5-2-1997

CropWatch No. 97-7, May 2, 1997

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In northeast Nebraska

Winterkill takes up to half of alfalfa

Counties throughout northeast Nebraska are reporting severe alfalfa loss due to winterkill as they emerge from what appears to be winter’s final assault.

Reports indicate that generally older stands and those facing the wind are in worse condition than new seedings, but that damage was severe throughout much of the region.

Terry Gompert, Extension educator in Knox County, estimated that at least 50% of the county’s 100,000 acres of alfalfa was winterkilled. Losses were similar for neighboring counties: Cedar, Box Butte, Holt, Dixon and Wayne.

“It’s a great loss, but it’s early enough we can get another crop in,” Gompert said. “We had winter up here from mid November to last week, with up to 2 inches of ice on the crop sometimes.”

The Nebraska Agricultural Statistics Crop Report this week estimated the condition of the state’s alfalfa crop at 7% excellent, 58% good, 29% fair, 5% poor, and 1% very poor.

Individual losses and recovery efforts will vary, depending on whether the alfalfa was being raised for forage or the cash market.

Gompert suggested that those producers needing forage might want to consider planting oats and foxtail millet. Otherwise, they might want to consider replanting to another crop. (For assessment and management recommendations see the story below by Bruce Anderson, Extension Forage Specialist.)

Evaluate alfalfa stands for winter-injury, yield potential

Early and accurate assessment of alfalfa winter damage can provide the greatest flexibility for replanting or aiding crop recovery.

Optimum yield in dryland alfalfa requires 40 shoots per square foot for maximum yields. To achieve optimum yield in irrigated fields, it’s estimated that at least 55 stems per square foot are needed. About one tenth of a ton in yield potential is lost for every shoot below these numbers.

Researchers at the University of Wisconsin have learned that stem count is a much more accurate method of estimating yield potential than plant count. They recommend a two-step process for evaluating stands:

1. Use stem count to estimate current yield potential of the field;
2. Assess root and crown health to determine future yield potential.

In a recent Extension publication Wisconsin researcher Dan Undersander, et al., wrote:

“The relationship between stem density and yield potential is constant, regardless of stand age, making this a reliable method for estimating yield potential. “To use this method, select three or four representative areas of the field, marking off a 2-square-foot section in each area. You many find it useful to build a square measuring 17 inches x 17 inches using 1/2-inch PVC tubing or weld a cable into a ring that is 19 inches in diameter. Count only those stems that are tall enough to be harvested by the mower (over 2 inches tall). Remember to divide your count by 2 to get stems/square foot. Calculate the average stem count for the field and use the graph to estimate yield potential. Visual estimation works best when stands are 6-10 inches tall.

(Continued on page 55)
Field updates: Russian wheat aphids, planting, winterkill

Gary Hein, Extension Entomologist in the Panhandle District: I found some Russian wheat aphids in a wheat field in Cheyenne County Friday. The infestation was quite low, but it was surprising to even find any. Tuesday night I heard that there have been a few treatments underway in eastern Wyoming. There may be some spots in Nebraska where developing populations could be found.

Ralph Anderson, Extension Educator in Buffalo County: Planting is progressing rapidly in Buffalo County. Except for the cold weather, we have had very little delay since we started on April 15. Wheat is looking fairly good, and there are no insect or disease infestations to report. Alfalfa is progressing a bit slowly due to cool temperatures.

Andrew Christiansen, Extension Educator in Hamilton County: Corn planting had not progressed much prior to Monday due to wet conditions, however planting was moving forward quickly by midweek as the weather allowed. A lot of fertilizer application is occurring now since fall did not provide much opportunity this year.

Drew Lyon, Extension Dryland Cropping Specialist in the Panhandle District: Sugarbeet planting is well under way in the Panhandle, and should be about done by the end of this week. Preparation for corn planting is beginning. The winter wheat crop is looking good, although it could use a good drink.

Dick Ronnenkamp, Extension Educator in Boone-Nance counties: Corn planting has started, but producers are concerned with cool temperatures and wet soils. On our rolling hills, low spots are still wet and cool.

Bob Klein, Extension Cropping Systems Specialist for West Central District: A lot of corn was planted in the southern part of the West Central District last week. With favorable weather, a lot more will be planted throughout the district this week. The wheat looks good to excellent with just a few thin spots. Herbicides are being sprayed for weed control.

