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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 92-2] [March 27 1992]

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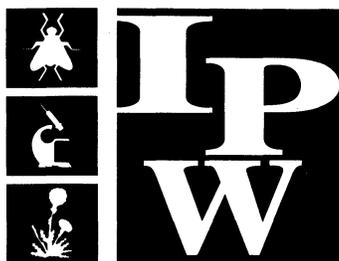
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Plant disease

Evaluate damage before reacting

Root and crown rot found in wheat

Root and crown rot was found in some fields on a recent survey of wheat in the southern Panhandle. The extent of damage varied from isolated spots to large areas. To identify crown and root rot, dig suspect plants and examine the crowns and roots. If they are diseased they will appear brown or even black. When healthy plants are examined at the same time, the diseased crown can be easily contrasted with the noninfected white crown.

An Extension NebGuide on crown and root rot is being revised but will not be available until early summer. As part of this revision, Robert Klein, UNL Extension Cropping Systems Specialist at North Platte, wrote on what to do with fields that show damage from the root and crown rot — winterkill

complex. I've included his discussion because it is pertinent and may help growers evaluate their situations.

Many factors are involved in deciding what to do with fields showing damage from root and crown rot or the winterkill complex. They include: estimated yield, soil moisture for other crops, other cropping options, partial field loss, government programs, soil erosion, and effect on rotations. Several of these factors are discussed below.

Estimating yield potential

Estimating the yield of winter wheat in late winter or early spring is difficult. Winter wheat does have the ability to compensate — if one yield component is affected another may "make part of it up". Also, in estimating yield it is assumed that soil moisture and soil fertility are adequate, the recommended planting date was used, weeds and insects are controlled, and plant diseases are not a factor. *Table 1*

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On-farm soybean seed treatments

Picking the right formulation

In the March 6 issue of this newsletter, I discussed several factors that influence the incidence and severity of early season soybean diseases. I also addressed the relative effectiveness of various seed treatment fungicides on seed decay and damping-off diseases caused by *Phomopsis*, *Pythium*, *Phytophthora*, and *Rhizoctonia* fungi. However, this is only half the story. The other half, in terms of effective seed treatment, deals with the type of formulations available and the procedures used in treating the seed. Hence, this is the

second of a two-part series on soybean seed treatments.

Fungicides labeled for seed treatment are formulated as dusts, wettable powders, flowables, and liquids. Wettable powders are usually applied to seed in a slurry-type treater. Flowables, dusts, liquids, and "pour-on" formulations are commonly applied in ready-mix mist treaters or directly in the planter box at planting. The general procedure of planter box

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Root and crown rot (Continued from page 9)

provides an estimate of the potential of winter wheat yields based on plants per foot or row in various row spacings.

Adjust yield potential for fewer or more tillers, seeds per head, and seed size. For information on seed size of winter wheat check Extension publication EC 103, *Nebraska Fall-Sown Small Grain Variety Tests*. Winter wheat ranges from 12,000 to 20,000 seed/lb.

Soil moisture for other crops

If soil moisture is limited, most replacement crops will fail unless rainfall is timely and above average. If the winter wheat is destroyed, the best alternative where fallow is practiced may be to fallow the land using herbicides to maintain crop residues and reduce wind and water erosion. The replacement crop would then be planted on fallowed land. The key here is to check to see which land has more stored soil moisture. Also check with the appropriate government agency before implementing any change.

Partial field loss

If the stand or part of the stand is reduced, evaluate whether the field should be "thickened up" or replanted to spring wheat. Do not "thicken up" a stand of winter wheat with spring wheat. If the spring wheat does make a crop, the result would be a mixture of winter and spring wheat and classified as mixed grade.

Government programs

Before destroying the winter wheat or planting any replacement crops, check with the appropriate government agency.

John Watkins
Extension Plant Pathologist

Table 1. Estimated potential yield in bushel of winter wheat based on 5 tillers per plant, 22 seed per head and 16,000 seed per pound.

Plant/foot of row	Drill row spacing in inches				
	6	8	10	12	14
1	10	7.7	6	5	4.3
2	20	15.0	12	10	8.6
3	30	22.5	18	15	12.9
4	40	30.0	24	20	17.1
5	50	37.5	30	25	21.4
6	60	45.0	36	30	25.7
7		52.5	42	35	30.0
8		60.0	48	40	34.3
9			54	45	38.6
10			60	50	42.9
11				55	47.1
12				60	51.4
13					55.7
14					60.0



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Soybean seed treatments *(Continued from page 9)*

treatment is to fill the box half full of seed, add half the required amount of product and mix thoroughly with a paddle or stick. Then add the remainder of seed to the planter box and add the rest of the required amount of product, again mixing thoroughly. When using planter box

formulations, it is important to cover the seeds as completely as possible by careful stirring and mixing.

