaths are the leading cause of deaths among young people between the ages of 15 and 24, and 60 percent of those fatal accidents involve alcohol.

About 300 teenage Minnesota 4-H'ers are trying to do something about those sad statistics: they've become teachers and are helping their peers and younger children to learn how to deal with the decisions they will have to face about alcohol and drinking and driving.

Working in 20 counties, the 4-H'ers have reached nearly 6,000 fourth-, fifth- and sixth-graders in classrooms, 4-H clubs, recreation programs, camps and youth organization meetings. The teenage volunteers receive four hours of training during which they learn about alcohol use and abuse and how to teach and communicate with younger children.

Benefits of the training and the classroom work are several, according to 4-H Youth Development Educator JoEllen Park. She says teens make preteens aware of the effects of alcohol and they

effectively teach them to deal with peer pressure to make their own decisions. In the process, the teenagers receive information about alcohol and they practice the skills they need to make wise decisions for themselves. The Alcohol Decisions program also bolsters their skills in speaking, organization and in leading others. Some of the experienced teens in the program also help train new trainers.

The Alcohol Decisions program is funded by a grant from the Minnesota Department of Public Safety and the National Highway Traffic Safety Administration. It uses materials from Cornell University and the Minnesota Prevention Resource Center.

Response from elementary school participants has been encouraging, according to 4-H staff involved with the project. Elementary school-age youngsters relate well to the youthful trainers and can more easily identify with a problem when they hear about it from their peers.

# # #

AEA,BSS,CEO,E5,E7,Y N4-H2944

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 27, 1989

Source: Stanley Stevens
612/625-8770
Writer: Martin Moen
612/625-6243

NEW FARM PROGRAM RULES RETURN IDLED ACRES TO PRODUCTION

The number of acres planted to both corn and soybeans will increase this year says Stanley Stevens, grain marketing specialist with the Minnesota Extension Service.

Stevens predicts that U.S. farmers will plant about 61 million acres of soybeans. That's just over 2 million acres more than the 58.9 million acres of soybeans they planted last year. "Soybean acreage is up because farmers can plant soybeans on corn acreage without losing any of their corn base," Stevens says.

Slightly more than 79 million acres will be planted to corn in 1989, according to Stevens. That represents an increase of 11.5 million corn acres over 1988. The USDA will release its planting intentions report Friday, March 31.

The reason for the increase in production are straightforward, says Stevens. "Last year, farmers were paid to set aside 20 percent of their tillable acreage. In 1989, the farm program will pay for only a 10 percent set-aside."

Stevens expects the participation rate for the corn program to be about 80 percent. He says, "I've heard a lot of discussion about farmers thinking about forward contracting, tying up the current price structure and then staying out of the program."

Another factor which will increase corn production in 1989 is that there is no paid land diversion program this year. Stevens says this will contribute another 3.2 million acres to corn production.

Stevens says, "I expect soybean production to increase by about 2 million acres regardless of price level because farmers have a pent-up need to flex their production plans a bit. New program rules will allow this."

# # #

AEA,BSS,CEO,A1,V1,V2,V3,V4 NAGR2951

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 27, 1989

Source: Barb Koth
612/625-4751
Writer: Phyllis Jenks
612/625-7793

B&B OPERATORS TO COMPETE IN MUFFIN CONTEST DURING CONFERENCE

April 25 and 26 is set for the second Minnesota statewide Bed and Breakfast Conference, "Organizing for Impact!" The conference, designed for owners of currently operating bed and breakfast businesses, will be held at the Days Inn Hotel in Brooklyn Center, Minn.

A new twist this year will be a muffin contest on Tuesday, April 25. Judges, including Eleanor Ostman, food editor of the "St. Paul Pioneer Press Dispatch," will rate muffins that B&B operators enter in bran, blueberry, other fruit or "anything goes" categories. Handmade pottery will be awarded to winners in each category.

Conference highlights include a reception for policymakers, a discussion of operating issues by a panel of B&B operators, an organizational meeting for a Minnesota Bed and Breakfast Guild and an optional tour of St. Paul B&Bs. Among topics covered will be trends and strategies of B&B operators, marketing and brochures, and liquor regulations.

Featured speakers will include Fred Ermlich, President, Bed and Breakfast Association of New York State, and Jo Ann Bell, Professional Association of Innkeepers, California.

This conference is sponsored by the University of Minnesota's Tourism Center and Small Business Development Center and by the Minnesota Office of Tourism.

For registration information, call Nancy Quaday at (612) 625-6294 or (800) 367-5363. For muffin contest information, call Christine Vogt at (612) 874-7539.

# # #

E1,P2,V8 NCED2949

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 30, 1989

Source: James E. Pettigrew
612/624-5340
Writer: Joseph Kurtz
612/625-3168

PETTIGREW TO HEAD ANIMAL SCIENCE GROUP

James E. Pettigrew, associate professor of animal science at the University of Minnesota, has been chosen president-elect of the Midwest Section of the American Society of Animal Science.

The society is a professional organization of over 4,000 animal scientists, most of whom represent universities and industry. The Midwest Section has more than 1,800 members representing 12 Midwestern states and is one of four sections in the national organization.

Pettigrew's election involves a three-year commitment to the Midwest Section. After a year as president-elect, he will serve as president for one year and as past president the following year. His primary role in these offices is to be involved in planning and conducting the Midwest Section's annual meeting. He will also serve on the board of directors of the national organization for two years.

The main function of the national organization is to provide for communications among its scientist-members. It does this

through an annual meeting and publication of the "Journal of Animal Science." It also provides communications with other scientific societies and with various agencies of the federal government.

Pettigrew is a native of southern Illinois. He received a B.S. degree in animal industries from Southern Illinois University and M.S. and Ph.D. degrees in animal nutrition (emphasis in swine) from Iowa State University and the University of Illinois, respectively.

He was manager of swine research for Moorman Manufacturing Co. before moving to his present teaching and research position at the University of Minnesota in 1980.

Pettigrew has served as director of the University of Minnesota Swine Center, on the editorial board of the "Journal of Animal Science" and on the National Pork Producers Council research grants evaluation committee, among other capacities. He recently completed a sabbatical leave in the United Kingdom.

# # #

AEA,BSS,CEO,V1,V2,P1 NAGR2952

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 30, 1989

Source: C. J. Christians
612/624-0766
Writer: Joseph Kurtz
612/625-7047

GAIN-TESTED BULLS TO SELL AT WINDOM

The 85 fastest-gaining bulls from the Minnesota Central Bull Test Station will go on sale April 15 at 1 p.m. at the sale barn in Windom, Minn.

These yearlings represent the top 75 percent of 113 bulls placed on a 140-day feeding test last November, according to C. J. Christians, extension animal scientist at the University of Minnesota.

Breeds which will be represented in the sale include Angus, Charolais, Gelbvieh, Hereford, Limousin, Marchigiana, Salers, Simmental and South Devon.

"The central bull test station compares growth and estimates genetic differences among herds and individual bulls in ability to gain," says Christians. "The individual performance of prospective herd sires is measured under relatively standard conditions."

According to Christians, the heritability of growth traits such as feedlot average daily gain, 205-day weaning rate, weight

per day of age and adjusted yearling weight is relatively high. This means these traits are among those most rapidly improved through the use of a superior bull.

"Since the sire transmits 50 percent of his genes to the makeup of the calf crop, the impact on the herd is obvious," says Christians. "This influence is further magnified since the last three bulls used in the herd will account for approximately 87 percent of the genetic makeup."

The bulls to be sold were weighed every 28 days during the official test. At the end of the test, they are measured for hip height and scrotal circumference and are evaluated for reproductive soundness by a veterinarian.

The central bull test was conducted at the Kevin Miller farm near New Richland. It was supervised by the University of Minnesota's Extension Service.

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.

# # #

AEA,BSS,CEO,A2,V1,V2,V3 NAGR2954

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

March 30, 1989

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

CHECK NEW FARM PRODUCTS BEFORE YOU BUY

Check new farm products before you buy. Reliable information sources include county extension offices, fertilizer dealers and consultants.

"Many questionable products have been evaluated in Land Grant university trials in recent years. Results have been summarized and are available if you ask," says George Rehm, soil fertility specialist with the University of Minnesota's Extension Service.

"Don't be fooled by claims that a product will renew and stimulate 'new life' in soil or statements that a product will make water more available in soils," Rehm advises.

If you're not sure about something, don't be afraid to ask. The answer may save you some money.

# # #

AEA,BSS,CEO,V1,F1 NAGR2953

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 3, 1989

Source: Dave Noetzel
612/624-9272
Writer: Jack Sperbeck
612/625-1794

EPA SAYS ALDICARB DOES NOT POSE WIDESPREAD HEALTH RISKS

Eating potatoes, bananas or other foods treated with aldicarb poses no imminent health risks, according to the U. S. Environmental Protection Agency (EPA).

However, University of Minnesota extension entomologist David Noetzel thinks there's a good chance the EPA will severely restrict use of the chemical. "Aldicarb is used very little on Minnesota potatoes. We're talking about less than 5 percent of the potato acreage in Minnesota," he says.

Noetzel says he's been discouraging Minnesota potato growers from using aldicarb. Other chemicals are just as effective and cost considerably less, he says.

Aldicarb (trade name Temik) is a pesticide that's been registered since 1970 to control insects, mites and nematodes on several crops, including potatoes and bananas.

EPA is studying whether to restrict use of the pesticide, based largely on risks to people who apply the chemical plus water quality problems. Aldicarb has been detected in the groundwater of 16 states.

# # #

AEA,BSS,CEO,H1,L1,V1,V2 NAGR2958

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 3, 1989

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

MAGNESIUM IN LIME DOES NOT LOWER YIELDS

Magnesium in lime is not harmful to crop production. "Some people are spreading stories that magnesium is harmful to crop production, but this is not true," says George Rehm, soil fertility specialist with the University of Minnesota's Extension Service.

Several research trials have shown that yields were not reduced when dolomitic limestone was compared to limestone that contained no magnesium. (Dolomitic limestone, the common agricultural lime sold in Minnesota, contains both calcium and magnesium).

Recommended lime rates should be broadcast and incorporated before seeding. "You're wasting money if you broadcast lime on established alfalfa stands," Rehm says.

A routine soil test will show how much lime is needed. And there's still time to take soil samples this spring if it wasn't done last fall. Purchase lime material that has the lowest cost, Rehm advises.

Where it's needed, lime can be a major management tool. "Don't overlook this valuable input this spring. Take a soil test to determine how much is needed before planting the alfalfa crop," Rehm says.

# # #

AEA,BSS,CEO,V1,V2,V3,F1 NAGR2955

News
and
Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 3, 1989

Source: Gary Dial
612/625-1730
Writer: Joseph Kurtz
612/625-3168

2 FIRMS TO MARKET UNIVERSITY OF MINNESOTA'S PIGCHAMP PROGRAM

Two Midwestern swine records companies have reached an agreement with the University of Minnesota to market and distribute a computerized swine records analysis program developed at the university.

The firms are Professional Swine Records, Morris, Minn., and Swine Graphics, Webster City, Iowa. Beginning May 1, they will market the University of Minnesota Computerized Health and Management Program for swine herds, which is known as PigCHAMP.

The agreement specifies that the university will continue PigCHAMP program research and development within the Department of Large Animal Clinical Sciences, according to David Thawley, interim dean of the College of Veterinary Medicine.

"This arrangement has two clear advantages," Thawley says. "First, it allows us to concentrate our limited resources towards faster program development and to mount a serious research effort using the database to which many PigCHAMP users have contributed over the past three years. Second, marketing and end-user support

will be carried out by two established companies that have direct, daily contact with producers, veterinarians and various facets of the swine industry.

"Their close association with the swine industry, together with considerable experience in running their own record bureaus, will allow them to provide a level of support far beyond that which we could achieve from the university as the number of PigCHAMP program users continues to rapidly grow."

The university will continue to develop the PigCHAMP database and will ask users to continue to provide their annual records to the program. Submitted data will be kept confidential as before and will remain the property of the university and the individual user.

During the changeover, users may continue to call the PigCHAMP program office at the university until their current maintenance agreement expires. Shortly before the renewal date for maintenance agreements, users who wish to continue a maintenance contract will be asked to renew with either Professional Swine Records or Swine Graphics. After that, users must contact the company they have chosen for help in running the program or to order data collection forms.

Thawley says Professional Swine Records, Swine Graphics and the PigCHAMP program team at the university are committed to providing the swine industry with the best possible software program and service. They will encourage users to continue to

provide suggestions on how to improve PigCHAMP as the next version of the program is being developed.

"There is an aggressive plan for future enhancements to the PigCHAMP program and we feel confident that the joint venture will assure a more rapid delivery of these enhancements to users," says Thawley. "The PigCHAMP program continues to be the world's leading on-farm record system for swine and we are determined to maintain it in this role."

# # #

AEA,BSS,CEO,V1,V2,V3,P1 NAGR2959

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 6, 1989

Source: Susan S. Meyers
612/625-1250
Writer: Pam Barnard
612/625-4730

PUBLICATION OFFERS TIPS TO OPEN COMMUNICATION IN OLDER FAMILIES

Communication within any system is important to its working efficiently. And when the system is an older family, open communication of all members' needs and desires is even more critical.

A new Minnesota Extension Service publication, "Communication with Older Family Systems" gives tips to help families communicate better. Susan Meyers, University of Minnesota extension family life specialist, is author of the two-page fact sheet.

According to Meyers, "For older generations, the principles of communication become even more important as their shortened time left increases the impact of changes." In her fact sheet, Meyers offers tips on how to listen better to people's needs and how to adjust to major changes within the family structure.

Says Meyers, "The real fear or concern is often not openly stated, but it underlies the expressed concern. By checking out our interpretations and requesting feedback, we can assess whether

we were accurate or not in our interpretations." This can happen, for example, when a family member is afraid to face a major change, such as moving into a nursing home.

Minnesota residents can obtain copies of "Communication with Older Family Systems" through their county extension offices. Residents of other states can obtain copies by writing to the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. Ask for item number HE-FS-3673.

# # #

E2,E5,E7,V7 NHEC2961

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 6, 1989

Source: Ward Stienstra
612/625-6290
Writer: Jack Sperbeck
612/625-1794

CONSIDER RE-RUNNING SOYBEAN GERMINATION TESTS

This spring's planting season may be the worst time in recent history to use your own soybean seed. Last year's drought, plus spider mite problems caused seed quality problems in parts of Minnesota.

An investment in commercial seed will be well worth a slight cost increase. But if you do use seed from a farm bin, consider re-running soybean germination tests done last fall or early winter. There's a chance that beans infected with storage fungi may now test 10 to 15 percent lower than they did three to four months ago, says Ward Stienstra, plant pathologist with the University of Minnesota's Extension Service.

The warm germination test should be 85 percent or higher, Stienstra says. And you may want to run a "cold" germination test plus an accelerated aging test to get more information on germination and vigor.

"The bottom line is to know that the seed lot will germinate well," Stienstra says. If there's any doubt, seed at higher rates.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 6, 1989

Source: Mel Baughman
612/624-0734
Joe Deden
507/467-2437
Laura McAnn
612/625-5747
Writer: Sam Brungardt
612/625-6797

SHIITAKE SYMPOSIUM-TRADE SHOW WILL BE FIRST OF ITS KIND

Present and potential growers of shiitake and others involved or interested in this mushrooming industry will have a chance to obtain the latest information about shiitake May 3-5 at a national symposium and trade show in St. Paul, Minn.

The shiitake, a forest mushroom, is the second most popular edible mushroom in the world. Previously only available as a dried import, shiitake are now grown domestically and are seen increasingly on restaurant menus and in supermarkets.

Joe Deden, executive director of the Forest Resource Center, Lanesboro, Minn., says demand for shiitake has increased tremendously: U.S. consumption grew from 1 million pounds in 1986 to 6 million pounds last year. Deden says farmers and others who have a woodlot or other source of hardwood logs might consider growing shiitake as a supplementary or alternative crop.

The national symposium and trade show was organized by the University of Minnesota. The first of its kind, it will bring together the latest information on the status of the industry, production and management systems, and marketing strategies. Those attending will also identify research needs of the industry.

The event will be held at the Ramada Hotel, 1870 Old Hudson Road in St. Paul. Registration will be from 8 a.m. until noon on Wednesday, May 3, and the program will get under way at 1 p.m.

Program topics on May 3 will include an industry overview and marketing implications; shiitake biology and physiology; the production, quality, storage, strain selection and development of spawn; and synthetic substrate production of shiitake.

Among the topics on May 4 will be shiitake production (both indoor and outdoor); woodlot management; shiitake pests; harvesting, postharvesting handling and packaging; development of recipes and products; and reports of demonstration production and marketing projects and grower associations in England, the Pacific Northwest, the Carolinas, Virginia and Minnesota.

On Friday, May 5, the focus will be on business plan development, recordkeeping and marketing. Minnesota Extension Service forestry specialist Mel Baughman will also present his findings from a financial analysis of two small-scale production operations.

The registration fee for those who register before April 14 is $150, and $170 for those who register after that date. Second

registrations from a family or company are $100 each. For an additional $25, attendees may take a bus tour on Saturday, May 6, to the Forest Resource Center. The center has a demonstration production facility and is currently evaluating 50 strains of shiitake. Additional registration information is available by calling (800) 367-5363 or (612) 625-2722 or by writing to the EDS Registrar, 405 Coffey Hall, University of Minnesota, St. Paul, MN 55108-1030.

