2001

Crop Watch No. 2001-8, May 4, 2001

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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

No. 2001-8
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Without rain

How long are preemergence herbicides viable?

While some areas of the state have been fortunate enough to receive rainfall in the past week, there are areas where producers have not received any significant rainfall for the past 10 days. Many of those people are now asking questions about the viability of their preemergence herbicides. At the forefront of these questions is how much rain is needed to incorporate preemergence herbicides and how long can they remain on the soil surface without rainfall.

Preemergence herbicides need to be incorporated into the soil to achieve the desired activity. Often herbicides are applied to soil with residue on the surface, blocking the spray from soil contact. This herbicide will be ineffective until it is moved to the soil via rainfall or mechanical incorporation. Most preemergence herbicides require 0.5 inch of rainfall or greater for adequate incorporation. With mechanical incorporation, soil moisture must still be adequate for herbicide uptake and activity.

The length of time the herbicide can remain on the soil surface before incorporation and still remain adequately active depends on several issues, primarily the type of herbicide and weather conditions. For example, Prowl is moderately volatile and should be incorporated within seven days before activity is lost. Hot temperatures and high winds like we had this past week may reduce this time. Many corn preemergence herbicides such as Dual, Bicep, Harness, Surpass, Balance, Frontier, and Atrazine are much less volatile and can remain on the soil surface for greater periods of time without loss of activity. Under cool weather conditions, these herbicides can remain on the soil surface for two or more weeks before incorporation without significant loss. If rainfall has not occurred by the third week, other incorporation measures may need to be taken.

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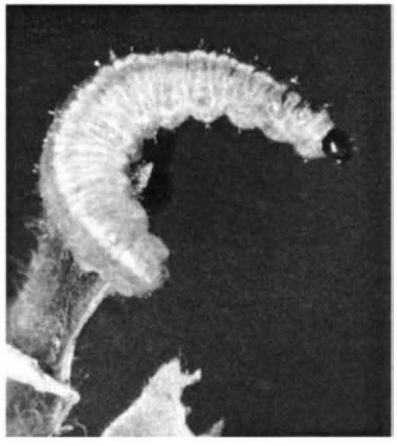
Inside

Consider economic thresholds when treating for alfalfa weevils

While we have been spared alfalfa weevil damage in much of Nebraska over the past few years the potential for damage always exists. (The Panhandle and Boyd and Holt counties were hard hit in 1998 and have had some problems since.) While things will be getting very busy in the next few weeks as row crops are to be planted, if you're growing high quality alfalfa hay take time to monitor fields for weevils over the next month.

Weevil larvae usually begin causing noticeable damage between 300 and 350 GDD (48 degree base). Research suggests that scouting should begin at 250 GDD in southern Nebraska and at 300 GDD in northern Nebraska. According to growing degree accumulations, alfalfa weevil activity began in



Alfalfa weevil

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Field updates

Gary Hall, Extension Educator in Phelps and Gosper counties: Planting has begun in earnest. one of our large producers had only two days of planting left. Two 12-row planters can cover a lot of ground.

Paul Hay, Extension Educator in Gage County: The wheat crop in southeast Nebraska is in fair condition. Many fields have been thinned by the winter. Some replacement planting was necessary on terrace tops. Fields were wet early in March so the fertilizer and weed killers went on late, but were applied by mid April. The big concern here for the wheat crop is the heat. Those 90 degree May days will limit yields.

Nebraska Agricultural Statistics Service Report for April 30: Winter wheat rated 2% very poor, 11% poor, 34% fair, 45% good, and 8% excellent. About 17% of the crop had jointed, compared to 45% last year and 26% for the five-year average. Producers in the Panhandle counties were opting for aerial herbicide application due to wet soil conditions. Corn planting jumped to 22%, compared to 36% last year and 23% average. Progress was greatest in east central and southeast counties.

Oat planting moved to 70% complete, compared with 99% last year and 90% average. Thirty-four percent of the crop had emerged, well behind 79% last year and 53% average. Sugar beet planting was shut down due to the heavy wet snow a week ago.