Table 1 lists some common "on-the-farm" soybean seed treatment fungicides by trade name, available formulations for planter box appli-

cation, and comments on labelled rates and effectiveness. This is not a comprehensive list of all products on the market; other comparable formulations by firms other than those noted also may be available.

David Wysong
Extension Plant Pathologist

Table 1. Suggested seed treatment fungicides for on-the-farm treatments to reduce seed decay, seedling blights and other seed and soil-borne diseases of soybeans.

<i>Fungicide Trade Names</i>	<i>Formulations</i>	<i>Rates and Remarks</i>
<i>Apron Dry Seed Protectant</i> (Gustafson)	Dry Powder for planter box application	For Pythium damping off and early-season Phytophthora. 3 - 4 oz cwt
<i>Apron + Captan</i> (Gustafson)	Dry Powder	Wider spectrum control than Apron alone; includes seed and seedling protection. 4 oz/cwt
<i>Apron + Terraclor</i> (Gustafson)	Dry Powder	Controls seed and seedling diseases and Pythium, Phytophthora, and Rizoctonia. 4 oz/bu
<i>Captan-Moly</i> (Gustafson)	Dry Powder	Controls seed and seedling blights. 3.8 oz/bu
<i>Captan-TBZ-Moly</i> (Wilber-Ellis)	Dry Powder	Broad spectrum control of seed and seedling disease. 2 oz/bu
<i>Captan-Vitavax</i> (Enhance-Gustafson) (NuGro-Wilber-Ellis)	Dry Powder	Seed and seedling diseases. 3 oz/bu
<i>Captan-Diazion-Lindane</i> (Agrox D-L Plus-Wilbur-Ellis)	Dry Powder	Broad spectrum seed and seedling control plus insect control. 3.6 oz/cwt
<i>Carboxin (Vitavax) + Diazinon + Lindane</i> (Germate Plus-Gustafson)	Dry Powder	Used on seed previously treated with Captan or Thiram; adds insect control. 2 oz/bu
<i>Thiram + Molybdenum</i> (Moly-T-Gustafson)	Dry Powder	Protects against seed and soil-borne diseases
<i>Thiram-Moly-Inoculant</i> (Triple-Nictin L) (Gustafson)	Liquid — Ready to use	Protects against seed and seedling blight. 4 fl oz/bu
<i>Terraclor Super X</i> (20% PCNB + Terrazole) (Gustafson)	Dry Powder	Broad spectrum control of seed and seedling diseases especially Rhizoctonia. 2-4 oz/bu
<i>Thiram + Moly</i> (Yield Shield-Gustafson) (Gustafson)	Pour On	Broad spectrum seed and seedling disease control and microelements (Co, Fe). 4 fl oz/bu
<i>Thiram + TBZ + Moly</i> (Agrosol Pour-on-Wilbur-Ellis)	Flowable — Pour On	Broad spectrum seed and seedling disease control. 4 fl oz/bu
<i>Vitavax Pour On</i> (Carboxin + Thiram) (Gustafson)	Flowable — Pour On	Broad spectrum control of seed and seedling diseases, good for Rhizoctonia control. 6 fl. oz/bu

Insect Science

Use degree days to predict damage period

Alfalfa weevils at hatching, initial feeding stage

Insects such as the alfalfa weevil depend on temperatures being above a minimum threshold for development. Alfalfa weevil development based on degree day accumulations across the state will be provided in this year's *Insect Science, Plant Disease and Weed Science News*.

Alfalfa weevils need a minimum base temperature of 48°F. We use the formula in *Figure 2* to calculate degree days for each day. Degree days are accumulated from Jan. 1.

Allen Dutcher, state climatologist with the UNL Agricultural Meteorology and Climatology Department, has developed a map (*Fig. 1*) showing the degree day accumulations as of Monday, March 23. The accumulations are presented as contour lines and can be used to predict alfalfa weevil development in your area.

In general, we would expect alfalfa weevil larvae to begin hatching from eggs and feeding on alfalfa terminal buds when 200 degree days have accumulated. The map indicates that all but northeastern Nebraska is at or above 200 degree days. You should begin sampling for the weevil larvae and damage when 300 degree days have accumulated in your area. Peak larval feeding is likely to occur when 600 degree days have accumulated and the peak of adult emergence is expected at 1100 degree days.