The symposium and trade show is being sponsored by the University of Minnesota's Center for Alternative Plant and Animal Products, Colleges of Natural Resources and Agriculture, Extension Service and Agricultural Experiment Station; the Forest Resource Center; USDA's Forest Service; state and private industry and the National Exotic Mushroom Association.

# # #

BSS,H4,L1,M1,V1 NNRD2968

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 10, 1989

Source: George Rehm
612/625-5210
Writer: Jack Sperbeck
612/625-1794

SULFUR FERTILIZER FOR CORN IS NEEDED ONLY ON SANDY SOILS

You don't need sulfur fertilizer for corn unless you're growing it on a sandy soil.

"Sulfur is not needed in fertilizer programs for corn production throughout Minnesota," says George Rehm, soils specialist with the University of Minnesota's Extension Service. Rehm says the university's Agricultural Experiment Station has done research with sulfur at several Minnesota locations in recent years. "The use of sulfur has not consistently increased corn yields unless soils were sandy," he says.

Organic matter is the major reservoir of sulfur in soils; about 95 percent of all sulfur found in soils is in the organic matter. Sulfur is released for use by plants when the organic matter is broken down during the growing season.

"The organic matter content of most soils in Minnesota is high," Rehm says. "These soils are capable of supplying adequate amounts of sulfur for crop production throughout the growing season."

# # #

Mech 1 of 7p

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 10, 1989

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

AMOUNT, NOT FORM, OF PHOSPHATE IS WHAT'S IMPORTANT

Advertising claims for "polyphosphate" and "orthophosphate" fertilizers need not confuse you.

Supplying adequate phosphate fertilizer for crop production is what's important. Don't worry about the form of phosphate, says George Rehm, soils specialist with the University of Minnesota's Extension Service.

Rehm says the phosphorus contained in modern fertilizers is found in either the orthophosphate or polyphosphate form--or a combination of both. The phosphorus in dry materials is present in the orthophosphate form. In most liquid fertilizers, the phosphorus is present in both forms.

The polyphosphate form of phosphorus is not very stable in soils. It is converted easily to orthophosphate within two weeks after application, Rehm says. "Results of many research trials over the years show that crop yields have been the same when both forms of phosphorus were applied at recommended rates."

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 10, 1989

Source: George Rehm
612/625-6210
Writer: Jack Sperbeck
612/625-4730

TEST SOIL BEFORE YOU BUY ZINC FERTILIZER

Many Minnesota farmers don't need zinc for top corn yields. But there are many soils in western Minnesota where farmers will get substantial yield increases by adding zinc to the fertilizer program, says George Rehm, Minnesota Extension Service soils specialist.

Soils with high pH values and sandy soils low in organic matter may require zinc. "The routine soil test for zinc is accurate and does a good job of predicting whether it's needed," Rehm says.

Research has shown that when zinc is needed, it can be either broadcast and incorporated before planting or applied in a starter at planting. If the soil test for zinc is low (less than .5 ppm), a broadcast application of 10 to 12 pounds actual zinc per acre should correct the deficiency for four to five years. When zinc in the soil is marginal (.5 to 1.0 ppm), a broadcast rate of 5 to 10 pounds of zinc per acre should correct the problem. Zinc will not be needed for corn production if the soil test value is greater than 1.0 ppm.

If zinc is applied in a starter fertilizer, the amount of zinc can be reduced to 2 pounds per acre for fields with a low soil test and 1 pound per acre where soil levels of zinc are marginal. Corn is the only major crop in Minnesota that will respond to zinc fertilization. Therefore, application in a starter fertilizer is the most cost-effective way to apply zinc.

There are both liquid and dry sources of zinc. Research has shown that corn yield is not affected by the source used. "This means that cost becomes the major consideration in selecting a zinc source to use," Rehm says. "The low-cost materials are just as effective as the high-priced products."

More information is available from county and area offices of the University of Minnesota's Extension Service.

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AEA,BSS,CEO,F1,V1,V2,V3 NAGR2977

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 10, 1989

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

ACA DOESN'T INCREASE CORN YIELDS, RESEARCH SHOWS

Your corn yields probably won't improve from using a product called Agricultural Crop Additive (ACA).

There are no valid research results in Minnesota that show higher yields from using this product with fertilizer, says Mike Schmitt, soil fertility specialist with the University of Minnesota's Extension Service. Promotions for ACA (pronounced ACE-ah) claim the product results in bigger leaves and more roots on corn plants and hint at higher yields.

Schmitt says there is no statistical evidence that grain yields increased in Agricultural Experiment Station trials at the University of Minnesota's Waseca branch station, Michigan State University and Kansas State University.

ACA does contain some zinc. But if a soil test shows that zinc is needed, there are cheaper and more effective ways to apply it, Schmitt says.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 10, 1989

Source: C. J. Christians
612/624-0766
Writer: Joseph Kurtz
612/625-3168

KNOWING BACKFAT THICKNESS CAN HELP HOLD DOWN FEED COSTS

Knowing the backfat thickness of the hogs you are selling can help you hold down feed costs, according to a University of Minnesota extension swine specialist.

C. J. Christians says there is a high correlation between backfat thickness and the amount of feed it takes to put on another pound of gain. "When the backfat thickness reaches 1.3 inches, the feed efficiency of the animal starts to decline," he points out.

Christians says most packers will provide data on backfat thickness when hogs are slaughtered. Also, hand-held electronic scanners that provide the backfat information are now on the market. "If you are running the hogs across a scale, you can stick the scanner on their backs and get the backfat information," Christians notes.

Putting too much fat on hogs not only decreases feed efficiency, it can also reduce price per pound. "Packers are

putting more stringent limits on backfat," says Christians. "Many are setting a base price for a thickness of 1.2-1.4 inches, with a premium for less fat and a discount for more."

# # #

AEA,BSS,CEO,V1,V2,V3,P1 NAGR2971

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 10, 1989

Source: Craig Hassel
612/624-7288
Writer: Pam Barnard
612/625-4730

FACT SHEETS PROVIDE FOOD FOR THOUGHT ON DIET, DRUGS, DISEASE

Did you know that persons over age 65 take about 25 percent of the national total of prescribed drugs? Or that we all suffer from a disease beginning in childhood that involves fatty plaque deposits that threaten to block our arteries?

Two new Minnesota Extension Service fact sheets--"Diet, Blood Cholesterol, and Cardiovascular Disease" and "Drug and Nutrient Interactions"--highlight these and other facts.

Craig Hassel, University of Minnesota extension nutrition specialist, is author of the two-page fact sheets. Says Hassel on drug-nutrient interactions, "On average, the older person takes from three to seven different medications at any given time for treatment of one or more chronic disease. And patients do not always realize how the drugs they take affect their nutritional health or how their diet influences a drug's effectiveness."

Hassel hopes his fact sheet will help people, especially those over 65 who may be on extensive medication, understand drug-nutrient interactions.

Hassel's second fact sheet discusses the relationship between diet and blood cholesterol and the development of atherosclerosis. The publication explains different types of fat as well as the importance of reducing dietary intake of the saturated variety. Says Hassel, "It is primarily the saturated fats that are linked to higher blood cholesterol levels."

Adds Hassel, "People with higher blood cholesterol levels are more at risk for developing atherosclerosis than those with lower levels." Since eating less saturated fat is the most effective way to lower blood cholesterol, Hassel suggests people with high levels at least consider making changes in what they eat. Wise food choices are given at the end of the publication.

Minnesota residents can obtain these new fact sheets through their county extension offices. Residents of other states can obtain copies by writing to the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. Refer to the following item numbers: HE-FS-3661 ("Diet, Blood Cholesterol, and Cardiovascular Disease") and HE-FS-3660 ("Drug and Nutrient Interactions").

# # #

E2,E5,I1,M2,V7

NHEC2962

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 13, 1989

Source: C. J. Christians
612/624-0766
Writer: Joseph Kurtz
612/625-3168

NEW BULLS NEED PROPER DIET, MANAGEMENT

This time of year, many beef producers purchase yearling bulls in preparation for the summer breeding season.

A new bull is usually a sizable investment. Its proper feeding and management is the best way to make sure your investment pays off, according to C. J. Christians, extension animal scientist at the University of Minnesota.

"Feed the young bull all the roughage he will eat, along with approximately 10 pounds of grain per day and a free choice combination of dicalcium phosphate and trace mineralized salt," says Christians. "To condition the bull prior to breeding, give him enough grain so that he will gain about 1 1/2 pounds per day."

If you plan to pasture breed your yearling bull, feed him at least 10 pounds of grain per day while on pasture, Christians advises.

A new bull should be hauled to his new home in a clean, well-bedded truck that provides wind protection. Christians

recommends having a veterinarian evaluate the new bull's testicular development and reproductive soundness.

"Allow at least one month for the bull to adjust to his new surroundings, and condition him before breeding," says Christians. "Don't put him in with open cows and heifers immediately. An acre pen will give him room to exercise. If the lot is near or in sight of the female herd, it will enhance his sex drive."

About a month before the breeding season, expose the bull to a few cycling heifers to observe his mating ability.

Never confine a young bull with strange older bulls. This may cause fighting and could result in injury to the young bull, says Christians. If you purchase several young bulls, you can pen them together. But, to prevent injury, check on them periodically when they are first placed together.

Christians advises keeping records on the first cows bred by a young bull, then watching to see if the cows return to heat.

A yearling bull can breed 15 to 25 cows during a 60- to 90-day breeding season. "If management allows, rotate yearling bulls on a weekly basis to give them adequate rest and to improve the herd conception rate," Christians advises. "If you do this, each bull can breed up to 30 cows during the breeding season. Feed each bull well during his week of confinement, to help maintain his condition and growth development."

# # #

AEA,BSS,CEO,V1,V2,V3,A2 NAGR2981

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 13, 1989

Source: Caye Nelson
612/735-4089
Writer: Evelyn Anderson
612/624-3770

NEW 4-H CURRICULUM REACHES YOUTH WITH DISABILITIES

New materials produced by Minnesota 4-H Youth Development will help young people with disabilities participate more fully in 4-H and school activities.

Called Common Ground, the new set of materials helps 4-H leaders and teachers work with 12- to 16-year-olds with disabilities, providing instructions on adapting activities for youth with various disabilities. It also includes age-appropriate activities for the young people, written at the third grade reading level.

The new curriculum fills "a strong need to have age-appropriate resources available for teenagers with handicaps," says Caye Nelson, one of Common Ground's authors. "They have a need to belong, just as all youth do."

The materials reflect 4-H's philosophy of developing life skills in a learn-by-doing approach. The curriculum's authors encourage teachers and 4-H leaders to provide opportunities for integrating disabled with non-disabled youth.

Nelson is a retired Ramsey County extension director. Common Ground's co-authors are John Rynders, professor of special education, and Stuart Schleien, associate professor of physical education and recreation. Both are with the University of Minnesota.

The first four of 13 units are available from the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108 (phone 612/625-8173). They are "Health and Grooming" (item no. 4H-MI-3446, $5), "Personal Management" (4H-MI-3448, $8), "Clothing Care and Repair" (4H-MI-3449, $5) and "Woodworking" (4H-MI-3450, $5).

Other Common Ground units to be produced in the coming months will be on horticulture, safety, learn to earn, careers, creative arts and leisure, foods and nutrition, home environment, home repair, and nature and conservation.

A guide will also be produced for 4-H leader. It will help them promote positive interaction between youth of varying abilities. Called "Together Successfully--Integrating Community Activities for Persons With and Without Handicaps," the guide will be a collaborative effort between Minnesota 4-H, the University of Minnesota Special Education Programs and the Association for Retarded Citizens (ARC) of the United States. Copies will be available from county offices of the Minnesota Extension Service and the ARC.

4-H Youth Development is Minnesota's largest out-of-school educational program, serving 209,000 young people. It's a program of the University of Minnesota Extension Service.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 13, 1989

Source: Marlene S. Stum
612/625-4270
Jean W. Bauer
612/625-1763
Writer: Pam Barnard
612/625-4730

FACT SHEETS CAN HELP OLDER FAMILIES DEAL WITH RESOURCE MANAGEMENT

Is it legal to sell disease-specific insurance? What factors affect quality in home care? How does ethnic background influence inheritance patterns?

Four new Minnesota Extension Service fact sheets--"Searching for Quality in Home Care," "Avoiding Insurance Cons," "Financing Long-term Care: Sorting Out Fact from Myth" and "Family Issues in Estate Planning"--answer these and other questions.

Marlene Stum and Jean Bauer, University of Minnesota extension family resource management specialists, wrote these two-page fact sheets to help both adult children of the elderly and the elderly themselves make informed financial management decisions. Questions to ask when evaluating choices, steps to follow when making decisions and where to go for more help are highlights of these useful publications. All four present straightforward information on complicated financial subjects.

Minnesota residents can obtain copies of these fact sheets through their county extension offices. Residents of other states can order copies by writing to the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Avenue, St. Paul, MN 55108. Refer to the following item numbers: HE-FS-3666 ("Searching for Quality in Home Care"), HE-FS-3664 ("Avoiding Insurance Cons"), HE-FS-3665 ("Financing Long-term Care") and HE-FS-3675 ("Family Issues in Estate Planning").

# # #

E2,E5,E6,E7,V7 NHEC2963

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 17, 1989

Source: Harold Alexander
612/624-0779
Wanda Olson
612/624-3780
Writer: Pam Barnard
612/625-4730

ELDERLY HAVE SPECIAL NEEDS IN HOUSEHOLD FURNISHINGS, APPLIANCES

Did you know that the lenses of our eyes yellow as we age, making certain color distinctions difficult? Or that many kitchen appliance handles aren't designed for the weak or stiff hand to use?

Answers to these and other questions are found in two new Minnesota Extension Service fact sheets titled "Furnishings and Spaces for the Elderly" and "Evaluating Appliances for the Elderly."

Harold Alexander, University of Minnesota interior design specialist, and Wanda Olson, household equipment specialist, wrote the two-page fact sheets to help both the elderly and their adult children choose furnishings and household appliances that will best meet their needs.

Elderly people need appliances that are safe and easy to use, especially when they experience a loss of vision, flexibility and coordination. Says Olson, "Convenience is important to all

consumers, but for some elderly it can mean the difference between living independently or not."

Alexander adds, "As dependence increases and coping ability decreases, there is greater need for environmental and sensory clues to help the elderly respond to their environment." Buyers should be aware of these clues when choosing furniture, fabric, floor and wall coverings, and lighting.

Minnesota residents can order the fact sheets through their local county extension offices. Residents of other states can order copies from the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. Refer to the following item numbers: HE-FS-3662 ("Furnishings and Spaces for the Elderly") and HE-FS-3674 ("Evaluating Appliances for the Elderly").

# # #

E2,E5,I3,I4,J,V7 NHEC2964

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 20, 1989

Source: Deborah Brown
612/624-7491
Writer: Mary Kay O'Hearn
612/625-2728

GET THE JUMP ON CRABGRASS

Last year's heat and drought produced a bumper crabgrass crop throughout much of the Upper Midwest. Drought conditions were already in effect in late May and early June, the time that many crabgrass seeds would have germinated.

So what happened? Deborah Brown, horticulturist with the University of Minnesota's Extension Service, says "Seeds lay dormant in the warm, dry soil, until we got a few brief rains in late July and August. The moisture brought them out of dormancy, and they took off like crazy.

"Waves of robust crabgrass shot up through stands of dormant bluegrass lawns. There simply wasn't enough rainfall to bring dormant bluegrass back, and some of it was already dead. So the crabgrass grew, unchecked. And it grew, and grew, and grew!"

Because crabgrass is an annual weed, last year's plants, no matter how large and healthy are now dead and gone. But, they've reproduced, and their seeds are in the soil, all over, everywhere.

"The best way to deal with crabgrass is to use a pre-emergent herbicide that kills the seed as it tries to sprout. Spread the pre-emergent and water it in well in early May. If we are in a drought condition, repeat the pre-emergent herbicide half strength again in late June."

Such a "double" application ought to give decent coverage right through the growing season, even if there's another weird year like 1988.

If you plan to reseed this spring, Brown says be sure to use a product that is marked specifically for use with newly sown grass. Most pre-emergents will stop bluegrass seed from sprouting, right along with the weed seeds.

If you will be resodding, you needn't worry about crabgrass seeds. The new sod will smother them, preventing needed light from reaching the dormant seeds.

Pre-emergent herbicides can damage new sod. Use them only on established lawns, or with new seed if they're specifically labeled for such use.

# # #

I2,V7,V8 NAGR2984

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 20, 1989

Source: Cynthia Ash
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

MANY PLANT DISEASES CAN BE PREVENTED

You can prevent serious disease problems in the home landscape and garden by incorporating a few general guidelines into your gardening and maintenance activities.

Here are some suggestions from Cynthia Ash, assistant plant pathologist with the University of Minnesota's Extension Service.

--Generally, diseases cause serious damage only to severely stressed plants. Keep plants healthy by starting with healthy plant materials, planting them on proper sites and maintaining them properly.

--Extended periods of moisture on the plant are necessary for the development of many plant diseases. Plants dry off quickly if they are watered early in the day. When you must water late in the day, water only at the base of the plant and with a sprinkler that does not throw the water high in the air. Thinning dense plantings of trees and shrubs 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 resistant plant material. For many of the common diseases of trees, shrubs, perennials, annuals and vegetables, resistant varieties or selections are available. 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 all last year's plant debris from the garden before planting will eliminate this.