Pasture and range conditions showed marked improvement and rated at 7% very poor, 19% poor, 37% fair, 34% good, and 3% excellent. Pastures continued to lag normal development due to the cool spring temperature and the impact of last year's drought. Cattle and calves condition improved with the warmer temperatures and rated 1% very poor, 10% poor, 37% fair, 47% good, and 5% excellent. Calving was nearing completion at 94%. The snow of a week ago in western and northern Nebraska resulted in some reports of young calves being lost in unprotected areas.

Preemergence

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Again, temperatures in the 80s with high winds will shorten this time.

If dry weather follows application of a surface-applied herbicide, weeds may emerge even though the herbicide is on the surface. If the weeds are more than 1 inch tall before rainfall, most surface applied herbicides will not control them.

For the most part, producers do not need to worry about incorporating preemergence herbicides immediately after application. Producers may want to remember this when buying herbicides, as some are much better than others with respect to vapor loss or degradation. Choose a herbicide that can remain unincorporated for two or more weeks and hope for rain.

Brady Kappler, Extension Educator – Weed Science
Alex Martin
Extension Weed Specialist

Search and read the latest Extension NebGuides and Circulars at *http://www.ianr.unl.edu/pubs*

CROP WATCH

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Lisa Jasa, Editor

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Alfalfa weevil *(Continued from page 69)*

southern Nebraska last week. Northern Nebraska hasn't accumulated enough growing degree units and hasn't had any activity so far.

Clover leaf weevil is occasionally a problem; however it is vulnerable to fungus disease and hasn't been a pest since the late 80s and early 90s when spring rains were rare. Clover leaf weevil larvae can be found in the debris around the crowns during day. Scratching in the soil around the crowns and counting the number of larvae found per crown will help give a better idea of clover leaf weevil infestation. Their brown heads will help distinguish them from the black-headed alfalfa weevil. Table 1 compares the alfalfa and the clover leaf weevils.

See alfalfa weevil predictor map on page 73.

Both the alfalfa and clover leaf weevils feed on first cutting alfalfa as larvae, and regrowth of the first cutting as adults. While research conducted in northeast Nebraska has shown that clover leaf weevil larval feeding does not cause yield reduction to first cutting alfalfa, alfalfa weevil feeding can cause severe losses to yield and quality of the first cutting.

It is essential that fields be monitored for alfalfa weevil feeding now. Damage consists of small holes and interveinal feeding on the newest leaflets near the stem tips. The larvae are a small (1/16 to 3/8 inch long), pale yellowish green, becoming a darker green when larger. These legless worms have black heads and a white stripe the length of the back. The alfalfa weevil larvae spend nearly all their time on the plant. They curl into a C-shape when disturbed.

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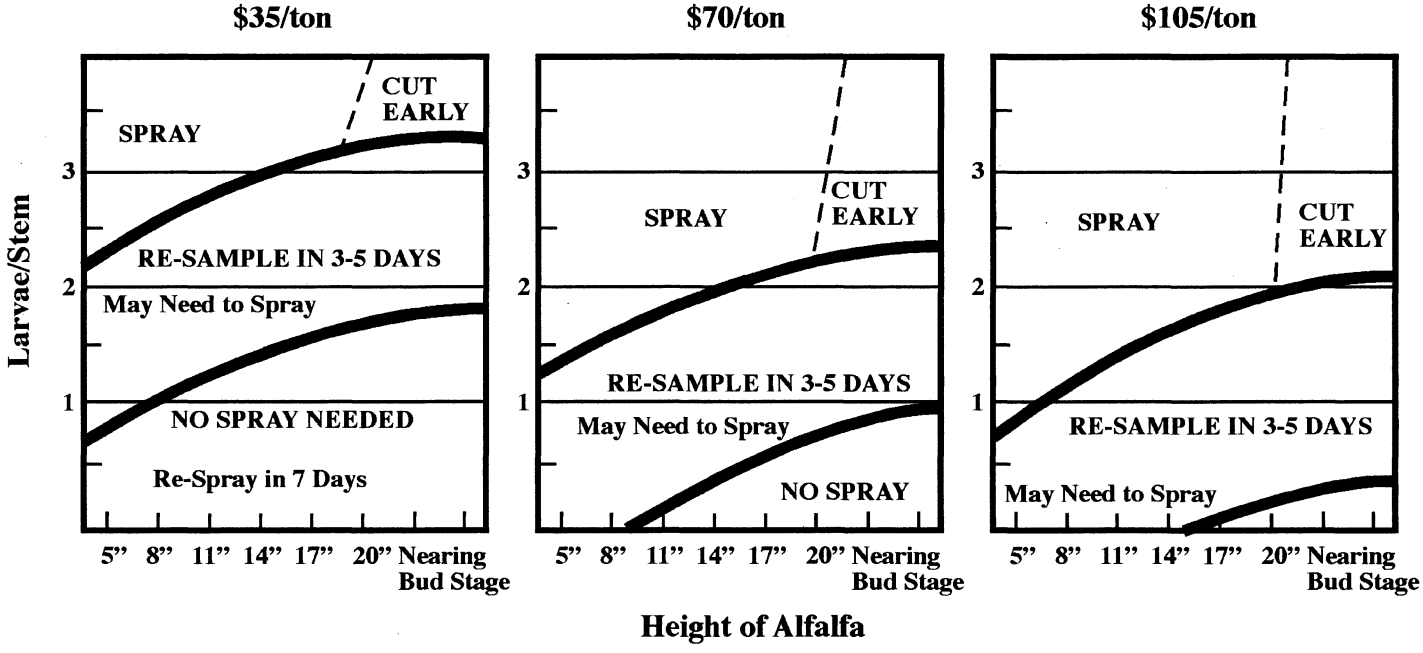
Table 1. Comparison of alfalfa weevil to clover leaf weevil.