We have not received reports of alfalfa weevil activity in Nebraska this spring. Obviously, it is warmer in the states to the south and alfalfa weevil activity has been observed in Kansas and Oklahoma. We will keep you informed of any reports of

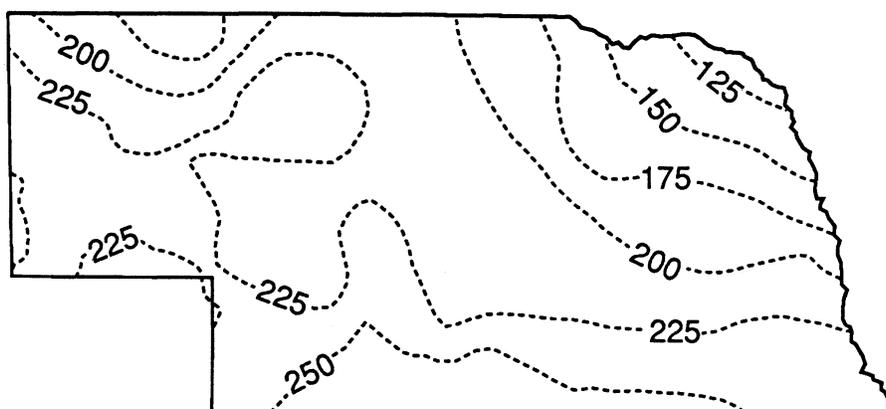


Figure 1. Degree day accumulations as of March 23 for a 48° base temperature.

$$\text{Degree days} = \frac{\text{maximum temp} + \text{minimum temp}}{2} - \text{base temp (48°)}$$

Figure 2. This calculation is used to determine degree days for the alfalfa weevil.

Nebraska weevil activity and will provide you with updated degree day maps as the season progresses. Alfalfa weevil scouting and management information will be summarized in a future issue of the *IPW News*. If you wish to do some advance reading, refer to EC92-1511,

Insect Management Guide for Nebraska Alfalfa, Soybeans, Wheat, Range, and Pasture which is available from your local University of Nebraska Extension Office.

Steve Danielson
Extension Entomologist

Begin scouting for army cutworms

Many wheat and alfalfa growers will remember that we had unusually large numbers of army cutworms damaging crops across much of the state one year ago. Normally this cutworm causes economic losses only in the western third of Nebraska. We do not know how serious or exactly where the problem

will be in 1992, so the best advice we have for wheat and alfalfa growers statewide is to scout fields this spring for cutworms and damaged plants. If economic infestations are present, insecticide treatments are the only way of managing this pest.

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Army Cutworms

(Continued from page 12)

The army cutworm may vary in color but is usually mottled brown, green, or gray. It tends to feed above the ground and graze the plants off at or just above the soil line. Growers should be especially alert for bare areas or spots in fields at this time of year. If you see these bare spots, walk out there and look closely for signs of damaged plants and the cutworms that should be nearby (possibly just under the soil surface).

In established alfalfa stands, consider an insecticide treatment when four or more cutworms are present per square foot. Treat new alfalfa stands when two or more cutworms are found per square foot. Treat for cutworms in good stands of wheat when four or five are found per square foot and in poor, thin stands of wheat when one or two cutworms are present per square foot.

Refer to EC92-1511, *Insect Management Guide for Nebraska Alfalfa, Soybeans, Wheat, Range, and Pasture* for detailed information regarding insecticides registered for control of the army cutworm in alfalfa and wheat.

Steve Danielson
Extension Entomologist

Resources

The following publications are available from your local Extension office or from the University of Nebraska Cooperative Extension at Bulletins, 105 ACB, P.O. Box 830918, University of Nebraska, Lincoln, NE 68583-0918. Shipping, handling and state and local sales tax will be added when ordering from Lincoln.

G80-847 Spring Small Grains Variety Selection

G77-357 Selecting Alfalfa Varieties for Nebraska

G79-430 Oat Production in Nebraska

Weed Science

Amber herbicide released

The Environmental Protection Agency has granted full registration for use of Amber herbicide on wheat, barley, and fallow cropland. Amber, which should be available by late March, has been used in Europe, Australia, and South America for residual broadleaf weed control in cereal production.

Amber is a sulfonylurea herbicide with the common name of triasulfuron. It can be applied preplant, preemergence, or post emergence up to the boot stage at a use rate of 0.28 to 0.56 ounces per acre. Amber is formulated as a 75% water dispersible granule and packaged in water soluble ACCU-PAK packets for easy handling and measurement. Cost is approximately \$3 to \$6 per acre.

Amber provides control of most broadleaf weeds including mustards (blue, tansy, flixweed, wild, tall hedge, tumble, etc.), ragweed, kochia, pigweeds, Russian thistle, and wild buckwheat.

Weeds such as kochia and Russian thistle have biotypes that are resistant to sulfonylurea herbicides including Amber. In the Amber label and marketing programs, Ciba-Geigy has incorporated resistance management strategies to delay or prevent the development and spread of resistant weed species.