# # #

I2,V7,V8 NAGR2988

9A-7p

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 20, 1989

Source: Jill Pokorny
612/625-1275
Editor: Mary Kay O'Hearn
612/625-2728

UNIVERSITY HAS 'EMERGENCY ROOM' FOR SICK PLANTS

A truck pulls up to a back door of Borlaug Hall on the University of Minnesota's St. Paul campus. Some sick trees, shrubs and other plants are carried in. Their destination: the Minnesota Extension Service's Plant Disease Clinic--the "emergency room" for plant life.

"Our lab is tailored for the commercial customers, the farmers, agricultural consultants, golf course managers and greenhouse and nursery businesses," explains Jill Pokorny, who has directed the lab for nine years. "We handle all disease problems on field, nursery and greenhouse crops."

More than a diagnostic lab, the Plant Disease Clinic serves as a backup for county extension agents (10 percent of its business comes through them) and as a teaching and research tool for the university and its campus-based extension specialists and private industry. The Department of Plant Pathology has operated a clinic for many years; however, in 1986 the services offered were greatly expanded to better serve the needs of Minnesota's

commercial growers. The Dial U clinic, a separate entity from the Plant Disease Clinic, is specifically geared to homeowners.

Last fall, when the aflatoxin scare developed in corn, the Plant Disease Clinic set up a special testing program which began in the fall and continued through winter. In 1987, a spinoff from wheat scab problems seen in the field was a seed-borne disease testing program at the lab, which determined the need for seed cleaning, fungicide treatment or selection of a new seed source. Consumer demand also led to Verticillium tests of potatoes and soils where potatoes are grown.

"We've just offered a new rapid assay test for bacterial wilt of geraniums, a newly-recognized and serious disease problem," Pokorny explains. "Test results are available within two days."

The lab operated on a budget of just under $100,000 in 1988. Pokorny says 95 percent of the budget comes from user fees, which according to the lab's new brochure (ask your county extension agent for AG-MI-3170) range from $15 to $50.

"Since 1986, the sample level has increased 25 percent each year," says Pokorny. In 1988, the lab worked on 2,500 samples. But the word has gotten around to customers through extension agents' networking with commodity growers and through information about the lab's services published in grower newsletters. In the last four years, 24 research projects have been completed in the lab and greenhouse. Only three other states--California, Ohio and North Carolina--have labs comparable to Minnesota's.

Summer, the growing season, is always the busiest time for the Plant Disease Clinic. Two to three days is normal turnaround time then for most diagnoses--vital when growers must know almost immediately what action to take to save a crop, for example. After diagnosis, materials are disposed of by ordinary greenhouse disposal methods, but if there is any danger that samples could spread disease, they are autoclaved, the same process used to sterilize hospital instruments.

Pokorny says faculty members in the department "give good support if we can't nail everything down ourselves" should making a diagnosis become baffling.

When the lab is less busy in winter, there is time to test and develop new diagnostic techniques, take on research work, test seed and conduct in-depth workshops at the lab as well as seminars both on and off campus.

Sandra Gould, who has assisted Pokorny at the lab for seven years, assists with supervision and training of student workers and does all the ordering of materials for day-to-day operations. The lab employs graduate students, as well as undergraduates in the integrated pest management program, and juniors and seniors in the College of Agriculture's Professional Experience Program leading to college credits.

One piece of information in the new brochure, high priority when sending samples for disease diagnosis, is the 10 steps to follow so samples arrive at the lab in good condition. Living

plants in stages of decline, not dead plants, should be put in the mail early in the week. ("Mail on Monday" is a good refrain to remember. That's so samples won't be weekending in some post office to dry out and spoil. "Five percent of the samples we receive aren't sufficient for us to make a judgment--some have turned to mush when sent to us in plastic," says Pokorny. When that happens, someone at the lab is apt to get on the phone to see whether the diagnostic problem can be worked out verbally or to give suggestions on how best to mail replacement samples.

The lab does not identify mushrooms. Persons with those questions are referred to the Minnesota Mycological Society.

# # #

AEA,BSS,CEO,L1,F1,H4,V1 NAGR2998

MSC
DF-2p

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 20, 1989

Source: Mike Boehlje
612/625-0231
Writer: Jack Sperbeck
612/625-1794

DEEP RECESSION NOT EXPECTED NEXT YEAR, BOEHLJE SAYS

We probably won't have a deep recession that's traumatic for agriculture or the rest of the economy in 1990, says Mike Boehlje, economist with the Minnesota Extension Service.

Boehlje says a recession is not inevitable, but there's about a 40 to 50 percent chance of a recession sometime during the first three quarters of 1990. "If recession comes, it should not cause major problems in agriculture," the University of Minnesota professor says.

There's even a scenario where a weak, worldwide recession could help agriculture by holding interest rates and input prices down, he says. Boehlje's advice to farmers: continue to monitor and control costs and go with variable rate financing to avoid locking in high interest rates on borrowed money.

# # #

AEA,BSS,CEO,A1,V1,V2,V3 NAGR2997

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 20, 1989

Source: Bob Appleman
612/624-4995
Writer: Joseph Kurtz
612/625-3168

GIVE MILKING MACHINES REGULAR ATTENTION

What's the most-used piece of equipment on most dairy farms? It's likely to be the milking machine.

Yet, the milking machine often receives little or no maintenance, says Bob Appleman, extension dairy specialist at the University of Minnesota.

"A scheduled maintenance program for milking machines can result in fewer emergency service calls, longer equipment life and more efficient milking," Appleman says. "A service technician using the proper equipment should go over the machines every six months or after 1,250 hours of use."

Appleman says dairy producers should also carry out a regular schedule of milking machine inspection. He makes the following recommendations:

On a daily basis, check the milking vacuum level. Be sure the regulator is working properly. Inspect the inflations and short tubes for leaks. Make sure there is no water between the shells

and liners. Check and clean plugged air inlets on the claw. Be sure the pulsators are working properly, and install clean filters in milk-filtering equipment at each milking.

On a weekly basis, check pulsator filters and clean or replace as needed. Fill the oil reservoir on the vacuum pump. Check the tension on the vacuum pump belts. Change inflations when they reach use limits. Be sure there is an adequate supply of sanitizers and detergents.

On a monthly basis, check and change vacuum pump oil as recommended; clean vacuum supply lines, if needed, and make a thorough check of all system components. Prepare a list that advises the service technician of any problems.

Service other equipment according to the manufacturers' recommendations, Appleman advises. He also recommends using an hour meter to keep an accurate record of operating time.

# # #

AEA,BSS,CEO,D,E4,V1,V2,V3 NAGR2996

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 20, 1989

Source: Deborah Brown
612/624-7491
Writer: Mary Kay O'Hearn
612/625-2728

ONLY FLOWERS REAP ALL-AMERICAN AWARDS FOR '89

This year's All-American Selections (AAS), representing the best new flowers and vegetables introduced by the seed trade for the gardening public, are all flowers.

Seven annuals and one perennial that blooms the first year from seed won AAS awards, notes Deborah Brown, horticulturist with the University of Minnesota's Extension Service. "No new vegetable varieties ranked highly enough to qualify for the All-American designation," she says.

Several of the winners did quite well in last year's drought, though drought tolerance was not a prime consideration in selecting winning varieties. Usually dianthus (pinks) prefer cool, moist growing conditions, but the new variety Telstar Picotee, a red flower with a white band along the outer edge of its petals, came through our hot summer in good shape.

Marigolds grew quite well last summer as long as they were watered from time to time. Golden Gate, the new AAS winner,

produced large numbers of bigger-than-usual flowers on short, compact plants. Petunias, too, looked good last year, including Orchid Daddy, a very free-blooming plant whose lavender flowers have plum-colored veins.

Other winners included Tango impatiens, a bright orange flower that requires full sun rather than shade, unlike most impatiens, and two new verbenas, Novallis Deep Blue and Sandy White.

"If you're looking for something different for a semishady area, try torenia Clown Mix," Brown says. "Torenia, also known as wishbone flower, has velvety blue and purple flowers. Clown Mix expands that color range to include rose, lavender and shades of white."

Finally, you might wish to try coreoposis Early Sunrise from seed. It should bloom before the season is over, and with a little winter protection, continue blooming for years to come.

Early Sunrise won an AAS gold medal as well as Europe's highest award, the Fleuroselect designation. It was developed by a Minnesota native, Denis Flaschenriem, Burpee's top flower breeder.

Many of these new flowers will be available as bedding plants this spring from nurseries and garden centers. Each can be ordered by mail from seed catalogs, Brown says.

# # #

I2,V7,V8 NAGR2991

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 24, 1989

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

PROPER COW PREPPING MAINTAINS MILK QUALITY, CUTS MASTITIS

High-quality milk and less chance of mastitis--those are the benefits of good premilking cow preparation, according to an extension dairy specialist at the University of Minnesota.

Jeff Reneau says research has shown good premilking preparation can reduce milk bacteria counts 75 to 85 percent. Furthermore, good cow prepping can cut the incidence of mastitis 40 to 60 percent.

"Each cow's teats should be washed with a separate towel using an udder sanitizer solution," says Reneau. "Limit washing to teat surfaces, being sure to include the teat end. Physical force across the teat end is desirable. Use the minimum amount of water necessary to get the teats clean."

Reneau says 15 seconds is the minimum time to spend washing each cow. More time will be needed if a cow is dirty.

Forestripping is another important part of cow preparation. It stimulates milk letdown, opens the teat canal for the free flow of

milk, removes high-bacterial-count milk from the teat canal and provides a check for abnormal milk that would indicate clinical mastitis. Forestripping can be done either before or after washing, but before drying, in order to avoid contamination of a clean teat or the operator's hands.

In stall barns, milk from forestripping should go into a strip cup, not into a towel or on the floor, according to Reneau.

After washing and forestripping, the next step is thorough drying with a separate towel. "If cloth towels are used, they must be thoroughly washed in a sanitizing solution and dried before each use," says Reneau. "The common wash rag or sponge can spread mastitis organisms. Under no circumstances should a common rag or sponge be used for premilking sanitation."

Reneau recommends that milkers wear plastic gloves, since milkers' hands can also spread mastitis. Plastic gloves are easier to keep relatively bacteria-free.

A "white towel test" indicates the success of premilking teat preparation. After washing and drying the cow, take a clean, white towel and rewipe the teat, including the end. If the towel shows any moisture, dirt or manure, the teat is not clean enough.

# # #

AEA,BSS,CEO,V1,V2,V3,D NAGR3001

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 27, 1989

Sources: Bert T. Swanson
612/624-7432
Carl Rosen
612/625-8114
Writer: Mary Kay O'Hearn
612/625-2728

PUBLICATION RECOMMENDS LOWER FERTILIZER RATES FOR TREES

Trees can do well on less fertilizer than previously recommended, according to "Tree Fertilization," a recently revised Minnesota Extension Service publication.

Quantities of fertilizer recommended for new or established trees have been reduced (compared to quantities recommended when the publication was first done five years ago), say the authors, University of Minnesota extension horticulturist Bert T. Swanson and extension soils scientist Carl Rosen.

In Minnesota, most trees have a single flush of growth in the spring, so this is the time they most need nutrients. Applications can be made as soon as the ground is workable until late April or early May. Nitrogen--the "N" ingredient in fertilizer--should be applied to sandy soils only in spring; much of it may leach out if it is applied in the fall. If the soil is very dry, it should be watered both before and after applications.

It is usually beneficial to use a complete fertilizer--one that includes phosphorus (P) and potassium (K) as well as nitrogen--since phosphorus and potassium promote root growth and many soils are deficient in them, Swanson and Rosen say.

The recommended rates of fertilizer are 4 pounds of nitrogen per 1,000 square feet of area enclosed by a boundary three to four feet beyond the dripline per year; 3.6 pounds of phosphate per 1,000 square feet, and 6 pounds of potassium per 1,000 square feet every two to four years, according to the publication.

These rates should not be applied to the turf beneath the trees; the recommended rate for turf is 1 pound of nitrogen per 1,000 square feet, and anything greater than 2 pounds in one application will damage it.

Fertilizer for trees should be applied in nonturf areas or in holes drilled in the soil around the tree. An illustration in the publication shows how to determine the area to fertilize and how holes can be placed both within and beyond the tree's dripline.

Minnesota residents may obtain copies of "Tree Fertilization" through their county extension offices. Residents of other states may obtain it for 50 cents a copy from the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. Make checks payable to the University of Minnesota and ask for item number AG-FO-2421.

# # #

AEA,BSS,CEO,I2,L1 NAGR3003

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 27, 1989

Source: Ray Arthaud
612/624-9791
Writer: Joseph Kurtz
612/625-3168

FDA APPROVES RUMENSIN FOR MATURE BEEF COWS

The U.S. Food and Drug Administration recently approved the use of Rumensin in the diets of mature beef cows. Rumensin, a feed additive, enables cattle to utilize feed more efficiently, says Ray Arthaud, extension beef cattle specialist at the University of Minnesota.

Rumensin, the trade name for monensin sodium, was introduced in 1975. "Rumensin improves the efficiency of rumen fermentation by reducing the energy loss associated with carbohydrate conversion," says Arthaud. "Cattle on Rumensin often eat about 10 percent less feed, but gain as much weight as cattle on full feed that are not getting Rumensin."

Arthaud says research by the University of Minnesota's Agricultural Experiment Station showed that mature, pregnant cows getting 200 milligrams of Rumensin per head per day required 5-10 percent less feed than cows not getting Rumensin when the diet was good-quality forage, such as corn silage. The reproductive performance of each group of cows was similar.

The results were different with cows on a diet of poor-quality forage. On a corn stover diet, cows on Rumensin getting only 90 percent as much forage as full-fed control cows not on Rumensin were compared. The limited-fed cows on Rumensin did not perform as well as the control cows.

Arthaud says Rumensin is approved for use with four other classes of cattle as long as the animals weigh more than 400 pounds. The other classes are replacement beef heifers, replacement dairy heifers, stocker and feeder cattle on pasture and confined feedlot cattle.

In other Minnesota Agricultural Experiment Station research, heifers fed corn silage with 2 pounds of corn grain plus 200 milligrams of Rumensin per head per day ate only 91 percent as much corn silage as heifers on the same diet without Rumensin. However, the heifers on Rumensin gained 10 percent faster. There were no harmful effects on breeding performance.

"Rumensin can reduce the feed consumption of replacement heifers and pregnant cows when they are getting good-quality forages, such as corn silage," Arthaud points out. "Cattle on poor-quality forages, such as corn residue, should get a full feed with no Rumensin."

Producers giving Rumensin to their animals should follow the manufacturer's dosage recommendations, Arthaud concludes.

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AEA,BSS,CEO,V1,V2,V3,A2 NAGR3008

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 27, 1989

Source: Jeffrey D. Hahn
612/624-4977
Writer: Mary Kay O'Hearn
612/625-2728

PREPLANT INSECTICIDES CONTROL ROOT MAGGOTS

As gardening time approaches, remember what grew well last year and what didn't, suggests Jeffrey Hahn, entomology educator with the University of Minnesota's Extension Service.

"Gardeners who planted cabbage, broccoli, turnips, radishes and other crucifers or onions may have found that some of these vegetables wilted and died," Hahn says. "This probably was caused by insects called root maggots and could have been determined at the time by pulling up infected plants and examining them for infestations of little, white maggots."

When the vegetables are in that condition, it is too late for effective control. Instead, root maggots need to be controlled at seed planting time, he says.

Apply granular diazinon into the furrow as you are planting the vegetables. Crucifers should be drenched over the top with a diazinon spray four to six weeks later. Although root maggots are much more prevalent during wet springs, they are still common enough normally to justify treating those vegetables each year they are grown, Hahn concludes.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 27, 1989

Source: Deborah Brown
612/624-7491
Writer: Mary Kay O'Hearn
612/625-2728

EXAMINE EVERGREEN INJURY

Browning and injury to evergreens is common in home landscapes, parks and particularly along highways, where salt spray from snow removal aggravated what was already a bad situation due to last summer's extreme heat and drought.

"Often, removal and replanting is the only sensible course of action," says Deborah Brown, horticulturist with the University of Minnesota's Extension Service. "But before you do that, make sure the browned branches are dry and brittle. If they're still flexible, there's the possibility that new buds will swell and open, creating some fresh green growth this season."

Depending on how much new growth develops, you may choose a little selective pruning to get rid of the worst-looking portions, allowing expansion of new needles to mask some of the damaged areas. Then water conscientiously, right through the growing season, Brown advises.

"You can always wait to replace evergreens until early autumn, when there's still time for them to become partially

re-established before winter," she says. "But if they're really in bad shape, replace them this spring, so they'll have the benefit of several extra months' growing time. You'll have the advantage of attractive trees and shrubs in the landscape rather than scraggly reminders of last year's terrible weather."

# # #

I2,V7,V8 NAGR2990

News
and
Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 27, 1989

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

PREDIPPING TEATS MAY HELP CONTROL MASTITIS

Dairy producers having problems with environmental mastitis in their herds may want to try dipping teats before milking. That suggestion comes from Jeff Reneau, extension dairy specialist at the University of Minnesota.

"The teat dip solution must be approved for premilking teat sanitation," says Reneau. "Teats must be free of manure or dirt prior to predipping. Washing teats prior to predipping will assure consistent results."

Reneau emphasizes that predipping is not meant to be a replacement of good teat cleaning procedures but rather an enhancement of teat sanitation in a problem situation.