Alfalfa weevil	Clover leaf weevil
Overwinter primarily as adults	Over winter primarily as larvae
Adults brown with dark brown stripe halfway down back, 3/16 inch long	Adults dark brown, pitted light brown underneath, over 1/4 inch long
Larvae prefer to feed on tips	Larvae feed anywhere on plant
Larvae remain on plant most of the time	Many larvae in soil or debris during daytime hours
Larvae have black heads	Larvae have brown heads
Adults leave fields in June	Adults may remain in fields

Figure 1. Treatment thresholds for the alfalfa weevil at three alfalfa price levels.



Alfalfa weevil *(Continued from page 71)*

Once the alfalfa is about 4-6 inches or so in height, take a bucket, carefully cut some stems at ground level (30 to 50 per field, from various spots in the field) and shake the stems against the side of the bucket. Average the number of weevil larvae per stem. Use the charts to help you decide whether to control alfalfa weevils. Each chart has been developed for a different alfalfa value. To treat or re-sample depends on the average number of weevils per stem, the stem length, and the value of the alfalfa. When alfalfa reaches a certain height, it may be more profitable to cut the alfalfa early rather than to treat it.

Insecticides registered to control alfalfa weevil larvae include Ambush, Baythroid, Cythion, Furadan, Guthion, Imidan, Lannate, Lorsban, Penncap M, Pounce, Sevin, and Warrior. For use rates, see the table below or the Department of Entomology website at *http://entomology.unl.edu/instabls/instabls.htm* .

Keith Jarvi, Extension Educator Integrated Pest Management
Tom Hunt, Extension Entomologist, Northeast REC