The local Ciba-Geigy representative can fine tune the resistance management program for your area. Generally, the program will include tank mixing or sequential treatments with herbicides having a mode of action different than that of the sulfonylurea to prevent escaped weeds from going to flower. Grow-

ers will also be required to rotate herbicide families, by using Amber or any herbicide with a similar mode of action (for example: Ally, Glean, Harmony Extra, or Pursuit), only once within 12 months (15 months on soils over 7.5 Ph) of an Amber treatment.

Amber can be applied either by ground equipment in 3 to 20 gallons of water or liquid fertilizer carrier or by air in 1 to 5 gallons of carrier. A nonionic surfactant is required for postemergence treatments to assure optimum performance.

For this spring, Amber needs to be applied prior to the boot stage and before weeds exceed the heights listed on the label. Also, check the label for rotational crop restrictions.

Robert Klein

Ext. Cropping Systems Specialist

Drew Lyon

Ext. Dryland Crops Specialist

Allow damaged wheat to recover before spraying

Wheat in some areas was injured by the cold snap in early March. As a result of dry soil in the fall, wheat in some fields did not emerge until late winter. Wheat under these conditions is more subject to herbicide injury than healthy wheat. It would be best to allow wheat to recover and make new growth before herbicide treatment. Wheat that emerged during late winter should develop five leaves before treatment with 2,4-D and Banvel.

Alex Martin

Extension Weeds Specialist

Weed control essential to successful no-till

For no-till to be successful, weeds established prior to planting and weeds that emerge later must be controlled. The following strategies will help you effectively control weeds under a no-till crop production system.

The planting time strategy

A preemergence herbicide is applied in combination with a nonselective, foliar applied herbicide, such as Gramoxone Super or Roundup. The nonselective herbicide controls established weeds and the residual herbicides provide weed control for the rest of the season.

The advantage is that a single herbicide application controls the weeds. The disadvantages are the added cost of the "burndown" herbicide, erratic weed control if the weeds are excessively tall, and depleted soil moisture caused by early weed growth. Recent herbicide price reductions make this approach more attractive.

The early preplant strategy

Early weed growth can be controlled successfully by applying an early preplant (early preplant) herbicide. Ideally, an early preplant herbicide is applied before weed seeds germinate. Most early preplant treatments include a triazine herbicide, such as Atrazine, Bladex, Lexone or Sencor, which have some effect on emerged weeds. This effect can be increased by adding either 2,4-D, crop oil concentrate, or 28% UAN solutions. If the weeds are taller than three or four inches, include Roundup or Gramoxone Super.

Early preplant plus pre-emergence or postemergence strategy

Early preplant treatments can be applied 10 to 15 days before planting corn. An early preplant herbicide application, which includes

both a grass and broadleaf herbicide, will normally provide season-long weed control. However, an additional herbicide treatment may be needed at planting time if the initial application is 20 to 30 days ahead of planting, or if the soil is disturbed significantly during planting.

No-till planters equipped with certain coulters disturb the herbicide barrier in the row, which can result in "weed escapes." An extreme case can occur with the ridge plant system where the herbicide is removed along with the top 1.5 inches of soil. In this situation, apply either a preemergence or postemergence herbicide over the row.

Soybean and grain sorghum planting usually follow corn by 10 to 30 days. Early preplant treatments in these crops are usually applied 20 to 40 days before planting. A single early preplant herbicide application may not provide season-long control.

A split application, with one portion of the herbicide applied early

preplant and the other at planting time, helps maintain control. Another strategy is to apply an early preplant treatment and follow up with a postemergence herbicide program. Not only is the operation spread out over an extended period, but you can choose the herbicide to match the weed problem.

The early preplant strategy has several advantages. Because weeds are not established, early season weed control is usually more consistent, soil moisture is conserved, and the expense of the burndown herbicide is eliminated. The main disadvantage is that early preplant applications will fail if they are not activated by rainfall. Also, if planting is delayed because of excessive rainfall, the herbicide may break down, shortening the period of weed control. For late planted crops, sequential herbicide treatments are usually needed to maintain season-long control.

Alex Martin
Extension Weed Specialist

Aatrex labeled for CRP and warm season grass seed production

AAtrex can be used on CRP acres and perennial warm season grass seed production fields as a result of special local needs registrations. AAtrex can be used preplant incorporated or preemergence for big bluestem, switchgrass and eastern gamagrass. AAtrex also can be used for weed control on established stands of perennial grasses planted on CRP acres

and warm season grass seed production fields. Early spring applications on established grass stands provide the best weed control. Application rates vary with grass species and soil properties. Treatment details are listed in the 1992 *Herbicide Use Guide*, EC 130.

Alex Martin
Extension Weed Specialist