Predipped teats need a 30-second contact time for the disinfectant to kill bacteria. Then the teats should be thoroughly wiped dry with a separate paper or cloth towel. This avoids adulteration of milk with predip residue, Reneau points out.

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News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

April 27, 1989

Source: James Luby
612/624-3453
Writer: Sam Brungardt
612/625-6797

NORTH AMERICAN STRAWBERRY CONFERENCE TO BE FEB. 14-16 IN HOUSTON

There have been important developments in the strawberry industry since 1980, when the last North American Strawberry Conference was held. So, many scientists, extension personnel and progressive commercial growers will want to attend the Third North American Strawberry Conference next February.

The conference will provide opportunities to learn about, discuss and assess the changes that have taken place over the past decade in cultivars, genetic resources, biotechnology, biology of insect pests and diseases, pest management, cultural technologies and postharvest handling systems. It will be Feb. 14-16, immediately after the annual meeting of the North American Strawberry Growers Association, at the J. W. Marriott Hotel Galleria in Houston, Texas.

The program will feature invited speakers from North America and other continents. All conference participants may contribute poster presentations. The best poster presentations by graduate

students as senior authors will receive cash awards from the North American Strawberry Growers Association.

Persons giving papers must submit manuscripts for publication in the proceedings, which will be distributed to conference participants. Each manuscript will be peer reviewed before it is accepted for publication.

For more information about the conference, contact James Luby, Department of Horticultural Science & Landscape Architecture, University of Minnesota, 1970 Folwell Ave., St. Paul, MN 55108 (telephone 612/624-3453).

# # #

CEO,BSS,L1,SelMedia NESP3009

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 1, 1989

Source: Ken Ostlie
612/624-9272
Writer: Jack Sperbeck
612/625-1794

BLACK CUTWORMS MAY DAMAGE CORN IN SOUTHERN MINNESOTA

Corn in roughly half the counties of southern Minnesota may be susceptible to black cutworm damage.

Black cutworms don't overwinter in Minnesota, but migrate from the south. As of the last week of April, 23 of 43 southern Minnesota counties have reported large numbers of black cutworm moths in insect traps.

"This is the largest flight we've observed in the last four years," says Ken Ostlie, entomologist with the University of Minnesota's Extension Service.

Ostlie's issued a "black cutworm alert" for the 23 counties, which include Blue Earth, Brown, Chippewa, Cottonwood, Dodge, Faribault, Freeborn, Jackson, Kandiyohi, Lac Qui Parle, Lyon, Martin, McLeod, Mower, Murray, Olmsted, Pipestone, Redwood, Scott, Stearns, Steele, Swift, Waseca and Watonwan.

Whether there will be economic damage to corn depends on the weather, weed growth and timing of spring tillage and planting.

Moth numbers in traps don't tell whether the moths stayed to lay eggs, which fields they infested, how many they laid or how well the larvae survive, Ostlie says.

Highest-risk fields are untilled fields, fields with surface residue or weed growth. Ridge-tilled fields and no-till corn following soybeans are attractive egg-laying sites for the black cutworm moths.

"With normal temperatures, cutting damage on plants will start about May 21," Ostlie says.

Farmers have four control options:

--Scout fields immediately after corn emerges. If you detect black cutworm activity, decide whether to apply an insecticide "rescue" treatment. Affected plants will show holes and notches on leaves from the larvae feeding. "This is the option I prefer," Ostlie says. Even susceptible minimum till or no-till fields may not have a problem. If not, you avoid the expense of unneeded chemical treatments. Also, only part of a field may need to be treated.

--You can "starve" the black cutworm larvae by tilling fields 10 to 14 days before planting them. However, this means you will pay a yield penalty from late planting.

--Apply granular insecticides (Lorsban, Force, Dyfonate) at planting time.

--Apply liquid insecticides (Ambush, Asana, Lorsban, Pounce or Pydrin) before the corn emerges.

"The main problem with the rescue treatment approach is your ability to scout corn fields on a timely basis," Ostlie says. "Black cutworms are notorious for attacking corn in late May and early June when you're planting soybeans, harvesting alfalfa or starting to cultivate corn and aren't taking the time to monitor what's happening in your field.

"If that's apt to be the case, you may want to have someone scout the fields for you. Or, use a preventive treatment."

# # #

AEA,BSS,CEO,V1,V2,V4,F1 NAGR3017

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 1, 1989

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

KEEPING MILKING SYSTEM FREE OF AIR HELPS REDUCE MASTITIS

Keep air slips out of the milking system. That's the key to cutting the number of milking machine-induced mastitis infections in a dairy herd, according to Jeff Reneau, extension dairy specialist at the University of Minnesota.

Air slips are sudden rushes of air into the milking system through the teat cup. They are commonly referred to as "squeaks" and "squawks." Either the milking machine or the operator can cause air slips, notes Reneau.

The Minnesota specialist has these suggestions to help operators minimize air slips:

--Make sure teats are dry when the machine is attached.

--Prevent excessive air leaks when applying teat cups.

--Make sure the machine is properly aligned.

--Avoid overmilking or machine stripping.

--Always use a vacuum shutoff to break vacuum before removing the machine.

"A properly aligned milking unit will hang squarely under the

cow," Reneau points out. "Make adjustments using hose hangers immediately after machine application, and as needed during milking to be sure quarters are milked out uniformly. When alignment is poor, liner slips and uneven milkouts are more likely."

Reneau says most dairy farmers are surprised at the amount of overmilking that occurs in their herd, particularly in late-lactation cows. He recommends using end-of-milking indicators to minimize overmilking.

"The most hazardous time for air slips to occur is during overmilking," says Reneau. "Research has shown that mastitis pathogens transferred into the teat canal during overmilking are more likely to establish a new infection."

Machine stripping should never be a routine milking procedure, says Reneau. It may be necessary on a few cows with abnormal udders, but these cows should go near the end of the milking order.

Be sure to shut off the vacuum before removing the milking machine. Reneau recommends installing a vacuum shutoff on machines lacking this device. "Breaking vacuum at the teat cup during machine removal will cause a serious air slip," he says.

After the machine is off, dip teats in an approved postmilking teat dip as soon as possible, Reneau concludes.

# # #

AEA,BSS,CEO,V1,V2,V3,D NAGR3014

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 4, 1989

Source: Deborah Brown
612/624-7491
Editor: Mary Kay O'Hearn
612/625-2728

JUST SAY "NO" TO ZOYSIA GRASS

Magazines and newspaper supplements may run ads for zoysia grass plugs, which claim they'll take over your existing lawn, replacing it with tough, low-maintenance, good-looking grass you'll never have to worry about.

If that sounds too good to be true, it's only because it is, warns Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

"Zoysia can usually survive our winters with minimum dieback, but it is very slow to become established, despite advertising claims to the contrary. Worse yet, as a 'warm season' grass, zoysia stays brown until reliably warm weather greens it up in late May and it turns brown again with the first autumn chills."

Brown says people who plant zoysia plugs end up using weedkillers to get rid of them because they stick out like sore thumbs in a normal lawn.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 4, 1989

Source: Cynthia Ash
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

TLC WILL HELP STRESSED TREES, STRESS

Healthy, established trees can recover from the drought of 1988. Many trees that previously appeared healthy actually are stressed from disease, insects, other environmental factors or mechanical damage.

"These stresses rob the tree of its stored food supply--starch," points out Cynthia Ash, assistant plant pathologist with the University of Minnesota's Extension Service. When a tree is damaged by any of these factors, it uses part of its stored food supply to replace lost leaves or branches or to heal wounds.

Although the tree looks basically the same, at some point the stored food supply is used up. When this occurs, additional stresses result in dieback and sometimes the tree's death. During spring and summer 1989, regardless of the weather, many trees and shrubs will be in that "stressed" category. Others will be beyond that and die, Ash says.

"Watering is very important. Not only do plants need the water but without water they cannot take up the necessary

nutrients from the soil. Where nutrients may be deficient in soils, fertilization is important, especially on young trees and shrubs," she says. Her suggestion is an organic mulch (such as wood chips or shredded bark) placed several feet out from the trunk of the tree to help keep the soil moist and cooler and prevent weed growth. High soil temperature kills plant roots, preventing water and nutrient uptake even when water is present.

# # #

I2,V7,V8 NAGR2987

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 4, 1989

Source: Cynthia Ash
612/624-4977
Writer: Mary Kay O'Hearn
612/625-2728

DAMAGE TO TREES DURING CONSTRUCTION CAN BE FATAL

Think about preserving the trees on the lot during new home construction or when adding utility lines, sidewalks, room additions or other features.

Each year in Minnesota, these activities seriously damage and eventually kill hundreds of trees, according to Cynthia Ash, assistant plant pathologist with the Minnesota Extension Service. 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 drip line, sometimes as far from the trunk as the height of the tree," Ash says. "The actual 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 within the top 12 to 18 inches of the soil."

The tree loses its balanced system when part of the root system is removed or killed by construction activities and it takes up less water and soil minerals. "In effect, the tree's

physiology is upset; food stored in those roots is lost," Ash says. "The tree can't support the amount of top growth it had in the past. New foliage is smaller and lighter in color and branches begin to die."

If the damage is slight 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 in three to five years. Sometimes the loss takes as long as 10 years.

Damage by bulldozers or other equipment to the trunk and larger limbs can also cause problems. The water and food conducting system in the trunk and limbs may be disrupted, resulting in less flow to portions of the tree. Wounds can also provide excellent sites for canker and wood decay fungi to enter the tree and cause more problems.

"Adding soil over existing root systems during final grading must be done with caution," Ash says. "One to two inches of coarse fill can be added over the root systems of most trees. If more soil is needed, make special provisions for adequate aeration of the existing root system."

Information on preventing construction damage to trees and on controlling construction-related tree diseases is available from your county Minnesota Extension Service office or the Dial U Clinic at the University of Minnesota.

# # #

I2,I4,V7,V8 NAGR2989

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 4, 1989

Source: Deborah Brown
612/624-7491
Editor: Mary Kay O'Hearn
612/625-2728

NEWLY SEEDED GRASS TAKES SPECIAL CARE

Newly seeded grass requires special care, whether you've filled in small dead patches, overseeded the area or redone your entire yard this spring.

First and foremost, you must supplement rainfall to ensure a constant supply of moisture while the seeds are germinating, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service. She says, "This may mean watering lightly as often as two or three times a day during warm, windy weather. Overseeded areas need thorough watering weekly for the existing grass, in addition to the frequent watering schedule needed by germinating seed."

South-facing slopes and areas next to blacktop drives will heat up faster and require more water then less exposed sites.

"After seeds have sprouted, gradually reduce the frequency of watering, while at the same time increasing the amount of water you use each time," Brown advises. "Eventually you'll want to soak the soil about 6 inches down, every time you water. Typically once a week will do for loamy soils; twice a week for sandy soils that dry more rapidly."

Water early in the morning, if possible, when temperatures are cooler, humidity is higher and it's generally calmer than it will be later in the day. This limits the amount of water that evaporates, which means more will go to the soil, where it's able to benefit the grass.

Remember to mow young grass when it stands one-third taller than its desired mowed height. Brown says, "You don't want to scalp it, yet it's definitely a mistake to let new grass get tall and floppy. Then, when you do mow it, you'll take off so much it will shock the young plants. If you mow frequently enough so clippings are kept short, you need not catch them."

Overseeded areas, where new grass is mixed with established grass, should be mowed whenever the older grass requires it.

Do not use weedkillers on young grass. By autumn you can assess the situation again. If spring-seeded grass appears tough and well-established--in other words, if you can't distinguish from older grass--you may use broadleaf herbicides to attack dandelions, plantain, creeping charlie and other pesky perennial weeds. Until then, the only choice is pulling or digging them out.

Finally, try to keep foot traffic to an absolute minimum where new grass seed is growing. It shouldn't hurt to walk on it occasionally (you'll have to, when you mow), but hold off on normal use until new grass loses that tender, just-planted look. "It's too much work to have to plant all over again, just because you couldn't wait to use it!" Brown concludes.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 4, 1989

Source: Marshall Stern
612/624-9296
Writer: Jennifer Obst
612/624-2741

Editor: To obtain a b/w print or 35mm color transparency to use with this story, call Carl Walker (612/624-3708) or Jennifer Obst (612/625-2741).

ARTIFICIAL STOMACHS BRING DAIRY, HUMAN NUTRITION RESEARCH TO LAB

Finding the right balance of foods to keep you healthy, energetic and slim may often seem complicated. But your diet is simple compared to the complex requirements of the cow. Its four stomachs quadruple the challenge of finding a perfect diet.

University of Minnesota animal scientist Marshall Stern has tackled this problem with an unusual research tool. For six years, he has used eight artificial digestors in his research for the Minnesota Agricultural Experiment Station to simulate cow digestion.

To study the rumen, the first division of a cow's stomach, the digestors duplicate fermentation that occurs naturally. Fermentation is started with an inoculation of actual rumen contents. "A cow's rumen can contain 100 to 150 liters, and we take up to 8 liters," Stern says. "The cow never misses it."

The digesters are kept at about 100° F, the same temperature as the rumen. Artificial saliva is added continuously to the digesters, along with pellets of the diets being studied.

Stern is especially interested in finding ways to enable cows to use protein, the most expensive part of a ration, more efficiently. Dairy and beef nutritionists know that rations should include readily degraded proteins to aid rumen microbes as well as slowly degraded proteins to provide amino acids that can be absorbed from the intestines.

"Before anything ever reaches the cow's intestines, it undergoes a lot of degradation, fermentation and synthesis by rumen microbes," Stern explains. "If a protein is too degradable, not enough will reach the small intestine."

Soybean meal, a protein supplement commonly fed to dairy and beef cattle in the Midwest, is highly degradable. About 70 percent of its protein is broken down in the rumen, first into amino acids, then into ammonia which is eliminated as waste.

Many strategies have been devised to protect soybean meal protein, including treating the meal with heat, sodium hydroxide or alcohol. Using the fermenters has proved to be an efficient way to compare the effectiveness of these treatments.

Protein supplements can also be naturally protected and contain less degradable protein. This is the case, for example, with byproduct feeds, such as blood meal and feather meal.

Stern's studies attempt to wring every molecule of usable protein out of a ration. For example, one study focuses on the

use of wheat straw, a highly undigestable but underutilized resource that is produced on many dairy farms.

Stern says, "Researchers at the University of Illinois have found that treating wheat straw with a hydrogen peroxide solution more than doubles its digestibility. Since the straw contains only 2 percent protein, we're testing it as part of a ration supplemented with other protein sources, such as blood meal. Our studies have shown that one effective combination is treated wheat straw, blood meal and lignosulfite-treated soybean meal. It may not sound tasty, but it's the right combination for a cow's nutrition.

"The advantage of using the fermenters instead of actual cows is control. All are kept at exactly the same temperature, the same pH, and given the same amount of ingredients at the same time. Our ultimate goal, of course, is to apply the fermenter results to the animal to look at a ration's effect on milk production and growth."

While there's still plenty to learn about what constitutes the optimum diet for a cow, the research is also branching into the field of human nutrition. University of Minnesota human nutritionists Dennis Savaiano and Peggy Martini are setting out to study the mechanisms of lactose intolerance in humans. For their research, the artificial digesters will be set up to simulate human lower intestines instead of cows' rumens.

# # #

AEA,BSS,CEO,A2,D,I1,N2,V1,V2,V3 NAGR3032

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 4, 1989

Source: Brian Larson
612/624-4995
Writer: Joseph Kurtz
612/625-3168

MORE PUBLICATIONS ARE AVAILABLE ON ALTERNATIVE ANIMAL ENTERPRISES

The Minnesota Extension Service has added five new publications to its series dealing with "alternative animal enterprises."

The purpose of these publications is to provide information to evaluate nontraditional animal enterprises as possible income sources, according to Brian Larson, assistant extension specialist with the University of Minnesota.

The new titles that have been added to the series are "Rabbits" (item no. AG-FS-3698), "American Buffalo (Bison)" (AG-FS-3688), "Economics of the Dairy Goat Business" (AG-FO-3606), "Sheep--An Alternative New Income Source" (AG-FO-3691) and "Marketing Alternative Animal Products" (AG-FS-3692).

Minnesotans may obtain these publications through their county extension offices. They are also available by mail through the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. Cost per copy for the

publications on dairy goats and sheep is 50 cents, and 20 cents for the others. Minnesota orders should include 6 percent sales tax. Please order by title and item number and make checks payable to the University of Minnesota.

Other publications in the alternative animal enterprise series provide information on domesticated deer, gamebirds, farm-to-consumer meat marketing, farm flock poultry, dairy beef and honey production.

# # #

AEA,BSS,CEO,V1,V2,V3,A2,E1,M1,O NAGR3018

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 4, 1989

Source: Edward Radcliffe
612/624-9773
Writer: Jennifer Obst
612/625-2741

Editor: Call Carl Walker (624-3708) or Jennifer Obst (612/625-2741) to obtain a b/w print or 35mm color transparency to use with this feature.

SUBTROPICAL TREE MAY PROVE TO BE POTATO BEETLE'S NEMESIS

What do grasshoppers in West African millet fields and beetles in Minnesota potato fields have in common? Both are big trouble...and both may have met their match in a substance extracted from a subtropical tree long known for its medicinal properties.

The neem tree is "truly admirable," says Ted Radcliffe, a University of Minnesota entomologist who has studied its use in Africa and sees its potential for tackling a North American problem: insects resistant to pesticides.