John Lambert, Extension Educator in Keith-Arthur counties: Field activity is in full swing for corn planting in Keith County. Wheat continues to develop normally; weed control is needed in some fields.

Gerald Hopp, Extension Educator in Richardson County: Along the Missouri River and tributaries, about 10,000 acres and counting are marginal for crop planting this season due to upstream water releases and current precipitation. Corn planting moved rapidly until the midweek rains. Alfalfa fields are recovering from spring freezing temperatures.

Terry Gompert, Extension Educator in Knox County: Not only has the alfalfa in the Northeast District suffered from winterkill (see page 53), but all winter wheat — about 5,000 acres in Knox County — was killed as well as fescue grass seeded in lawns and golf greens.

Kansas Department of Agriculture: The cold weather virtually stopped insect and foliar disease development in wheat. Leaf rust levels remain low and behind anticipated forecasts. Rust is beginning to bounce back from the cold weather as evidenced by many newly observed pustules. (Reported April 24.)

Crop Watch is published from March to November by the University of Nebraska Institute of Agriculture and Natural Resources Communications and Information Technology, PO Box 830908, 108 Agricultural Communications Bldg., UNL, Lincoln, NE 68583-0918. To order either a printed or electronic (web) subscription or to change your address, write to Crop Watch at the above address or call (402) 472-7981.

Lisa Brown Jasa, Editor

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Alfalfa winterkill (Continued from page 53)

Alfalfa stem count and yield potential*

![Graph showing yield vs stems per square foot]

\[ \text{yield} = (0.10 \times \text{stems}) + 0.38 \]

*From University of Wisconsin Extension Publication A3620, Alfalfa stand assessment: Is this stand good enough to keep?

This method will estimate the potential for yield, not actual yield. Check for these densities in several areas of a field. Since some shoots begin growing later than other shoots, stands with adequate plant density but slightly low shoot density probably will be all right, especially if shoot height and distribution is fairly uniform. But if plant density is low, or shoot growth is not uniform, yields probably will be lowered.

Assessing the health of the stand will help you estimate future yield potential. In fields where winter-injury is suspected, dig and examine tap roots. Use diagrams at right to diagnose degree of injury. Plants with only moderate injury have roots that are mostly solid and white, but they may have darker brown areas down 1 to 2 inches in the crown due to crown rot. Check texture: spongy roots suggest injury and a cold and mushy texture indicates diseases. If over 50% of root tissue is damaged, production will be low and survival past this season is unlikely.

Management options

Fields seeded last year

— Kill winter annual weeds with tillage or Gramoxone Extra.
— Direct drill (do not broadcast or use cultipacker-type seeders) new alfalfa seed no-till one-half inch into old stand as soon as possible.
— Control annual weeds with Poast Plus, 2,4-DB, Buctril or Pursuit.
— Manage harvest like a new seeding.

Injured but salvageable established stands

— Topdress 15 to 25 lbs N to help weakened roots and nodules.
— Topdress other nutrients according to soil test to avoid deficiencies.
— Control annual weeds with Poast Plus, 2,4-DB, Buctril or Pursuit.
— Irrigate dry soils but avoid waterlogged soils.
— Delay first harvest until 25% to 100% of plants bloom to heal roots.
— Leave tall stubble at harvest if new shoots are already growing.
— Allow subsequent harvests to begin to bloom.
— Avoid late harvests that may interfere with winterizing.

Unsalvageable stands

— Seed oats immediately into injured stand.
— Kill remaining alfalfa and seed millet in June.
— Seed oats immediately and then millet in July
— Kill remaining alfalfa and no-

Degrees of winter injury to alfalfa

till corn or milo.
— Till and plant crop.
— Interseed cool-season grasses for alfalfa/grass pasture.
— Seed red clover immediately to thicken stands for two to three years.
— Seed berseem clover immediately to thicken stands for one year.

Bruce Anderson
Extension Forage Specialist
(402) 472-6237
Begin scouting now for alfalfa weevils

Over the years alfalfa weevils have been the most serious pest of alfalfa in Nebraska. High quality alfalfa hay producers are likely to be busy planting their row crops right now, however the next four weeks are the crucial period for scouting for alfalfa weevil larvae.

Alfalfa weevil activity should be beginning in southern Nebraska now. Kansas and Oklahoma have reported some weevil activity, but generally low levels up to now. Weevil larvae usually begin doing noticeable damage at about 375 GDD (48 degree base). We will begin including our Growing Degree Day information including maps in next week's newsletter.