Table 1. Insecticides labeled for control of alfalfa weevil

* = Restricted use product

Product Name	*Chemical Name*	*Rate (Form./Acre)*	*Restrictions/Comments*
Ambush 2 E, 25 W or 25 W WP *	permethrin	6.4-12.8 oz	At 6.4 oz, no preharvest interval. Over 6.4 oz. preharvest interval of 14 days.
Baythroid 2*	cyfluthrin	1.6-2.8 oz	Preharvest interval of 7 days.
Cythion 5	malathion	1.5-2.0 pints	No preharvest interval.
Cythion 8	malathion	1.25-1.5 pints	No preharvest interval.
Furadan 4 F*	carbofuran	0.5-2.0 pints	At 0.5 pts, preharvest interval of 7 days. At 1.0 pt, preharvest interval of 14 days. At 2.0 pts, preharvest interval of 28 days.
Guthion 3*	azinphos-methyl	0.66-2.0 pints	At 0.66-1.0 pt, preharvest interval of 14 days. At 1.0-1.3 pts, preharvest interval of 16 days. Over 1.3 pints, preharvest interval of 21 days.
Imidan 70-WSB	phosmet	1.3 lbs	Preharvest interval of seven days.
Lannate LV*	methomyl	3.0 pints	No preharvest interval. For grazing or feed, wait seven days.
Lannate SP*	methomyl	1.0 lb	No preharvest interval. For grazing or feed, wait seven days.
Lorsban 4 E	chlorpyrifos	1.0-2.0 pints	At 1.0 pint, preharvest interval of 14 days. Over 1.0 pint, preharvest interval of 21 days.
Malathion 57 EC	malathion	1.5-2.25 pints	No preharvest interval.
Methyl Parathion 4 E*	methyl parathion	0.5-1.0 pint	Preharvest interval of 15 days.
Penncap-M*	methyl parathion	2-3 pints	Preharvest interval of 15 days.
Pounce 3.2 E*	permethrin	4-8 oz	At 4 oz, no preharvest interval. Over 4 oz, preharvest interval of 14 days.
Pounce 25 WP*	permethrin	6.4-12.8 oz	At 6.4 oz, no preharvest interval. Over 6.4 oz, preharvest interval of 14 days.
Pounce WSB*	permethrin	0.1-0.2 lb	At 0.1 lb, no preharvest interval. Over 0.1 lb, preharvest interval of 14 days.
Sevin 4 F, XLR	carbaryl	1.5 quarts	Preharvest interval of 7 days.
Sevin 50 W	carbaryl	3 lbs	Preharvest interval of 7 days.
Sevin 80 WSP, 80 Scarbaryl		1.88 lbs	Preharvest interval of 7 days.
Warrior-T*	lambda-cyhalothrin	2.56-3.84 oz	Preharvest interval of 1 day for forage, 7 days for hay.

Producer group researches, assesses emerging technologies

The Nebraska Agricultural Technologies Association (NeATA) is a new organization for farmers, ranchers, private industry, agricultural agency representatives, and others interested in emerging agricultural technologies. Nebraska farmers and agribusiness representatives interested in learning about emerging technologies and sharing on-farm experiences founded the association.

"It's an excellent forum for discussing ideas and practical working information," said Jerry Mulliken of Nickerson, NEATA vice-president.

Producers have invested a lot in the new technologies, he said, and the Association provides a way to develop practical, application-oriented information to help producers benefit more from their initial investment.

One of the group's projects this year is to identify yield goal zones within fields. This information can be used to apply inputs according to specific field characteristics and potential yields. If one area consistently yields more than other areas, increased inputs may be justified.

The group's goals are to identify and explore new technologies practical for agriculture with consideration to financial returns for producers. Agronomic practices that reduce economic and environmental risks and promote the stewardship of land and water resources are paramount to the group's efforts. NeATA will serve as a membership network that provides a venue for members to share agricultural research experiences and related knowledge with each other.

The Association helps facilitate on-farm research opportunities, educational programs, and investigation of practical applications for new agricultural technologies. Major activities include at least one precision agriculture conference annually, an information sharing e-mail listserv open to NeATA members, on-farm research, and an informational website.

Officers for the current year and their Email addresses are: Lyle VonSpreckelsen (lylev@alltel.net), president; Jerry Mulliken (mulliken@teknetwork.com), vice-president; Rick Reinsch (rreinsch@kearney.net), director; Jason Steffen (jsteffen@centralfarmers.com), director; Arnie Hinkson (arnie@hinkson.com), director; and Brad Rathje (Brathje@agris.com), director.

NeATA is a non-profit corporation with membership dues of $25 a year. Specific member benefits include:

-- Access to NeATA listserv

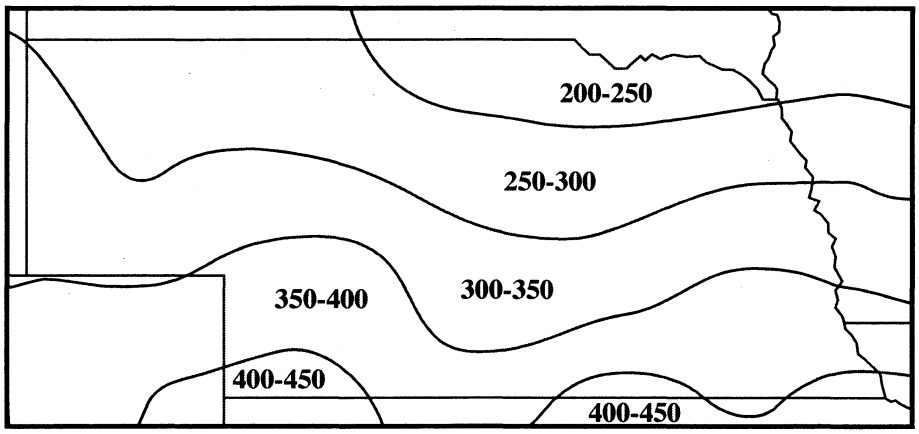
-- Advanced notice of NeATA activities

-- Reduced registration fees for NeATA programs

-- Networking with Nebraska's leading agriculturalists

-- Staying informed about emerging agricultural technologies

For more information about the Association, contact Dave Varner, Extension educator in Dodge County, 202 LW Chase Hall, UNL, Lincoln, NE 68583-0726. E-mail Varner at dvarner1@unl.edu for further information.



Alfalfa weevil predictor

Accumulated growing degree days, base 48, as of April 30, to help predict alfalfa weevil development. Larvae usually begin causing noticeable damage between 300 and 350 GDD. Research suggests that scouting should begin at 250 GDD in southern Nebraska and at 300 GDD in northern Nebraska. Scouting should be underway.

Implementing E-Commerce

The NU Food Processing Center offers help for food manufacturing businesses interested in applying e-commerce tools and technologies to improve their business.

The Center's workshop, "The Essence of E-Commerce: Practical Applications for Your Business," is designed to show participants how a food manufacturing company might use Internet-based products and services during a typical business day to improve its efficiency and effectiveness.

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Check, repair irrigation system to avoid untimely breakdowns

Performing regular maintenance of your irrigation equipment includes a pre-season checkup. Component wear results in less uniform water application and increased energy use. To reduce the risk of untimely breakdowns, identify and replace worn components this spring.

Probably the best way to identify worn components such as sprinklers, pumps or irrigation systems is to keep good records. Regularly recording the static and pumping water levels, output pressure, flow rate and energy use provides an excellent means of evaluating pump and motor performance.

Each irrigation system will have many areas to lubricate or parts to replace prior to the first irrigation. It is impossible to list them all, but following is a checklist of some of the key maintenance areas:

1) Change the engine oil and filter.

2) Replace the air and fuel filters.

3) Grease drive shafts on pump and motor.

4) Check spark plugs.

5) Check chemigation pump and safety equipment operation.

6) Drain, flush and refill the cooling system.

7) Refill the drip oil reservoir and allow about a gallon of oil to drain into the drip line.

8) Insure that the gear drive is free moving and clean and lubricate non-reverse pins.

9) Run motor at 1000 rpm for 45 minutes.

Each system is equipped with several safety switches to shut down the system in the case of failure. To insure all these switches are operating correctly, run the system through a set of conditions which would prompt each system safety control to function. Repair or replace those which don't respond as expected.

A walk-by inspection of the system while running can identify sprinklers/nozzles that are not operating properly. Nozzle wear depends on the quality of the water and the system operating pressure. Generally consider replacing sprinklers after about 8000 hours of operation.

Nozzle wear can be checked by inserting a drill bit that corresponds to the initial size of the nozzle opening into the nozzle. Check the operating pressure at a number of sprinklers to insure that the sprinkler is operating as designed and that the pressure regulators are operating properly.

Bill Kranz, Extension Irrigation Specialist, Northeast REC

E-Commerce

(Continued from page 73)

"Many companies have attended seminars where they were told why they should be using e-commerce in their business, but not how to begin," said Mark Hutchison, food industry consultant with the NU Food Processing Center.

"We want participants to be able to go home and immediately begin improving the operation of their business by using the e-commerce applications that were presented during the workshop."

The next workshop will be Wednesday, May 24, at the University of Nebraska-Lincoln. The registration deadline is May 16.

To register or for more information, please contact: Suzanne Weeder Einspahr, (402) 472-5806, E-mail: sweeder1@unl.edu or visit their web site at *http://fpc.unl.edu/marketing, ecommerce.htm.*

Study finds improvements in tractor fuel efficiency

As high fuel prices drive up production costs, many farmers are looking for ways to save money.