Neem, one of the few trees that grows in the arid subtropics, has been widely planted in West Africa to stave off the encroaching desert. Neem's insecticidal and medicinal properties have long been known in folk tradition. In West Africa, stored food and household goods, such as woolens, are covered with neem leaves for protection, Radcliffe says. "It's used commercially to make soaps and

toothpaste," he adds. "In Africa, people chew the twigs for the bactericidal effect."

Radcliffe and colleagues Dave Ragsdale, Dave Noetzel and Florence Dunkel, have been studying the use of neem as a natural repellent of pests of millet, a staple of the West African diet. They began their research at the request of Peter Strzok, president of the Agency to Facilitate the Growth of Rural Organizations, a Minnesota volunteer organization involved in international rural development. The project is funded by the U.S. Agency for International Development.

Their research has shown neem is effective, primarily as a feeding deterrent, against 11 species of grasshoppers, including all of the economically important pests of millet and sorghum.

The insecticidal properties of the neem tree are most concentrated in the kernels of its olive-size fruit. The researchers have found that an extract can be easily made by grinding the kernels and soaking them 2 to 12 hours. When the solution is sprayed on the plants, "not only does it repel insects, but it interferes with their growth. If the insects injest a little of the sprayed plant, they may become sterile," Radcliffe says.

The researchers are testing neem in West Africa on millet seedlings. But Radcliffe thinks the real future for neem in Africa is as a readily available, easily prepared, natural protectant for vegetable crops grown by subsistence farmers.

Radcliffe suspected this natural product might also be useful in Minnesota against the Colorado potato beetle. His research for the

Minnesota Agricultural Experiment Station has shown this pest to be increasingly resistant to chemical insecticides. "The Colorado potato beetle's pesticide resistance has been growing at least threefold a year," he says. "Some have developed a 500-fold resistance in six years."

However, Radcliffe's first match of neem against the Colorado potato beetle did not indicate they were perfect enemies. "Last summer," he says, "we sprayed single row crops with different rates of neem, and got only 30 to 40 percent control, which is not adequate."

So, he changed tactics. "This time," Radcliffe says, "we put it on big plots. And, before we applied it, we used a conventional insecticide to take off the adults and big larvae. But there were millions of eggs left, which were exposed to neem from the time they hatched. Well, we never found a Colorado potato beetle in that field for a month, and adjacent check plots averaged about 25 beetles a plant. So this was not trivial control. Neem was more effective than all the most current conventional insecticides."

Radcliffe suspects the big larvae didn't die from the neem in the first, unsuccessful trial because they had enough reserves not to starve to death even if they didn't eat for several days.

Neem's greatest potential is not its ability to induce wholesale insect annihilation. The war against pesticide resistance requires more subtle strategies. Radcliffe explains: "Pesticide resistance normally begins in one insect in a billion. It's rare because, initially at least, the resistant insect is usually at a fitness

disadvantage, since it has to devote some resources and energy to this resistance mechanism.

"But if you keep the insecticide pressure on, over time the resistant insects will become increasingly fit, because they will have to adapt." Radcliffe thinks neem may help take that pressure off.

To test his theory in the field, he plans to use neem in rotation with pathogens and insecticides. He says, "If we can treat the hot spots this way and dilute the resistant population, we might be able to run resistance back down. That's the grand strategy."

# # #

AEA,BSS,CEO,I2,L1,M1,N2,V1 NAGR3030

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 4, 1989

Source: Theodore Labuza
612/624-9701
Writer: Jennifer Obst
612/625-2741

Editor: 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 feature.

AT GROCERY, TTI'S MAY ANSWER QUESTION 'TO BUY OR NOT TO BUY?'

When you check the date on a carton of milk before buying it at the grocery, you demonstrate your understanding of kinetics. In scientific language, kinetic theory involves the thermodynamic behavior of matter. In plain language, kinetics explains what happens to milk or other refrigerated products after they go through temperature change.

Ted Labuza and Petros Taoukis, University of Minnesota food scientists, study kinetic theory and its practical application to food quality. Their research, which is supported by the Minnesota Agricultural Experiment Station, may one day enable you to reach for that carton of milk--and many other foods--with much more confidence that it will be of good quality.

Labuza and Taoukis have been researching the use of time-temperature indicators (TTI)--small tags, which when affixed to a food or food package, may give a clear reading of the

remaining shelf life of the food.

The quality and useful shelf life of a food product depend strongly on its temperature history, from production to consumption, including distribution and storage, Labuza says.

Minnesota law requires a date stamp on every food product with a shelf life of less than 90 days, an attempt to give the consumer a guide to food freshness. But the date stamp is not necessarily accurate, Labuza says. Though he was instrumental in that law's passage, he admits the open date requirement is not perfect because, "the date does not tell you whether or not the product has been abused."

A better approach is to monitor the time-temperature exposure each food package has gone through from the plant, where it was processed, to the consumer's home. "There have been over 150 different kinds of time-temperature indicators designed to do this, but very few have ever made it to market," Labuza says.

Three types of TTI's--mainly on temperature-sensitive materials, such as photographic film, frozen blood and vaccines--are in use today. Each has a slightly different monitoring device. For example, one made by 3M, is a flat little tag, with a blue line that moves up a wick. If the line moves up into a window, the blue color appears and the consumer knows the product has been abused.

One reason these tags are not in general use is their cost--about 25 cents apiece. "The food industry would like them to cost about a half cent apiece," Labuza says. He thinks TTI's could

become popular enough for the price to come down if a way can be found to easily match the right time-temperature indicator to each particular food.

Taoukis has removed one block to this. He has developed a mathematical formula, based on chemical kinetics and diffusion principles, to correlate the response of a TTI to the change in quality of a food product that has undergone the same time-temperature exposure.

Knowing this, a TTI response can be predicted for any constant or variable temperature, Taøukis explains. Thus, the food industry can select the most appropriate TTI without doing extensive, side-by-side tests of the food and the indicator.

The challenge for the food manufacturer is to do appropriate shelf life studies for the food. "To use these tags, you have to know how the food responds to different temperatures," Labuza says.

To help, Labuza's lab has been testing different kinds of food products at different constant temperatures. He says, "One of our goals has been to use accelerated shelf life tests, which put products at higher temperatures and then use that information to mathematically project what would occur at lower temperatures."

Once the "kinetic characteristics" of both the TTI and the food are known, the amount of food quality left in a product at any time can be calculated. This information can be used to improve and tightly control food distribution, and optimize rotation on the grocery shelf, Labuza says. In fact, a tag is now

available which can be read by the laser reader at the checkout counter. The reader beeps if a product's quality is unacceptable.

Use of such indicators would be good for both producers and consumers. Labuza says, "Food companies, of course, would like to be able to guarantee as high a quality of their food on the shelves as possible, because if food is of poor quality, the customer is not likely to buy it again. A workable tag would build brand allegiance and a satisfied customer."

# # #

AEA,BSS,CEO,H1,H2,N2 NHEC3028

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 8, 1989

Source: Ray Arthaud
612/624-9791
Writer: Joseph Kurtz
612/625-3168

FEED BEEF COWS NOW TO BOOST NEXT YEAR'S CALF CROP

Getting beef cows to return to estrus may be a special problem this year unless the cows get hay or other feed early in the grazing season. Cows that fail to come into heat are a major cause of a low percent calf crop, notes Ray Arthaud, extension beef specialist at the University of Minnesota.

"The poor pastures and shortage of feed resulting from the 1988 drought has left some cows in poor condition," says Arthaud. "Many are already nursing calves, and providing enough milk is a higher priority for the cow's body than returning to estrus."

Arthaud says many cattle producers tend to "turn out" cows before pastures have produced adequate growth. The tendency is likely to be stronger this year because of the shortage and high price of stored feed.

"Cows that provide enough milk to wean calves weighing over 600 pounds are under particular stress," says Arthaud. "Even a full feed of good quality hay plus early pasture may not provide

enough energy to meet their needs for milk production and return to estrus. In such cases, feeding two or three pounds of grain per cow per day is likely to be a good investment."

Studies show that about 17 percent of the cows exposed to breeding are not pregnant at the end of the breeding season, according to the University of Minnesota specialist.

It's not only important that a cow come into heat; she needs to do so in time to breed early. "Cows that conceive in the second 21-day cycle will probably wean calves 30 to 45 pounds lighter than cows that conceive in the first 21 days," Arthaud says. "Every delay in conception of one heat cycle is likely to decrease weaning weight by a similar amount. Thus, cows that do not conceive until the fourth cycle may wean calves 75 to more than 100 pounds lighter than their potential."

# # #

AEA,BSS,CEO,V1,V2,V3,A2 NAGR3035

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 8, 1989

Source: Deborah Brown
612/624-7491
Editor: Mary Kay O'Hearn
612/625-2728

FOLDER OFFERS CARE TIPS FOR DROUGHT-STRICKEN YARDS

A new publication, "Restoring the Urban Landscape: Methods for Recovering from Hot, Dry Weather," is available from county offices of the University of Minnesota's Extension Service.

This folder follows last year's "Drought and the Urban Landscape," also from the Dial-U Insect and Plant Information Service. The new publication deals with lawn repairs and tree and shrub care and offers gardening tips for coping with dry conditions. It also alerts consumers to insect and disease problems expected this year.

To obtain a copy of the publication, ask your county extension office for item AG-FO-3727.

# # #

I2,V2,V7,V8

NAGR3021

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 11, 1989

Source: Peter Jordan
612/624-9281
Writer: Dave Hansen
612/625-7290

Editors: Call Carl Walker (612/624-3708) or Dave Hansen (612/625-2741) to obtain a b/w print or 35mm color slide to use with this story.

MOOSE FIND MINNESOTA FORESTS HOME, SWEET HOME

Minnesota's herd of more than 12,000 moose is one of the two largest of the lower 48 states. Only Maine's might be larger. "It's an important state resource," says University of Minnesota wildlife researcher Peter Jordan. "Canoeists in the Boundary Waters who see a moose remember the encounter as the high point of their wilderness trip."

Jordan is particularly interested in how timber managers can improve moose habitat. His studies for the university's Agricultural Experiment Station have followed two timber management approaches common in northern Minnesota: natural regeneration to favor aspen, and planting conifer seedlings. The conifers, or evergreens, go mainly to paper mills. Aspen, considered a weed only two decades ago, is the mainstay of Minnesota's expanding waferboard industry, the world's largest.

"Moose prefer a diversity of forages," Jordan explains. "In the summer, they eat leaves of trees and shrubs, plus aquatic vegetation. In the winter, they eat deciduous twigs plus some conifer foliage."

Moose also need mature stands for cover. Jordan says, "Some small changes in timber management could really improve the habitat for moose."

In the national forests where Jordan conducts his research, timber is managed in stands of 10 to 200 acres. When harvested, these stands are cleared of almost all trees. This clearcutting makes the sites better habitat for moose and many other species of wildlife. Jordan explains, "Forest regrowth is nutritious, abundant and within reach. In a sense, clearcutting simulates natural wildfire, which is extremely important to many forest animals."

If conifers are to be planted, the site is prepared by pulling out roots of the sprouting hardwoods to control potential competitors. Then after spruce or pine are planted, broadleaved plants are further controlled, usually with herbicides.

For aspen regeneration, no chemicals are used. If aspen trees were present before, clearcutting stimulates resprouting, and the vigorous sprouts take over rapidly. This is an economical form of forest management which leads to a sudden flush of an important forage for moose--aspen sprouts.

However, the speed with which aspen grows and the extent to which it squeezes out other plant species results in much less

forage for moose within a decade or two, Jordan says.

In conifer plantations where broadleaf species compete with the timber crop, glyphosate is often applied. This herbicide kills most broadleaf plants. "If a different herbicide--2,4-D--is used, the competing plants are set back for a few years rather than killed," Jordan says. "This serves moose better by allowing some browse while adequately controlling plants competing with the conifers."

Jordan and experiment station colleagues have demonstrated that the presence of some broadleaf shrubs actually improves the growth of spruce saplings. "Spraying with 2,4-D will save money plus save food for the moose and other browsers such as deer, hares and beavers," he says.

Jordan also recommends that timber be managed "to produce a more diverse mosaic or mix of the two major timber types--aspen and conifers--each with its advantages to moose and to the timber markets."

The U.S. Forest Service is committed to a policy of "integrated resource management," where the resources include wildlife and recreation as well as timber, Jordan says. Can managers come up with such mixtures, both economically and ecologically reasonable? Jordan feels it is possible, and he is convinced that mixed mosaics would offer habitat for more plant and animal species, benefitting them all.

# # #

AEA,BSS,CEO,H4,L2,N2,R,V7,V8 NNRD3031

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 18, 1989

Source: Deborah Brown
612/624-7491
Editor: Mary Kay O'Hearn
612/625-2728

FERTILIZE DROUGHT-STRESSED TREES, SHRUBS

Many trees and shrubs were stressed by last summer's heat and drought. They suffered from lack of moisture, but what is less obvious is that they also suffered from lack of nutrients, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

Trees pick up needed nutrients from the soil, dissolved in water. When soil lacks moisture, there's no way for the roots to take in the nutrients, she explains.

"It's a good idea to fertilize drought-stressed plants early enough this spring to take advantage of moisture left in the soil from snowmelt and the spring rains we've had," Brown notes. "Do not fertilize heavily, though. That would only place more stress on the plants."

It's best to water thoroughly when you fertilize trees and shrubs, then plan to continue watering every 7 to 10 days unless there's ample rainfall. If you anticipate a problem with regular

watering, be sure to fertilize with a time-release fertilizer that is active only in the presence of moisture. Avoid high nitrogen formulations on anything but lawns, as they send plants the message to put out lots of leafy growth. That's not what you're looking for to aid drought recovery, Brown cautions.

# # #

I2,V2,V7,V8 NAGR3025

News
and
Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 18, 1989

Source: Cynthia Ash
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

AVOID WOUNDING TREES

Lawnmowers and weed whips probably cause the most common type lower trunk injuries to trees in urban areas.

A tree's branches and trunk serve many purposes, one of them is protection of the living tissues just beneath the bark. Wounds break this protective barrier and allow canker and wood decay fungi to enter, according to Cynthia Ash, assistant plant pathologist with the University of Minnesota's Extension Service.

"The tree's natural defense mechanism will attempt to heal over the area and stop any infection from continuing into the tree, but trees repeatedly wounded or under stress may not be able to defend themselves and serious damage can result," Ash says.

Prevent wounding whenever possible, she suggests. If wounds do occur, their healing can be improved by keeping the tree in a vigorous condition. Except for oaks (because of oak wilt), wound dressings are not necessary.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 18, 1989

Source: Cynthia Ash
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

CHECK GLADIOLUS CORMS FOR DECAY

Before planting gladiolus corms, examine each one for evidence of decay or storage rot. Remove the husk to make inspection easier, advises Cynthia Ash, assistant plant pathologist with the University of Minnesota's Extension Service. "Destroy any corms that are badly damaged," Ash advises. "Before planting, treat corms with a fungicide for disease protection. Thiram and captan work well."

# # #

I2,V7,V8

NAGR3022

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 18, 1989

Source: Cynthia L. Ash
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

DISEASE OF SPRUCE CAN BE CONFUSED WITH EFFECTS OF DROUGHT

Rhizosphaera needlecast, caused by the fungus Rhizosphaera kalkhoffii, can seriously damage spruce trees. And, the needle discoloration this disease causes can be confused with that caused by adverse environmental conditions, cautions Cynthia Ash.

"First let's talk about Rhizosphaera needlecast, a fungus that attacks individual needles and turns them reddish-brown," says Ash, an assistant plant pathologist with the University of Minnesota's Extension Service. "Newly developing needles are susceptible and become infected in May and June but do not discolor until the next June. The fungus produces reproductive structures, visible with magnification, on the needles it has infected. These structures are black and fuzzy, and they replace the white stomata, or tiny spores, on the needles. These signs will help you distinguish this disease from other problems."

Needlecast develops first on the lower branches of the tree and works its way up the tree, Ash notes. The tips of the

branches are almost always green. Yet, environmental desiccation (winter injury, sunscald, drought, etc.) affects the most exposed portions of the tree--branch tips and needles on the top side of the branch. Needles in this area of the tree turn brown and drop.

When conditions are severe, the branch will be killed. Check for this by bending the branch, if it snaps easily it's dead. Rhizosphaera needlecast does not kill the branch. However, after several years of needle infection and needle loss the branch may die on its own.

To control Rhizosphaera needlecast, Ash recommends applying chlorothalonil or bordeaux mixture when the new needles are 1/2 to 2 inches long and again in three to four weeks. Keep spruce trees well watered during dry periods to minimize the impact of adverse environmental conditions. Do not plant young trees too close together.

# # #

12,V7,V8 NAGR3023

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 19, 1989

Source: William J. Boylan
612/624-1727
Writer: Sam Brungardt
612/625-6797

EXPERTS FROM 2 CONTINENTS TO SPEAK AT DAIRY SHEEP SYMPOSIUM

Ewe's milk is used extensively to produce dairy products in Europe and the Middle East, and North American farmers could well find sheep dairying profitable also.

Says William J. Boylan, a University of Minnesota animal scientist who conducts dairy sheep research for the Minnesota Agricultural Experiment Station, "Of all sheep milk products, Americans are most familiar with Roquefort, which is made in France. Each year, millions of dollars worth of Roquefort and other sheep milk cheeses are imported into the United States, and there's no reason why many of these cheeses cannot be produced domestically. Cheese and yogurt are already being made from sheep milk in New York, Vermont and Washington as well as Minnesota."