Alfalfa weevils feed on first cutting alfalfa as larvae, and regrowth of the first cutting as adults. Alfalfa weevil feeding can cause severe losses to yield and quality of the first cutting.

Producers in southern Nebraska should begin monitoring for alfalfa weevil feeding now. Damage consists of small holes and interveinal feeding on the newest leaflets near the stem tips. The larvae are small (1/16 to 3/8 inch long), pale yellowish green, becoming a darker green when larger.

Alfalfa weevil larvae
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.

Once the alfalfa is about 4-6 inches tall, 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 following chart to help you decide whether to control alfalfa weevils. Each chart has been developed for a different alfalfa value.

To treat or resample depends on the average number of weevils per stem, the stem length, and the value of the alfalfa. It is important to maintain a regular scouting schedule as severe foliage loss can occur in only three to four days at larval populations of one to two per stem (alfalfa less than 8 inches tall) or four or more per stem (alfalfa 8 to 14 inches tall).

For more management and treatment information, see NebGuide G94-1208-A, Managing the Alfalfa Weevil, G95-1263-A, When to Sample for Alfalfa Weevil, and EC95-1511-D, Insect Management Guide for Nebraska Alfalfa, Soybeans, Wheat, Range and Pasture. A new pyrethroid insecticide, Baythroid, has been registered for alfalfa weevil control since the last update of EC95-1511.

We are updating insecticide treatment tables for field crop insects on the Internet under the Department of Entomology's Nebraska EntWeb site at http://ianrwww.unl.edu/ianr/entomol/instables. Alfalfa weevil tables should be available shortly. Both NebGuides are available from your local Cooperative Extension Office or on the web at the Entomology site.

Keith Jarvi
Extension Assistant
Integrated Pest Management
Northeast District
(402) 584-2853

Estimating alfalfa weevil economic treatment thresholds by the stem count method.
Effectiveness of new herbicides tested

Many new herbicides have recently been registered for use and are being marketed this season. The following ratings are for light to moderate weed populations, favorable conditions and weed growth stage as specified on the product label. High weed populations, adverse weather conditions, or large weeds will reduce control.

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Field scout training

Field Crop Scout Training will be conducted May 20 from 8 a.m. to 4:30 p.m. at the Research and Education Building at the Agricultural Research and Development Center (ARDC) near Mead.

Growth and development of corn and soybeans, insect pest and weed identification, and practical scouting methods will be covered. Worker Protection Pesticide Handler Safety Training will also be an important part of this day’s session. Worker Protection Standard safety cards will be issued to those attending. This one-day session is most appropriate for first-year scouts.

Presenters will include Keith Glewen, John McNamara, Barb Ogg, Clyde Ogg, Earle Raun and Mike Williams. Cost is $20 and includes lunch and training materials. To register by phone, call 402-624-8030. If you have any questions, call Barb Ogg. (402-441-7180).

Barb Ogg, Extension Educator
Lancaster County

Nebraska’s wheat disease situation still looking good

Leaf rust severities are steadily increasing in Oklahoma and southern Kansas which increases Nebraska’s potential for heavy rusting of susceptible varieties. A survey of wheat in southeast Nebraska on April 25 did not detect any leaf rust. The Gage County wheat variety plot will be monitored every two weeks to detect the initial presence of leaf rust and to follow its progress during the season.

A few wheat fields are showing symptoms of soilborne wheat mosaic in low areas of the field. Appearance of the disease is signaled by a yellowing pattern in the field and a light green mosaic pattern on the leaves.

In continuous wheat fields that contain last season’s residue, tan spot is developing but the severity is still light. Its symptoms are dark brown spots with a yellow halo on the leaves. The residue usually contains the small, raised pseudothecia from last year’s infection. It is serving as the primary source of spores for infecting the current crop.

As far as I can determine, the cold temperatures and snow of April 11-13 did not significantly hurt the wheat in southeast Nebraska. Most of it had not jointed by that time, so the head was not vulnerable to injury.

John E. Watkins, Extension Plant Pathologist
(402) 472-2559
Weather update

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Plant and pest clinic update

The insect diagnostician has received some samples of winged subterranean termites, which suggests that termite swarming activity is underway. Look for massive swarms of these small, antlike, long-winged insects emerging from the soil or crevices near foundations on warm, sunny days after rainfall. If swarming occurs near or from your home, contact a professional exterminator for an inspection.