Operating a fuel-efficient tractor is one way to pinch pennies. A study by the University of Nebraska's Tractor Testing Lab shows that the average and maximum fuel efficiency for tractors has improved over the past 20 years. Models designed in 2000 averaged 16.54 horsepower hours per gallon, compared to 1980 models which averaged 14.48 horsepower hours per gallon. "Horsepower hours per gallon" is a tractor's equivalent of an automobile's miles-per-gallon rating and refers to the amount of fuel needed to produce power, which is measured in horsepower.

The test lab reports fuel efficiencies based on maximum power take-off at rate engine speed and other engine speeds, as well as the tractor's fuel efficiency during full and partial drawbar tests. These measurements indicate the tractor's fuel efficiency during several operating conditions and whether new engine designs are improving fuel efficiency.

Newer tractor models appear to be more fuel-efficient than their older counterparts. Although most people can't justify buying a new tractor based on fuel savings, the test results can be used to evaluate potential fuel savings on an hourly basis. Producers may save 10% to 15% or more based on improved engine design and optimal operational matching.

Bobby Grisso
Extension Agricultural Engineer

State awards grants to develop agricultural products, coops, markets

A new state-funded grant program is helping farmers and ranchers develop local organizations to develop and market value-added Nebraska agricultural products, such as ethanol, wines, dry beans and fibers.

"To succeed in today's global market, Nebraskans must look for new, non-traditional methods to capture more of the profit from goods made from crops and livestock. Simply put . . . Nebraskans must add value to excellence," said Merlyn Carlson, director of the Nebraska Department of Agriculture.

The Nebraska Agriculture Opportunities and Value-Added Partnership Act was passed by the Nebraska Legislature in spring 2000. Grants are encouraged from people working in a cooperative or collaborative manner to improve the profitability of agriculture. The program will provide a total of $1 million in grants annually from 2001 through 2003. Individual grants are for up to $75,000. Applicants must provide at least 25% of the total funds requested through cash and/or in-kind contributions.

Applications are accepted for review each quarter. The first group of projects has been funded and applications for the next round of funding will be accepted in June. Applications are available from the Nebraska Department of Agriculture and on its web site at *http://www.agr.state.ne.us/valueadd/main.htm.* The site also includes a copy of the enacting law, details about applications and grants, and more.

For more information contact: Nebraska Department of Agriculture, 301 Centennial Mall South, P.O. Box 94947, Lincoln, NE 68509-4947 or call (402) 471-4876 or 800-422-6692; fax: (402) 471-2759; or e-mail allenem@agr.state.ne.us

Projects funded in the first round

North Central Nebraska RC&D, Bassett — $55,500

A group of landowners and others developing a coop to market lumber and forestry products received funds to form a coop, ascertain technical assistance, and develop a market for lumber products.

Stateline Bean Cooperative, Scottsbluff — $75,000

Approximately 400 dry bean producers in the Nebraska Panhandle interested in buying or constructing a bean processing facility received funds for education, legal and accounting services, and research at the University Panhandle Research Center in Scottsbluff.

Heartland Natural Fibers, Arlington — $64,517

A group of 22 members of a natural fibers coop interested in creating a retail outlet and cleaning facility for their product received funds for facility construction, education, and professional services.

Plains Produce Co-Generation Greenhouse, Minden — $50,000

A group of 10 members of a coop hydroponic vegetable facility located with and using by-products from an ethanol plant received funds for a feasibility study, capitalization plan, formation expenses, business plan, and technical assistance.

High Plains Grass Seed Association, Alliance — $15,000

Group of 26 grass seed producers interested in building their own cleaning and packaging facility to market seed directly from Nebraska received funds for to hire industry consultants and to develop a feasibility study on the potential for such a facility in Nebraska.

Center for Rural Affairs, Walthill — $73,375

A group of 30 producers active in at least three cooperatives wanted to form a larger cooperative to help develop templates of services that can be adapted to other cooperatives. Funds will be used for legal assistance, SEC documents, consulting, and business-related equipment for use by the individual cooperatives.

Nebraska Winery and Grape Growers Association, Raymond — $28,000

The association of about 80 members received funds to develop a campaign to market grape production to more potential producers while improving awareness and presence of the industry and its products to Nebraskans.

KAAPA, Kearney — $75,000

A group of Kearney producers interested in constructing an ethanol plant there received funds to conduct a feasibility study, business plan, and capitalization plan.