Persons interested in sheep dairying will be able to hear a number of internationally recognized experts speak this summer, during the North American Dairy Sheep Symposium at the University of Minnesota in St. Paul.

The symposium, organized by the university's Center for Alternative Plant and Animal Products and Department of Animal Science, will be July 25-28. It will feature experts from the United Kingdom, France, Canada, Mexico and the United States who will talk about producing sheep milk; manufacturing sheep milk products; and the economics, opportunities and strategies of starting a new business.

Among the speakers will be sheep dairyman Stewart Bell, who helped organize the sheep dairying industry in England, where the number of farms producing sheep milk has grown from 5 to about 500 during the past few years. Peter Dode, an engineer with the French company Gascoigne Milking Equipment, Ltd., will speak on the dairy sheep industry in Europe. Transgenic milk sheep and embryo preservation and transfer techniques will be topics that James Murray of the University of California-Davis will address.

Persons who attend the symposium may elect to participate in a tour afterwards, which will include a visit to the University of Minnesota's sheep milking research parlor and other sheep dairying operations as well as scenic and historic sites.

Persons desiring registration and other information about the North American Dairy Sheep Symposium should contact Extension Special Programs, 405 Coffey Hall, University of Minnesota, St. Paul, MN 55108 (phone 612/625-1978 or 800/367-5363).

# # #

AEA,BSS,CEO,E1,M1,D,O,V1,V2,V3,SelMedia NAGR3040

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 25, 1989

Source: Jeffrey D. Hahn
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

DEER TICK/LYME DISEASE SEASON DRAWS NEAR

Memorial weekend marks the beginning of the high-risk season for Lyme disease, which is spread by deer ticks. Although infected ticks are present from April through November, most Lyme disease reports come in June and July.

The deer tick, small with a brownish body and black legs, is found in tall grass and underbrush and can be readily picked up by campers and hunters, says Jeffrey Hahn, entomology educator with the University of Minnesota's Extension Service. The adults feed from March to June and August to November, while the nymphs feed from June to August.

"If you know you will be in heavily wooded areas, take these appropriate safety precautions," Hahn suggests. Wear protective clothing, such as long-sleeved shirts and pants tucked into heavy socks. Apply repellents to clothing for further protection. A new, effective repellent, called Permanone, is available this summer, Hahn points out.

Check yourself carefully after returning from areas when deer ticks may be present. Nymphal deer ticks are very small and can be difficult to detect.

See a doctor immediately if you believe you have been bitten by a tick carrying Lyme disease. The first sign of the disease is a red skin lesion accompanied by flu-like symptoms. Since its indicators are similar to other illnesses, it can be difficult to diagnose. One thing that could help is having the tick that bit you so an expert can identify it. Correct identification of the tick is very important for a proper diagnosis of Lyme disease.

# # #

I1,I2,L2,V7,V8 NAGR3027

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 25, 1989

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

DAIRY INDUSTRY PLAYS MAJOR ROLE IN MINNESOTA ECONOMY

June is dairy month, the traditional time to spotlight the importance of the dairy industry in Minnesota and throughout the nation. A look at Minnesota's dairy industry shows its economic impact on the state totals approximately $2.2 billion, according to Joe Conlin, extension dairy specialist at the University of Minnesota.

Conlin's figures show dairying provided support for 35,000 Minnesota families in 1988. These included 16,000 dairy farm families, with another 9,500 persons involved in the processing and distribution of dairy products and the same number providing supplies and services to the industry.

Minnesota's dairy farms sold nearly $1.2 billion worth of milk at the farm level in 1988. Processing of this milk added a value of $500 million. Sales of cows and calves from dairy farms totaled $15 million. Activity in transportation, credit, feed, equipment, materials and services for the dairy industry totaled $500 million.

Minnesota ranks fourth in the United States in both number of dairy cows and total volume of milk produced. The state has roughly 800,000

dairy cows, and they produce about 10 billion pounds of milk each year. In terms of fluid milk, this would be 5 billion quarts or 1.25 billion gallons.

Not much of the milk produced on Minnesota farms becomes milk in the grocery store, however. Only 13 percent of the milk produced in Minnesota is consumed as fluid milk. The other 87 percent is processed into dairy products such as cheese, butter, ice cream and powdered milk.

Conlin says the total milk volume of 10 billion pounds is about the same as 30 years ago, even though the number of cows has declined by more than half since then.

About one-fifth of the farms in Minnesota are involved in dairy production. Nearly all Minnesota dairy farms are family operations. The average dairy herd in Minnesota has 43 cows, each producing 13,000 pounds of milk.

Milk production is also the number one producer of cash income on Minnesota farms, accounting for 20 percent of farm cash receipts.

"The Minnesota dairy industry became established and has prospered through most of this century for some very good reasons," says Conlin. "Minnesota has some important advantages for producing milk. There is a plentiful supply of competitively priced feeds. Farms are family owned and operated with little hired labor. There are significant land areas where alternative farming systems are limited because of topography, soil and climate. Also, Minnesota has a plentiful supply of fresh water."

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 25, 1989

Source: Emily Hoover
612/624-6220
Writer: Mary Kay O'Hearn
612/625-2728

PUBLICATION LISTS 2 DOZEN GRAPE VARIETIES FOR MINNESOTA

Characteristics of 24 grape varieties and their origins are described in "Growing Grapes for Home Use," a newly revised Minnesota Extension Service publication.

"Grapes can grow in almost any part of Minnesota," according to the publication's authors, Emily Hoover, University of Minnesota extension horticulturist, and Peter Hemstad, assistant scientist.

The Minnesota Agricultural Experiment Station introduced three of the varieties listed in the publication--Bluebell, Edelweiss and Swenson Red. Aurore, DeChaunac, Foch, Millot, Seyval and Vignoles originated in France, and other varieties listed were developed in Canada, New York, Massachusetts, Missouri and South Dakota. Elmer Swenson of Osceola, Wisc., who has been breeding hardy grapes for more than 40 years, developed five of the varieties listed.

A table lists the relative hardiness of each variety; the color of its berry; whether it ripens early, midseason or late;

and its principal uses (juice or jelly, table grapes or wine).

The publication also has information on planting, pruning, harvesting, propagating and dealing with pests.

Minnesotans may obtain a copy of "Growing Grapes for Home Use" through their county extension offices. Residents of other states may order copies for 50 cents each from the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. Ask for item number AG-FO-1103, and make checks payable to the University of Minnesota.

# # #

AEA,BSS,CEO,I2 NAGR3042

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 25, 1989

Source: Jeffrey D. Hahn
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

SPRAY BIRCH TO CONTROL LEAFMINERS

Birch leafminers are wasp-like insects that attack birch trees. "Most of us don't notice the damage until after the larvae finish feeding on the leaves and the leaves turn brown," says Jeffrey Hahn, entomology educator with the University of Minnesota's Extension Service.

Describing the life history of the birch leafminer, he says adults emerge in the spring as the birch leaf out. The females then lay eggs singly in leaves. Eggs hatch into small, caterpillar-like insects.

These larvae feed on the tissue between the upper and lower leaf surfaces, creating a "mine," which starts out small then enlarges. Sometimes mines can cover the whole leaf.

"In normal years," Hahn notes, "birch leafminer defoliation does not stress healthy birch, and control is applied for aesthetic reasons." However, in the aftermath of last year's drought, birch leafminer feeding will further stress birch, except river birch, making them more susceptible to bronze birch borer

attack. Bronze birch borer often kill stressed, unhealthy birch.

"Control birch leafminers with an insecticide, such as acephate (Orthene), when the mines are still small. A soil injection with Meta-Systox-R2, using the Kiornitz system, can also be applied by a plant health specialist when the mines first appear," Hahn says.

A weather forecasting computer program estimates that birch leafminer mines will first appear in the Twin Cities May 27. This will happen sooner if temperatures are above average, Hahn believes.

# # #

I2,V7,V8 NAGR3026

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 25, 1989

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

DEVELOP STRATEGY TO IMPROVE FEED EFFICIENCY IN HOGS

Getting the most pork possible from each pound of feed is a key to the profitability of a hog operation. And in order to improve feed efficiency, pork producers need to follow a definite strategy, notes Jerry Hawton, extension swine specialist at the University of Minnesota.

Hawton lists these items as important considerations in improving feed efficiency:

--Produce more pigs from each sow. "If a sow eats a ton of feed per year and produces 20 pigs, you have a 100-pound feed charge against each pig," Hawton says. "But if she produces only 14 pigs per year, you have a 143-pound feed charge against each pig."

--Reduce feed waste. "If you can see feed on the floor in front of the feeder, you probably have feed wastage of five percent or more," says Hawton. "It's not uncommon to see wastage of 10 percent or more."

Hawton says wastage of 1 percent amounts to about 6 pounds of feed per hog through the growing and finishing stage. At 8 cents per pound for feed, that's about 50 cents per pig. But if wastage is 5 percent, the loss is $2.50 per pig.

Good feeder management and proper feeder adjustment are keys to reducing waste, according to Hawton. "Make pigs work for the feed," he advises. "In a properly adjusted self-feeder, the bottom of the feed trough should be nearly empty. Of course, you can restrict the feed flow too much and impair performance. That's where management comes in."

--Sell hogs at more moderate weights. "When the market price is in the low 40s or lower, it's difficult to get a return on feed costs when diet cost is 7 to 8 cents per pound or more and you carry hogs past 230 pounds," says Hawton.

--Use the "all in, all out" system if it can fit your operation. Moving an entire group of hogs into and out of a building at one time makes it easier to break disease cycles and to get rid of "tail-enders."

--Buy feeder pigs from one source. This disease-control measure also reduces fighting and stress.

--During winter, keep buildings warm enough. When the temperature in a building drops below 55 degrees F, pigs have to use some feed to maintain body temperature, says Hawton. In cold finishing units, proper stocking density is important. Keeping a facility full helps keep the temperature up.

During hot weather, provide some means to cool pigs, such as drip coolers or mist sprayers.

--Provide enough space. Hawton says confinement finishing units should provide at least 7 square feet of floor space per animal. Eight square feet is preferable during the summer.

--Consider pelleting feed to reduce wastage. Check the cost of pelleting and determine if pelleting is cost-effective.

--Add fat to the ration. Hawton recommends adding 3 to 5 percent fat when it is economical to do so. Research indicates that each 1 percent of added fat improves feed efficiency approximately 2 percent. However, there's little payback when fat levels exceed 5 to 6 percent in growing-finishing rations, according to the University of Minnesota specialist.

--Add antibacterial additives to rations at approved levels to promote growth. These additives are particularly beneficial in the starter and grower phase, says Hawton.

--Produce animals with less backfat. It takes more feed to develop fat than it takes to develop muscle. Hawton says feed efficiency starts to decline when the backfat thickness reaches 1.3 inches.

# # #

AEA,BSS,CEO,P1,V1,V2,V3 NAGR3044

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 30, 1989

Source: Cathie Bergum
612/625-3775
800/367-5363
Writer: Sam Brungardt
612/625-6797

GRAIN LEGUMES, SOYBEAN UTILIZATION ARE TOPICS OF PROCEEDINGS

Two publications--one on grain legumes as alternative crops and the other on soybean utilization alternatives--are available from the University of Minnesota. The publications are the proceedings of symposia organized by the university's Center for Alternative Plant and Animal Products.

"Grain Legumes as Alternative Crops" is the proceedings of a symposium held in July 1987. The 196-page publication contains 21 papers on approaches and opportunities in the development of new crops and case studies of new legume crop (adzuki bean, peanut, specialty soybeans) development as well as presentations about mung bean, cowpea, lima bean, field beans, dry peas, lentils, chickpeas, fava beans and lupines. Cost of the publication is $20, including postage.

The other publication, "Soybean Utilization Alternatives," is the proceedings of a symposium held in February 1988. The 432-page publication contains 33 papers on soybean utilization, past and present; chemical characteristics; composition

modification; nutritional value; animal feeding; industrial use; human food use and the future of soybean utilization as well as summaries of the symposium's seven poster sessions. Cost of this proceedings is $30, postage included.

The proceedings from two other symposia are also available: "Commercial Field Production of Cut and Dried Flowers" ($20, postpaid) and "Shiitake Mushrooms: The Proceedings of a National Symposium and Trade Show" ($20, postpaid).

To obtain any of these publications, mail a check, payable to the University of Minnesota, along with the title of the publication desired to Extension Special Programs, 405 Coffey Hall, 1420 Eckles Ave., St. Paul, MN 55108. Overseas customers who wish airmail delivery should include $2 per copy more.

# # #

AEA,BSS,CEO,E1,F1,H2,M1,V1 NESP3047

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

May 30, 1989

Source: Cathie Bergum
612/625-3775
800/367-5363
Writer: Sam Brungardt
612/625-6797

GRAIN LEGUMES, SOYBEAN UTILIZATION ARE TOPICS OF PROCEEDINGS

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# # #

AEA,BSS,CEO,E1,F1,H2,M1,V1 NESP3047

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 1, 1989

Source: George Marx
218/281-6510
Writer: Joseph Kurtz
612/625-3168

CANOLA MAY OFFER FEED SAVINGS TO DAIRY PRODUCERS

Dairy producers who have access to canola meal may be able to cut their feed bills by feeding this protein source. Canola meal can be used as the total supplemental protein source for all classes of dairy cattle, according to George Marx, University of Minnesota extension dairy specialist.

"It is easy to balance conventional dairy rations using canola meal," says Marx, who is stationed at the Northwest Experiment Station at Crookston. "Animals getting this feed as a protein source should perform as well as animals getting soybean meal."

Canola was once called rapeseed. However, plant breeders have changed the characteristics of the rapeseed plant to provide a more favorable chemical and enzyme makeup, according to Marx. The changes in the plant are the reason for the change in name.

Canola is grown primarily for its oil, with the meal being a by-product. Marx says canola meal is much safer to feed than rapeseed meal and does not reduce feed intake.

"Canola meal should have the same value as soybean meal on an actual pound-for-pound of protein basis," says Marx. "On a pound-for-pound of meal basis, canola meal has 80-85 percent of the value of soybean meal. Price is the determining factor in deciding which is the better buy."

Canola is not widely grown in the U.S., and so the availability of canola meal is limited here. However, the product is readily available in Canada, which produces over 27 million acres of canola annually.

# # #

AEA,BSS,CEO,V1,V2,V3,D NAGR3056

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 1, 1989

Source: Jeffrey Hahn
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

PROTECT APPLES FROM MAGGOTS

It's time to start thinking about apple maggots and how to protect your apples from these flies.

They have been ground dwellers as pupae since fall, but starting about July 1, they will begin emerging as adult flies, according to Jeffrey Hahn, entomology educator with the University of Minnesota's Extension Service. "The adults are small, black and white, and resemble house flies. They do not all come out at the same time but will emerge throughout the summer. Soon after they emerge, they will lay eggs in the apples."

Once the maggots hatch from these eggs, they will feed and tunnel into the flesh of the fruit causing the brown tunnels that might eventually rot. Maggot-infested apples will show small, pock-like marks where the eggs were deposited, and sunken, discolored areas where the maggot has tunneled.

There are controls for maggots, Hahn says. An effective, nonchemical method is the use of sticky traps. These can be purchased from gardening catalogs or made at home by using a ball,

about 3 inches in diameter, colored red or black and coated with a sticky substance, such as Tanglefoot. "Place one trap for every 100 apples or about five traps in an average," he suggests.

Insecticides can be applied once every 10 to 14 days starting July 1. Calendar spraying can be avoided by using a single sticky trap to monitor maggot activity. Sprays applied when two to five apple maggots are found on the trap also provide good coverage usually with less insecticide use.

An alternate spray schedule has insecticides applied two days after a rainfall or a watering of 1/2 inch or more, after July 1. The flies are more likely to emerge from the ground when it is wet. This method usually uses less insecticides, although the results may not be as good.

Diazinon and Sevin are effective chemicals for the homeowner to control apple maggots, says Hahn.

# # #

I2,V2,V7,V8 NAGR3049

News
and
Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 8, 1989

Source: Robert D. Appleman
612/624-4995
Hugh Chester-Jones
507/835-3620
Writer: Joseph Kurtz
612/625-3168

CHOPPED NEWSPRINT CAN PROVIDE GOOD DAIRY BEDDING

Shredded newsprint is a satisfactory bedding material for dairy cattle if producers follow certain precautions. That is the conclusion of two University of Minnesota dairy scientists who began a research trial on this topic in 1987.

Many dairy producers are still short on bedding because of the 1988 drought. This shortage is likely to last until after the small grain harvest. As a result, several companies are making shredded newsprint available as an alternative to straw.

Because of the interest in paper as bedding, University of Minnesota dairy scientists Bob Appleman and Hugh Chester-Jones began a study in 1987 at the University's Southern Experiment Station at Waseca. "We found that shredded paper is a viable alternative source of bedding," said Appleman, "and it takes only 80 percent as much dry paper as dry straw in free-stall barns to maintain the same level of cleanliness."

Appleman said straw is currently costing dairy producers up to $70 per ton. Some companies are delivering shredded paper to the farm for $45-55 per ton.

The research also indicates that the paper does not support the growth of environmental bacteria as well as straw. "This is especially true unless and until paper bedding becomes saturated with manure," said Appleman.

Chester-Jones said experience at Waseca indicates that newsprint, when chopped, presents no problems to liquid manure handling systems. However, if the newsprint is shredded only, and not chopped, there is a tendency for more waste, since the cattle drag more of the paper out of the stalls.