Just prior to blooming of lilacs, lilac/ash borer moths emerge to mate and deposit eggs in ash, lilac and privet. These clear-winged moths resemble wasps and fly during the day. Apply Dursban or lindane from now through June at two-week intervals as a coarse spray with thorough saturation of trunks and lower branches.

Gardening and turf renovation activities have led to discoveries of white grubs. In most cases, white grubs pose little threat to actively growing turf and spring insecticide applications are rarely necessary. If numbers are rather high in soils where flower/vegetable crops are to be plants, consider applying diazinon to the soil before planting.

Plant pathology has seen three samples of leaf spot on turfgrass. Leaf spot and melting out are two fungal diseases of turfgrass within the "Helminthosporium" leaf, crown and root disease complex. There are numerous cultural methods for controlling the disease. These include proper mowing height, watering times and thatch management. Primary control in the future will be disease resistant grass varieties.

For fungicide preventative purposes chlorothalonil (often referred to as Daconil 2787) is effective. NebGuide G89-925, *Helminthosporium Leaf Spot and Melting Out Disease of Turfgrass*, provides more indepth information and fungicide recommendations.

Other samples examined include:
- oedema on jade; fertilizer damage on impatiens; virus diseases of rose; sirococcus shoot blight on pine; Mullein foxglove weed; and winter and spruce mite injury of blue spruce.

Treat now for Sphaeropsis Tip Blight of pines

There have been some questions about the timing of the fungicide treatments for "tip blight" (aka Diplodia tip blight). Due to our slightly prolonged winter, the recommended time for treating pines for this disease needs to be applied according to the growth stage of the pines and not according to the calender date.

If applications were made too soon, the control will not be as effective. New shoots are highly susceptible for a two-week period beginning when buds open. This is the time for the first fungicide treatment. The second fungicide treatment should be applied about two weeks after the first. If trees were treated the third week of April and again in May, effective control may be realized. A third treatment could be considered based on the severity of the disease and the size and age of the tree.

Diane Merrell, Extension Assistant, Plant Pathology
(402) 472-2559
Research shows benefit of starter fertilizer for milo

University of Nebraska on-farm research conducted with milo in the 1980s indicated three reasons for using starter fertilizers: to stimulate early growth, increase yield, and provide for drier grain at harvest. The following examines each of these benefits.

Early growth

Milo and corn responded to starter fertilizer about 50% of the time in the tests. Both nitrogen and phosphorus in the starter contribute to the early growth response. Early growth response does not necessarily result in yield increases. It does sometimes aid in more uniform plant size. This may aid in earlier row-crop cultivation or ditching operations.

Yield Response

Yield response to starter fertilizer applications are directly related to the need for phosphorus in the soil. When the soil test level is below 15 ppm on the Bray P-1 test, we will see measurable yield responses in about 80% of fields. When soil test levels are above 15 ppm on the Bray P-1 test the yield responses will occur in only 20% of fields.

Fields testing low for phosphorus will benefit greatly from band placement of phosphorus. Starter fertilizers with adequate levels of phosphorus can be applied in a band near the seed. Another method is to apply phosphorus and anhydrous ammonia in 15-inch bands with a dual placement anhydrous machine. The goal is to place the phosphorus in a band limiting soil contact that can tie-up the available phosphorus. Bands need to be close enough to the plants so there is a high probability of the plant roots growing into the fertilizer zone while the plants are still fairly young. Plants take up phosphorus throughout their development. If they get to the phosphorus fertilizer strip by the time they are a foot tall, yield depression is unlikely.

Drier grain at harvest

The University of Nebraska trials showed drier grain at harvest with 50% of the fields tested. This means that sometimes starter fertilizer can aid in grain maturing and drying, but the response is far from guaranteed. Since phosphorus applications when recommended by soil tests hasten plant development, one would suspect an interaction, but this did not always occur in the trials. Our naturally rich phosphorus soils may be masking this expectation.

Starter fertilizer applications and their profitability should be measured in dollars. For milo growers dollars are generated by yield and profit. Profit is enhanced when phosphorus applications are used efficiently. Band applications of phosphorus on low testing soils are very efficient and result in equal or greater yield increases with much less phosphorus than with broadcast applications.

Placement will affect success of starter fertilizers

Placement of starter fertilizers with milo can be important to whether they help or hurt a struggling seedling.