Husker Ag Processing, LLC, Plainview — $75,000

A group of about 30 members interested in forming a cooperatively owned ethanol production plant in northeast Nebraska received funds for professional services (including legal, accounting, and consulting), and printing costs associated with their development and formation.

Nebraska Farmers Choice Coop, Humboldt — $32,000

A group of 29 pork producers have formed a cooperative and are interested in direct marketing their meat products. Funds will be used to develop a promotional program, establish a web site, and go toward the purchase or construction of a storage facility.

Disease update

Many wheat fields in good condition

Detailed wheat disease surveys were conducted last week in four counties, Harlan, Furnas, Nemaha and Saline. Faculty helping assess wheat fields included Jennifer Chaky, coordinator of the NU Plant Pathology Diagnostic Clinic, Noel Mues, Extension educator, Tony Anderson, Extension educator, Ken Burgert, Extension educator, Randy Pryor, Extension educator, Jim Stack Extension plant pathologist, South Central REC, and John Watkins, Extension plant pathologist.

Soilborne wheat mosaic was most evident in Furnas and Harlan counties. Incidence and severity in fields ranged from less than 10% to 80%. In the most severe situations, large areas of fields showed yellowed, stunted, infected plants. The yields in these fields will definitely be affected by the disease. Resistant wheat varieties should be planted in those fields this fall if they are not going to be rotated to corn or soybeans.

Ice damage was noted in one field where the wheat was matted and dead in depressions within the field. Frost injury was evident by the burning of leaf tips on many fields surveyed. In those fields with spotty stands, the problem appears to be related to planting either too shallow or too deep, resulting in weak seedlings that were more susceptible to winter injury. The shallow planting resulted from the planter not adequately cutting through heavy corn and soybean residue and properly placing the seed in the furrow. Many surviving plants were stunted with the seed right next to the crown. In some areas the corn residue probably washed into the seed furrow, preventing the seedling from emerging. The other scenario involving deep planting appeared to have resulted from the seed being placed into a dry seedbed and then a subsequent rain washing the loose soil into the seed furrow, burying the seed 2 to 3 inches deep.

Overall the wheat in our survey area looked to be in good condition. There were far more good fields than there were fair to poor fields. In the better fields, the head is just above the crown. Warmer weather will encourage rapid growth in the next few weeks.

John E. Watkins
Extension Plant Pathologist

Interseeding may save alfalfa stands damaged by winterkill

Last winter's harsh conditions caused alfalfa in our region to suffer scattered areas of thinning or even near complete kill. Ice smothering, exposure during cold periods, diseases like anthracnose, and cultural practices like harvest during winterizing all seem to have been contributing factors.

In assessing the damage and your options, first consider whether the stand is worth saving. If not, plant a new field as soon as possible and rotate the poor stand to another crop.

If the field is worth saving, or if it's critical to your forage needs for the year, consider other options. Remember that the remaining plants probably are weaker than usual. Cutting them early could weaken them further, so try to delay harvest until mid-bloom so they can rejuvenate their root system.

If stands are so thin that yield will be reduced, interseeding might boost production. At this time, interseeding with a summer annual grass is probably your best choice. Drill sudangrass after May 15 if you want it to contribute to yield in both summer and fall cuttings. Foxtail millet drilled in early June might be a better choice if you're planning for a single cutting in mid-August followed by an immediate drilling of red clover to thicken the legume stand for a couple more years of production. In either case, harvest your alfalfa about two weeks after drilling the grass to help establish the grass by reducing competition from the alfalfa.

Bruce Anderson
Extension Forage Specialist

Mark these dates on your calendar

The following educational programs will be held this summer at the NU Agricultural Research and Development Center near Ithaca. Further information will be available in a future *Crop Watch*, or contact the ARDC at (402) 624-8010.

July 12 -- Crop Management and Diagnostic Clinic with sessions on: management of crop residue to reduce soil erosion, effects of tillage on soil parameters, weed/herbicide performance in no-till situations, seedling diseases and insects, starter fertilizer and nitrogen managment in corn and the impact stand variability has on corn yields.

August 16 -- Plant diseases, soil fertility and fall tillage.

September 5 -- Precision farming management and technologies clinic.

Keith Glewen, Extension Educator, Saunders County