"Because of this, we recommend running the paper through a small-bale chopper or forage chopper if it is to be used in free stalls or tie stalls," said Chester-Jones.

The Minnesota scientists said it is important to use only newsprint as bedding. "Avoid large chunks of cardboard," said Appleman, "and avoid shredded paper containing slick magazine covers. Slick paper, when shredded, becomes sharp and can cut teats."

Appleman said the most frequent problem with paper occurs when winds can reach the paper and it blows about the farmstead.

Appleman said he has checked with a number of biochemists associated with the printing industry and the paper recycling industry and has been assured that heavy metals in the ink do not present a problem. In addition, University of Minnesota

agricultural engineer Phil Goodrich has conducted a study on the amount of heavy metals in mixed paper. The study indicated most land can support a lifetime accumulation of up to 100 tons per acre of mixed paper before addition of heavy metals to the soil becomes a concern. Goodrich said mixed paper tends to contain higher levels of heavy metals than newsprint.

On farms where there is a manure pack for either dairy or beef cattle, it is not necessary to rechop shredded paper to get it through a manure spreader, according to Appleman.

Shredded paper for bedding is available in 60-lb. and 1,000-lb. bales. Chester-Jones said the 1,000-lb. bales can be broken off in sections like a hay bale, while the 60-lb. bales are more difficult to break apart.

Shredded or chopped paper is currently available from several sources in the Twin Cities area and in Mankato and Rochester.

# # #

AEA,BSS,CEO,V1,V2,V3,V4,D,E4 NAGR3065

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 8, 1989

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

DON'T USE FOLIAR FERTILIZERS AS STANDARD MANAGEMENT PRACTICE

Foliar fertilizers don't increase crop yields and aren't worth the extra cost. That's assuming you've used a good fertilizer program based on a sound soil testing program.

George Rehm, soils specialist with the University of Minnesota's Extension Service, explains why foliar fertilization is ineffective. "Plants absorb only very small amounts of nutrients through their leaves. So the major portion of nutrients used must be absorbed through the root system. That means fertilizer must be applied where the roots can reach it.

"But foliar applied phosphate and potash will end up on the soil surface. Since these nutrients are not mobile, they won't reach the root system and won't be effectively used by the crop."

Rehm adds that liquid fertilizers currently sold for foliar application are expensive and not worth the cost. "The most cost effective fertilizer program is to apply the nutrients in the soil either before or at planting," he says.

However, there are special situations where foliar applications may have a place in Minnesota. Foliar application of an iron fertilizer may correct iron chlorosis in soybeans when applied at the early second trifoliate growth stage.

And, foliar application of nitrogen fertilizer may boost small grain yields if less than adequate nitrogen rates were applied before planting.

"But don't plan to use foliar fertilizer as a standard management practice," Rehm concludes.

# # #

AEA,BSS,CEO,V1,F1 NAGR3064

MSC 1aA-7p

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 8, 1989

Source: D. E. Otterby
612/624-0782
Writer: Joseph Kurtz
612/625-3168

FACT SHEET ON BST AVAILABLE FROM UNIVERSITY OF MINNESOTA

The University of Minnesota's Extension Service has published a new fact sheet entitled "Bovine Somatotropin and Dairy Research."

Bovine somatotropin (BST) is a natural protein hormone that increases milk production in dairy cattle. BST is not yet on the market, and will require federal Food and Drug Administration (FDA) approval for commercialization.

The University of Minnesota fact sheet provides information on BST relating to research issues, history and background, research results, human health, cow health and economic implications.

"Bovine Somatotropin and Dairy Research" (item no. AG-FS-3726) is available through county extension offices in Minnesota. It is also available by mail through the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. When ordered through the Distribution Center, the cost per copy is 20 cents. Minnesota orders should include 6 percent sales tax. Please order by title and item number and make checks payable to the University of Minnesota.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 8, 1989

Source: Jeffrey Hahn
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

GET JUMP ON CABBAGEWORMS

Lettuce and cabbage can be attacked by the imported cabbageworm, also known as the cabbage butterfly, and the cabbage looper, a drab moth--all are commonly known called cabbageworms. In June, these insects lay eggs which hatch into caterpillars capable of chewing holes in the leaves and severely damaging crops.

Cabbageworms should be sprayed as soon as they are noticed because control is most effective when caterpillars are small, says Jeffrey Hahn, entomology educator with the University of Minnesota's Extension Service. As caterpillars grow larger, control is more difficult and they do more damage.

These caterpillars can be controlled with insecticides, such as Sevin and Bacillus thuringiensis (also known as B.t., Dipel, Thuricide), a bacterium that only affects certain insects and is virtually nontoxic to mammals.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 12, 1989

Source: Jerome Hammond
612/625-2749
Writer: Larry A. Etkin
612/625-4272

MINNESOTA MILK PRODUCERS CAN BE COMPETITIVE, SURVEY SAYS

U.S. milk production continues to increase, but Minnesota's share of production has declined since its 1965 peak. The numbers of dairy farms and dairy cows in Minnesota have declined, and per cow production is now well below the national norm.

And commercial introduction of the milk production enhancing hormone bovine somatotropin, (BST), may not change things. In part, that's because large numbers of Minnesota dairy producers don't plan to adopt it, says Jerome Hammond, a University of Minnesota professor of Agricultural and Applied Economics.

That's one finding of a major survey profiling Minnesota milk producers, released in a new "Minnesota Report." Published by the Minnesota Agricultural Experiment Station, the in-depth survey of nearly five percent of Minnesota's dairy farmers paints statistical pictures of Minnesota dairy operations: their size, productivity, equipment and facilities, management practices and other characteristics.

The survey forms part of a comparative database being collected in eight milk producing states of the midwest and northeast: Indiana, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania and Wisconsin.

"There do seem to be major shifts occurring in the dairy industry," says Hammond. "The southwest is growing much more rapidly than what we consider the traditional dairy areas." According to Hammond, producers and their representatives are concerned. "What's happening here? Are we losing our comparative advantage? Or, what are the factors that are causing this kind of shift in the relative importance of each region?"

Hammond says he isn't surprised the survey also shows that while many dairy farms are not very profitable, "There are a lot of dairies, a large share of our dairies, that appear to be very efficient and profitable milk operations."

"A large number of dairies in this state can compete as effectively as the large, efficient southwestern milking operations," he says.

Copies of "The Minnesota Dairy Farm Sector: Summary of the 1988 University of Minnesota Dairy Farm Survey" (Item no. AD-MR-3919) are available through the Distribution Center, 3 Coffey Hall, University of Minnesota, St. Paul, MN 55108. Cost is $4.00 + 6% tax, prepaid. Please include title and item number when ordering.

# # #

AEA,BSS,CEO,V1,V2,V3,D NAGR3066

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 15, 1989

Source: C. J. Christians
612/624-0766
Writer: Joseph Kurtz
612/625-7047

MINNESOTA BEEF PRODUCERS RECEIVE PERFORMANCE AWARDS

Four Minnesota beef producers received Beef Performance Producer of the Year Awards recently at the annual Beef Cattle Conference on the University of Minnesota's St. Paul campus.

Clayton Carpenter, Sauk Centre, received the Seedstock Award. Gary and Kevin Paulsen, Pipestone, received the Commercial Award. Greg Johnson, Pipestone, received the Young Producer Award. The awards were presented by the Minnesota Beef Cattle Improvement Association (MBCIA) in conjunction with the Minnesota Extension Service.

Carpenter has a herd of 100 purebred Angus cows on his 560-acre farm. He purchased his first Angus in 1932. A bull named Mac B Bardoliermere 2nd, a son of an International Grand Champion bull, proved to be the most influential sire in the Carpenter herd.

Carpenter was one of the first Angus breeders to enroll in the MBCIA's on-farm performance program. He has also entered bulls in the Minnesota Central Bull Test Station for years and has had some

of the top performers. The adjusted weaning weight of his calves has increased nearly 200 pounds over the past 22 years.

Gary and Kevin Paulsen have used artificial insemination in their beef operation for eight years. Their health program includes vaccination of cows and calves, pregnancy testing and parasite control. They use feed analysis to balance rations for their cattle. They use switchgrass in their forage program and rotate and fertilize pastures.

The Paulsens have consigned the top-selling calf at the Pipestone Club Calf Sale for the past three years. However, their main objective is to raise cattle that will perform well in the feedlot.

Greg Johnson farms in partnership with his brother, Roger. They specialize in dairy and beef and produce 850 acres of corn, soybeans, wheat and alfalfa.

The Johnsons' beef herd consists of 80 head of registered Angus and crossbred cows. A.I. is an important tool in the operation. The top third of the cows are bred to Angus bulls, and the rest are bred to Chianina, Maine-Anjou and Piedmontese bulls.

The Johnsons used wheat and soybean straw in their feeding program last winter, supplemented by corn silage and protein cube. They fed no hay because of the price.

The Johnsons feed the steers from their 70-cow dairy herd to 800 pounds, then sell them as feeders.

# # #

AEA,BSS,CEO,V1,V2,A2,60,78 NAGR3077

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 15, 1989

Source: Cynthia Ash
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

DEAD CIRCLES OR ARCS IN LAWN COULD BE PATCH DISEASE

Patch disease, formerly called fusarium blight, is a devastating disease for homeowners with sodded lawns.

But it's only a problem on lawns with a thick thatch layer--over 1/2 inch deep, explains Cynthia Ash, assistant plant pathologist with the University of Minnesota's Extension Service. Thick thatch layers reduce rooting depth leaving the lawn open to drought stress during warm, dry weather. When the lawn goes into stress, the disease organisms are able to invade and kill the grass crowns and roots.

Other factors are also involved, she says, but the best way to avoid patch disease or help a lawn recover is to reduce the thatch layer by power raking aerating (spring and fall) and to encourage good rooting through proper fertilization, watering and maintenance.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 15, 1989

Source: Deborah Brown
612/624-7491
Editor: Mary Kay O'Hearn
612/625-2728

HORT SHORTS FOR JUNE

Harvest asparagus and rhubarb only until the beginning of July. From then on, allow leaves to develop and put energy back into the roots for next year's crop, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service. Rhubarb stalks are always edible, but they're woodier in the summer. The leaves are poisonous, and should never be eaten.

* * *

Remove faded flower clusters from geraniums and other flowering annuals before seeds develop and mature. This practice, called "deadheading," fools plants into sending out more and more blossoms in an attempt to perpetuate themselves. If you want to save seeds for next year, wait until the end of the season to let them develop, suggests Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

* * *

Stop using weedkillers on the lawn as soon as daytime temperatures begin to climb beyond the low 80s. Weed growth slows, so the chemicals will be less effective. There's also more chance of fumes drifting and damaging desirable plants. And unless your lawn is in very good condition and not moisture-stressed, herbicides can damage your grass as much or more than your weeds, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

* * *

You can plant containerized roses in the garden or grow them in large pots on decks and balconies all summer long. The advantage to picking up an extra rose or two at this time of year is that you can see exactly what the flowers look like when you make your selection, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service. Whether in the garden or a container, roses need to be watered and fertilized conscientiously to bloom well, she adds.

* * *

Mulch heat-loving vegetables, such as tomatoes, peppers, eggplant, okra and melons, toward the latter part of June, after soils have warmed thoroughly, says Deborah Brown, horticulturist with the Minnesota Extension Service. Other plants may be mulched sooner. In addition to insulating the soil, mulch helps prevent weeds and conserve moisture. It also protects the soil from the pounding effect of rainfall or overhead irrigation.

* * *

Add to existing wood chip mulch around young trees and landscape plantings to bring the depth to 6 inches, because the chips next to the soil break down, and the mulch settles over time. Don't add too much, though, cautions Deborah Brown, horticulturist with the University of Minnesota's Extension Service. "When mulch is too deep, trees and shrubs send their roots up into it, seeking oxygen, which eliminates the benefits of having mulch in the first place," Brown says.

* * *

Plan to water newly seeded or sodded grass regularly, all summer long, regardless of how well established it may appear. It takes time to develop an extensive, deep root system, even when you start with sod. So, don't let healthy green top growth fool you into thinking you can let nature take its course in hot, dry weather, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

Water grass early in the day, if possible. Temperatures are cooler, humidity is higher, there's usually less wind and plants will dry rapidly. Afternoon watering is fine for the grass, but more moisture evaporates or blows away. Night watering should be avoided if possible. Plants are slow to dry--a situation that encourages disease development. Do water at night, though, if it's your only option, Brown advises.

* * *

In the southern two-thirds of Minnesota, some vegetables can be planted as late as July 1. Snapbeans, beets and early-maturing sweet corn are all possibilities. You can also seed cabbage, broccoli and brussels sprouts for a fall harvest, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

* * *

In the event of drought, you can use "graywater"--water from your rinse laundry cycle or from baths and showers--to water ornamental plants. If possible, alternate with clean water so the same plants don't get the graywater each time. Don't use it on edible crops, only trees, shrubs and flowers, says Deborah Brown, horticulturist with the Minnesota Extension Service.

* * *

Keep weeds from taking over flower and vegetable gardens by hoeing regularly. Sharpen the flat end of your hoe, and use it to slice off weeds at the soil surface, rather than chopping them out, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service. Slicing is much easier on your back than chopping motions, and when weeds are sliced off frequently, food stores in the roots are depleted and the roots eventually stop sending up new top growth.

It's important to control weed growth, not just to keep the garden looking good, but to reduce competition for moisture and nutrients. Weeds can also be a source of insects and diseases that may spread to desirable plants.

* * *

If you decide to put some of your houseplants outdoors for the summer, choose a location protected from the heat and intense rays of the sun from mid-morning to mid-afternoon. The north side of a building usually works well, as does any area shaded by branches of a tall tree. Remember to water houseplants more frequently out-of-doors; warm temperatures and drying winds cause plants to lose moisture more rapidly, says Deborah Brown, horticulturist with the University of Minnesota's Extension Service.

* * *

If you haven't obtained "Restoring the Urban Landscape: Methods for Recovering from Hot, Dry Weather," ask your county extension office for item AG-FO-3727. It's a quick look at dealing with lawn repairs and tree and shrub care and gives gardening tips for coping with dry conditions, says University of Minnesota extension horticulturist Deborah Brown. It also details insect and disease problems which may occur this year. The publication was developed by the Dial-U Insect and Plant Information Clinic of the Minnesota Extension Service.

# # #

I2,V7,V8 NAGR3055

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 15, 1989

Source: Craig C. Sheaffer
612/625-7224
Writer: Larry A. Etkin
612/625-4272

PUBLICATION DISCUSSES USE OF 'ANNUAL' ALFALFAS IN CROP ROTATIONS

New crop varieties introduced every year use old and established agricultural practices. Those that succeed contribute to profitability and sustainability of agricultural enterprises. Nitro, a nondormant annual alfalfa introduced in 1986, is one such success.

Nitro was developed by the Minnesota Agricultural Experiment Station and USDA's Agricultural Research Service. It maximizes forage yield during the seeding year and supplies nitrogen in crop rotations.

But profitability and nitrogen contribution of Nitro in short-term rotations is influenced by both the establishment method and crop harvest management. Addressing the need for this type of information, the experiment station has published a 16-page bulletin detailing the benefits and management requirements of Nitro and other nondormant alfalfa varieties.

"'Annual' Alfalfa in Crop Rotations" is available as item number AD-SB-3680 from the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. Cost is $1.50 (plus 6% sale tax for Minnesota residents and businesses). Please include the complete title and item number when ordering, and make checks payable to the University of Minnesota.

# # #

AEA,BSS,CEO,V1,V2,V3,C,F1,M1 NAGR3070

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 15, 1989

Source: Jerry Wright
612/589-1711
Writer: Jack Sperbeck
612/625-1794

WATER QUALITY FIELD DAY TO BE AUG. 9

Research to minimize groundwater pollution from irrigated sandy soils will be featured Wednesday, Aug. 9, at the Rosholt Research Farm west of Westport, Minn. Westport is located between Glenwood and Sauk Centre.

Wagon tours will include reports on herbicide movement in irrigated sandy soils; nitrogen rates and application timing for corn under different tillage and crop rotation systems; agricultural chemical movement from the root zone to the groundwater; and land application of incinerator ash.

Tours at the Rosholt Farm will run from 8:30 a.m. to 4 p.m. Demonstrations on rinsing pesticide containers and several water quality-related displays will be available during the day. A hog roast meal will be available at noon.

This is the third year of research at the Rosholt Farm. The work is part of the Center for Agricultural Impacts on Water

Quality's research effort. The Center's goal is to determine how farming practices affect water quality and identify management practices that minimize the impact of agricultural chemicals on groundwater quality.

Sponsors of the event are the University of Minnesota's Center for Agricultural Impacts on Water Quality, the Minnesota Extension Service, WesMin RC & D Association and the Pope Soil and Water Conservation District.

For more information, contact Jerry Wright at (612) 589-1711 or James Anderson at (612) 625-8209.

# # #

AEA,BSS,CEO,V1,V2,C,F1,R NAGR3071

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 15, 1989

Source: Jerry Wright
612/589-1711
Writer: Jack Sperbeck
612/625-1794

GOOD IRRIGATION MANAGEMENT PROTECTS GROUNDWATER

Farm profits and groundwater quality both get a boost when irrigators apply the right amount of water at the best time, says Jerry Wright, agricultural engineer with the University of Minnesota's Extension Service.