Starter fertilizers can be placed with milo or corn seed if the fertilizer's salt index is less than 6 lbs per acre. The salt index is calculated from the formulation of the starter fertilizer and the rate at which it is applied.

Start with the gallons of starter fertilizer you intend to apply. Let's use seven (7) gallons per acre for an example.

Multiply the gallons by the weight of the fertilizer you have chosen to apply. If 7-21-7 is chosen, it weighs 11 pounds per gallon. In this case the application will be 7 gallons per acre X 11 lbs per gallon which equals 77 pounds of fertilizer.

The salt index is the added contribution of nitrogen (N), potassium (K) and sulfur (S) in the fertilizer. In this case we would have .07 X 77 or 5.4 lbs of nitrogen and .07 X 77 or 5.4 lbs of potassium. The total is 10.8 lbs per acre of total salt index. This is far above the recommended level of less than 6 lbs of salt per acre. Salt injury to the seedlings would be expected under some conditions.

Fertilizer formulations vary in analysis. Some formulations may have a lower salt index and may be safer in some situations.

When starter is not placed with the seed, increased rates can be used. Placement selection can depend on the volume of fertilizer, planter set-up, tillage practices and type of fertilizer. The one critical area to consider is the probability of the roots growing through the band in a timely fashion. Bands placed at least two inches deep in the soil and within five inches of the row should usually meet the need for root penetration.

Paul Hay, Extension Educator
Gage County, (402) 223-1384
Proper planting depth key to a good start for milo

Proper planting depth is more critical than many producers realize. Here are recommended planting depths for southeast Nebraska and some examples of problems planting depths cause for producers.

Milo should be planted at 1" to 1.5" deep. Corn should be planted at 1.5" to 2" deep. Soybeans should be planted at 1" to 1.25" deep.

Roots only grow in moist soil. Shallow planted milo and corn can lean over and cling to life by a tiny root or two for up to two weeks in dry periods. Most of the plants will root down and stand upright when a good rain moistens the soil for a few days. This delay can hinder herbicide applications, delay cultivations, and delay the crop development process.

Soybeans planted too shallow are very dependant on rain and moist conditions to establish themselves. If soybeans are planted too deep, emergence is slowed, seed quality is tested, and it can result in ragged stands hampering post-emergence herbicide applications.

Studying and understanding planter and drill performance under different planting conditions will solve most of these problems. Speed of travel can affect performance on all planting equipment. Conventional drills will vary in performance as speed increases. This is compounded by poor seedbed conditions.

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Rotary hoe may be your weed control solution

The rotary hoe, properly used, is an effective tool for controlling weeds in row crops and breaking a soil crust to aid crop emergence. Crops seeded 1 to 2 inches deep escape appreciable injury from a rotary hoe. For best results, weed seedlings should be in the “white stage,” from germination to emergence.

Timeliness is critical for success because emerged green weeds, even though small, are generally too well anchored for control. A second hoeing five to seven days after the first provides improved control. Hoeing requires a dry firm soil surface. A rain-free period of several hours after hoeing is needed to desiccate the weed seedlings. Hot windy conditions for a few hours after the operation are best. A rainy period of several days seriously reduces the effectiveness of a rotary hoe program.

A rotary hoe will not satisfactorily control larger-seeded weed seedlings including shattercane and velvetleaf because they can germinate deeper in the soil and are more firmly anchored than small-seeded weeds like pigweed and foxtails. Use operational speeds of 7-14 mph for rotary hoeing. Effectiveness is greater at faster speeds; however, injury to delicate crops increases with speed.

Crop safety is a consideration in rotary hoe timing. Take care not to cover the crop as it emerges. Corn can be hoed practically any time after planting until the crop reaches 4-5 inches. The exception would be to avoid hoeing corn planted in furrows from the spike to the one-leaf stage on loose soil to prevent covering the plants. A test strip can be hoed to evaluate damage.

Sorghum should not be hoed between the spike and two-inch stages to avoid covering the small seedlings. Soybeans should not be hoed between the crook stage, just prior to emergence, and for approximately three days after emergence. Hoeing soybeans during emergence results in stand loss. Stand losses of 5-10% are common with each hoeing of sorghum and soybeans. If necessary, increased planting rates can be used to compensate for stand loss.

With proper timing and operation, a rotary hoe can provide economical weed control with minimum crop damage.

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