Applying too much water means increased pumping costs, reduced water efficiency and increased chances of crop chemicals leaching into the groundwater.

But delaying irrigation until plants are stressed can result in economically significant yield losses and poor use of chemical inputs. Also, chemicals such as nitrates that are allowed to carry over into the off-season are more apt to leach since there's more groundwater recharge in fall or early spring.

Several soil water monitoring aids are available to help irrigators schedule water applications. The best choice is a combination of in-field monitoring and a daily soil water accounting system like the Minnesota Irrigation Scheduling

Checkbook Method, available at county extension offices throughout Minnesota.

Wright says effective scheduling means regularly monitoring field conditions, predicting future crop water needs, and following recommended water management strategies. Follow these steps to set up and operate an effective irrigation scheduling program:

1. Determine the crop's active rooting depth and its available water capacity in each soil type in the field.

2. Select the soil types in the field that should be managed.

3. Define the allowable soil water depletion limits for the selected soils so you can manage the soil moisture deficit during the growing season.

4. Establish a soil moisture monitoring system and regularly keep track of the soil moisture deficit.

"These procedures should take only 5 to 20 minutes per day once the initial soil water resources are identified," Wright says. If time is not available to regularly monitor soil moisture, he suggests using a private consultant.

# # #

AEA,BSS,CEO,C,F1,M1 NAGR3075

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 22, 1989

Source: Cynthia Ash
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

VERTICILLIUM WILT CAN KILL SHADE TREES

Verticillium wilt is a soil-borne fungal disease which interferes with the water-conducting system of shade trees. The fungus enters the plant through wounds in the roots, says Cynthia Ash, assistant plant pathologist with the University of Minnesota's Extension Service.

When a fungus clogs the water-conducting system, wilting results, followed by yellowing and dieback. Trees and shrubs showing partial wilt during the growing season may wilt further and die the following year. Others may recover and not wilt in succeeding years. The pattern depends on the extent of root infection and the severity of other stresses. When most of the roots are infected, the tree may wilt and die before the end of the first summer.

Ash says, "Trees showing general and severe wilt cannot be saved and should be replaced with a nonsusceptible species. Trees showing limited symptoms may be saved or have life prolonged if

they are watered, fertilized with nitrogen, and pruned of dead and wilting branches. Pruning does not eliminate the fungus from the tree, but removes weakened limbs, which may be infected by other fungi."

More information is available in a Minnesota Extension Service fact sheet titled "Verticillium Wilt of Trees and Shrubs," available as item AG-FS-1164 from county extension offices throughout Minnesota.

# # #

I2,V7,V8 NAGR3052

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 22, 1989

Source: Cynthia Ash
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

DOES YOUR GRASS HAVE WHITE LEAVES?

Powdery mildew is a fungal disease which makes its appearance in the shady areas of Kentucky bluegrass lawns. The fungus produces a delicate web of thread-like growth and spores which create a dusty white coating on the leaf blades. Heavily infected leaves turn yellow and die, says Cynthia Ash, assistant plant pathologist with the University of Minnesota's Extension Service.

High humidity, low light, cool temperatures and weak grass plants favor the development of powdery mildew. For this reason, it is more of a problem in the spring and fall and in shady areas. Excess nitrogen also induces succulent growth which is easily attacked.

"To control powdery mildew in the home lawn, use shade-tolerant and mildew-resistant grass varieties," Ash recommends. "Nugget, Glade and Touchdown are Kentucky bluegrass cultivars which tolerate light shade. A seed mixture, 40 percent from the shade-tolerant Kentucky bluegrass group, and 60% from the

creeping red fescue group, grows well in the shade and resists this disease. Use this mixture when seeding shady areas."

Often powdery mildew can be controlled by selective pruning or removal of trees and shrubs to allow better air circulation and greater penetration of sunlight, she adds.

# # #

I2,V7,V8 NAGR3051

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 22, 1989

Source: William Schafer
612/624-4793
Writer: Phyllis Jenks
612/625-7793

MINNESOTA EXTENSION SERVICE REVISES CANNING PUBLICATION

The Minnesota Extension Service has published a major revision of its bulletin "Safe Home Canning of Fruits, Vegetables and Meats." Based on the latest USDA canning method revisions, it presents basic canning principles and complete instructions for water-bath and pressure canning.

The 32-page publication highlights changes in USDA canning methods which emphasize maximum safety. A small section with USDA and Minnesota tomato canning methods is also included, along with extensive sections on fruits, vegetables and meats.

To obtain single copies, Minnesotans should contact their county extension offices. Multiple copies must be ordered through the Distribution Center. To do so, send $3 plus 6 percent sales tax per copy with a written request for item HE-BU-0516 and the number of copies wanted to the Distribution Center, 3 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108. Sales tax need not be paid on orders from outside Minnesota or on Minnesota orders accompanied by tax-exempt numbers.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 22, 1989

Source: George Marx
218/281-6510
Writer: Joseph Kurtz
612/625-3168

USE MICROWAVE OVEN TO DETERMINE FORAGE MOISTURE CONTENT

A microwave oven is a useful tool for testing the moisture content of a forage sample, according to a University of Minnesota extension animal scientist.

George Marx says that to do the test, you will also need an accurate scale that will measure in grams and show 1-gram increments. A good balance is best, but a home food or diet scale is satisfactory.

"Start with a representative sample of the forage," says Marx, who is stationed at the Northwest Experiment Station, Crookston. "Mix a composite field sample and weigh out 100 grams of forage onto a dry, preweighed, microwave-safe plate. Place the plate with the sample in the oven and heat about four minutes for silage or two minutes for hay or drier forage. Then, remove the plate with sample from the oven, weigh it and record the weight.

"Mix the sample again, then rotate and reposition the plate back into the microwave. Heat for another 30 to 60 seconds, reweigh and record the amount.

"Continue to mix, reheat, reweigh and record until the forage weight does not decrease by more than 2 grams. At this point, you have reached the dry weight."

Marx says it is important not to let the forage burn or char. If it does, use the last recorded weight as the dry matter.

To determine the moisture content, subtract the final dry weight from the starting weight (100 grams), not including the weight of the plate. The difference is the amount of water driven off the sample and the percent moisture.

"There are no precise rules for drying time in the microwave, as units vary considerably in size and specifications," says Marx. "But most people can become adept and efficient in checking moisture after some trial and error and refinement with their own microwave."

# # #

AEA,BSS,CEO,A2,D,V1 NAGR3081

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 26, 1989

Important notice to editors, news directors, reporters

On June 22, 1989 I sent you a news release titled "MINNESOTA EXTENSION SERVICE REVISES CANNING PUBLICATION." Please do not run or otherwise use this release.

The release was not supposed to be sent to the news media because there are not enough copies of the publication "Safe Home Canning of Fruits, Vegetables and Meat" available at the present time to publicize it.

If you have any questions about this, please call me at (612) 625-6797.

We regret any inconvenience this may have caused you. Thank you for your cooperation.

Sam Brungardt
News distribution coordinator

BSS,CEO,H1,I2,V7 NHEC3088

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 26, 1989

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

COOL NIGHT AIR REDUCES HEAT STRESS ON DAIRY COWS

Letting dairy cows take advantage of cool night air during periods of hot weather is a good way to reduce heat stress on them.

"Providing a well-drained, well-managed outside lot or pasture for cows at night is a good procedure when it's hot," says Jeff Reneau, extension dairy specialist at the University of Minnesota. "Just make sure the cows don't have access to ponds or stagnant water."

The effects of heat stress on dairy cows are well documented, Reneau points out. Reduced milk production and reduced reproductive performance top the list.

"When the temperature exceeds the 75-to-80-degree range and humidity is high, heat stress on cows is likely," says Reneau. "The first signs are reduced feed intake and milk production. Then comes an increasing respiration rate. If a cow is panting, she's definitely suffering from heat stress."

Many Minnesota dairy producers use stall barns and keep their cows inside much of the time. While temperatures drop at night, cows in hot barns can't take advantage of the cool air, notes Reneau.

Other hot weather strategies Reneau recommends for dairy producers are:

--Make sure cows have access to plenty of clean, fresh water at all times.

--Increase ventilation rates when cows are in the barn.

--Observe cows for estrus early in the morning or late in the evening. More cows fail to express the normal signs of estrus during hot weather.

--Change bedding more frequently. Heat and humidity increase the number of bacteria that are likely to cause environmental mastitis. Scrape the back half of stalls and replace bedding daily during hot weather.

# # #

AEA,BSS,CEO,V1,V2,V3,D NAGR3086

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 29, 1989

Source: James Orf
612/625-8275
Leland Hardman
612/625-8700
Writer: Sam Brungardt
612/625-6797

U of M RELEASES 3 NEW SOYBEANS

The Minnesota Agricultural Experiment Station has released three new soybean varieties, Kato, Sturdy, and Proto. Each meets a special need, says James Orf, the University of Minnesota agronomic scientist who heads the Station's soybean improvement effort.

It is hoped that Kato will help remedy a problem that a study by Orf, agronomist Leland Hardman and food scientist William Breene revealed: Minnesota-grown soybeans average 2 to 3 percent less protein than soybeans grown outside the Midwest.

According to Hardman, this puts both Minnesota farmers and soybean processors at a disadvantage. One of the ways the situation can be improved is if farmers grow higher-protein varieties. Recent University of Minnesota releases, Hardman says, are equal to or higher in protein content than the varieties they are intended to replace. He says, "All of our recent releases have been intended to optimize chemical composition as well as yield and other agronomic characteristics."

Orf says, "Kato is notable for its high protein content--in Minnesota trials, about 1.5 percent more than Sibley and over 2.5 percent more than Hodgson 78. It is also competitive with those varieties in yield and exhibits outstanding standability."

Kato is a mid-group I variety, suited to the northern half of Minnesota's Southern Soybean Maturity Zone and the southern half of the Central Zone (the zones are depicted in Minnesota Report 24, Varietal Trials of Farm Crops). Kato was tested as M81-382.

The outstanding characteristics of Sturdy, according to Orf, include good yield and standability, and the ability to resist iron chlorosis in high-pH soils. Sturdy, which was tested as M81-384, is an early group II variety, making it suited to being grown in the southernmost two tiers of counties in Minnesota. Orf says yields of Sturdy have been equal to or better than the best-yielding varieties of similar maturity.

Proto is a special-purpose variety, whose exceptionally high protein content (at least 44 percent on a dry-matter basis) makes it well suited for the manufacture of food products, such as tofu. Orf says Proto has acceptable agronomic characteristics, and farmers could contract to grow it for food processors and export, markets that could call for the production from several tens of thousands of acres. Proto is a maturity group 0 variety, suited to being grown in the northern half of Minnesota's Central Zone and the southern part of its Northern Zone. Proto, which has yellow seeds with yellow hila, was tested as M77-251.

Kato, Sturdy and Proto all carry the Rps1 gene for resistance to races 1, 2, 10, 11, 13-18 and 24 of the fungus that causes Phytophthora root rot.

Certified seed of Kato will be available to farmers in 1990 and certified seed of Sturdy and Proto will be available for general planting in 1991.

# # #

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 29, 1989

Source: Ray Arthaud
612/624-4995
Writer: Joseph Kurtz
612/625-3168

CHECK COWS DURING BREEDING SEASON

Beef producers whose cows are now in the summer breeding season should observe their herds closely to make sure conception rates are high.

"If a lot of cows are returning to heat, there will be more late calves next spring," says Ray Arthaud, extension beef specialist at the University of Minnesota. "This usually means smaller calves at weaning time and lower sale weights."

Arthaud says a high percentage of cows returning to heat could mean a problem with the bull. Check the bull for obvious physical problems. A semen check might be in order.

If pastures are short, lack of energy in the cows' diet could be part of the problem, says Arthaud. He suggests rotating pastures to increase the quantity and quality of forage from pasture.

"When pastures are inadequate, supplemental grain may be a good investment," the Minnesota specialist adds. "Even 1.5 to 2 pounds of corn or equivalent per cow per day may return many times

the cost in increased conception."

Arthaud also suggests creep feeding of calves when there is a shortage of pasture. This is especially beneficial when the cows are older or are nursing their first calves. "Whole, cracked or rolled shelled corn will work about equally well for creep feeding," says Arthaud. "Whole oats are excellent as a creep feed, but are probably more expensive than corn."

Insecticide ear tags, back rubbers and dust bags will help control flies and other external pests. Removing such stresses may improve conception, he notes.

He also suggests limiting the length of the breeding season to 45 to 65 days. "A short, early season is especially worthwhile in herds where the calves are sold at or shortly after weaning. Most calves are weaned at about the same time regardless of when they were born. Being born 10 days earlier can add 20-25 pounds to the sale weight."

# # #

AEA,BSS,CEO,V1,V2,V3,A2 NAGR3090

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 29, 1989

Source: Cynthia Ash
612/624-4977
Editor: Mary Kay O'Hearn
612/625-2728

FUNGI CAUSE FAIRY RINGS IN LAWNS

Many fungi feed on organic material in the soil thus aiding in the decomposition or recycling of organic materials. This is fine until these fungi begin living on organic material under lawns, causing fairy rings, says Cynthia Ash.

Fairy rings result from temporary changes in the soil structure caused by these fungi during the decomposition process, explains Ash, who is an assistant plant pathologist with the University of Minnesota's Extension Service.

She says the lawn symptoms can be grouped into three types: (1) dark green rings of taller grass, (2) rings of dead grass and (3) rings with taller dark green grass and dead zones. The rings may increase in diameter each year or disappear.

"Fungicides are not useful in controlling fairy ring problems. However, the 'dark green ring' symptoms will be less noticeable if the lawn is kept properly fertilized," Ash says. Increasing the soil moisture in the area of the rings may also change the

ecological balance enough to retard the growth of the fairy ring fungi and prevent dead zones. Using a "root feeder" attachment on a garden hose, punch holes at least every foot in the yellowing or dying area and pump large amounts of water into the ground to a depth of 10 to 24 inches. Repeat frequently.

Wetting the area may also increase soil permeability and help to lessen symptoms. Aeration also reduces the symptoms' severity.

# # #

I2,V7,V8 NAGR3054

News and Information

Educational Development System
Minnesota Extension Service
433 Coffey Hall
University of Minnesota
St. Paul, Minnesota 55108

June 29, 1989

Source: Jim Cink
612/624-3777
Writer: Mary Kay O'Hearn
612/625-2728

U OF M GROUP ADDRESSES PUBLIC CONCERN ON PESTICIDES

Too much of almost anything--table salt, aspirin, water, vitamin D--can be harmful to humans.

But recent public alarm over pesticide residues in the food supply and what this could be doing to the health of children and adults has more than 20 people involved at the University of Minnesota. They are taking time from other duties to collect information and ponder all sides of the residue problem. Their group is informally called: Pesticide Education: Residue vs. Risk.

Jim Cink, assistant entomologist with the Minnesota Extension Service, is coordinating these efforts. Cink's group is putting together three brief publications to explain dosages and chemicals to a public that Cink says is "chemically illiterate." The publications will cover pesticides and their toxicity, establishing food tolerances and pesticide risk perception. Cink emphasizes, "The group's pesticide education project is not out to promote or condemn the use of any pesticide product."

While the campus participants include representatives from agronomy, entomology, food science and nutrition, home economics, horticulture and plant pathology, there is input from agencies such as the Environmental Protection Agency (EPA), Minnesota Department of Agriculture, Food and Drug Administration (FDA), Hennepin County Poison Control Center and National Agricultural Chemical Association among others.

"Any chemical can be labeled a pesticide if it is used to control or destroy a pest problem," Cink says. He mentions boric acid, used in a variety of products, as an example. "It can be a disinfectant in eye washes, a flame retardant in clothing and an insecticide to kill cockroaches." Table salt has been used by farmers and ranchers in the Southwest to kill cactus. Beer is sometimes used to control garden slugs.

However, not all the chemicals used in food production actually kill pests. Growth regulators, such as daminozide (Alar), are an example. These chemicals control how insect or plants develop or allow timed harvesting so that the crop matures simultaneously and labor and transportation costs can be dealt with efficiently. Cink calls this "a chemical being used as a management tool."

The FDA and EPA are quiet on their testing, but they are constantly on the alert to problems, Cink says. Something he believes the public should know about is the Tolerance Assessment System (referred to as TAS), which the EPA began in 1987. It is a computerized database program in which chemical residues in food

and their set tolerances take into account ethnic backgrounds, age groups and dietary habits to assure that no group is exposed to unacceptable risk levels--currently, greater than 1 in a million.

In agriculture, Cink notes that recommended application rates in some chemical families are being reduced. Some older pesticides that used to call for a gallon or a pint to treat an acre of small grain are being replaced with chemicals applied at a rate of 1/16 ounce per acre.

A third of the United States' agricultural production is lost each year to insects, weeds, flood or drought. Today's philosophy seems to be toward integrated pest management, managing the crop to avoid the use of chemicals when possible.

All new pesticides are tested to establish the kind of toxicity and dosage which would produce a toxic reaction. The burden of proof for safety is placed on the manufacturer of the pesticide, Cink says. Toxicity tests are based on two premises: that toxicity in laboratory animals can be used to predict toxicity in humans, and that administering large doses of a chemical to animals for a short time can predict human toxicity for exposure of small doses over a long time span. Equating mice or rat tumors reported in lab trials to the human response is difficult, he points out.

Cink quotes the "Journal of the American Medical Association" as saying that to date only two pesticides have been proven to be human carcinogens (cancer-causing substances): vinyl chloride and arsenic.

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