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Should poor quality soybean seed be treated?
(or *Will you be able to sleep with naked soybean seed in your field?*)

Given the low supply of soybean seed in the state, many producers may get only one good shot at planting soybeans this year. In addition to low supply, the quality of seed this year is notably poor. With this in mind, seed treatment with an appropriate fungicide may be necessary to provide you with the assurance you need to sleep better when you do get the opportunity to hit the bed during planting.

With the poor quality of seed this year, there is some concern being expressed regarding not treating soybeans with poor germination. Generally, you can see up to an additional 5% drop in germination percentage from further handling of the seed through the treatment process. This drop may be even greater for poor quality seed.

Seed quality for many soybean varieties this year is less than normal and stand establishment problems will most likely be common. This is due in part to growing conditions last year when this year’s seed matured. The seed coat of soybean seed is what moderates water absorption and allows for rapid absorption of water and then slow release of the water to other seed tissues. Seed coats that are thinner than normal or contain cracks cannot function properly and can result in what is termed “imbibitional injury”. This is important this

(Continued on page 61)

Comparing irrigation energy costs and alternative fuel sources

Producers considering the high price of fuel are evaluating alternatives for supplying power to their irrigation pumps in 2001. Negotiation for energy resources are currently underway in some areas and any assessments should be made now to allow for necessary negotiations and equipment modifications.

One way to evaluate and compare costs of pumping irrigation water is to develop an equivalent cost of operation for the different energy sources available. Energy prices available to your farm may differ from those used in these examples. In your assessments, be sure to include the actual prices you can negotiate with your supplier, as well as related costs of system

(Continued on page 62)
Gary Zoubek, Extension Educator in York County: We've accomplished a lot of field work this past week. Several producers finished applying anhydrous ammonia last week and many were involved in planting seed corn and field corn this week. We only received .14 inch of moisture over the weekend.

Gary Hall, Extension Educator in Phelps and Gosper counties: Field work had started last week before good weekend rains delayed progress for a few days. Fertilizing, stalk chopping, disking, field cultivating and planting are all occurring now. Soil moisture is good at this time with topsoil moisture adequate in all locations. Subsoil moisture is still lacking. Projections in our area for temperatures in the 90s will certainly have an effect on field activities. Corn that was planted in cold soils has already sprouted, according to one area agronomist.

Jennifer Chaky, Plant Diagnostics Educator, Plant and Pest Diagnostic Clinic: The following diseases were diagnosed April 9-20: Wheat: root and crown rot (Hitchcock County), soil-borne wheat mosaic virus (two samples from Chase County and one each from Frontier and Hitchcock counties). Plant Pathologists John Watkins and Jim Stack surveyed wheat in Harlan and Furnas counties this week and found a fair amount of soil-borne wheat mosaic virus. It is too early to tell how much the disease may affect yields.

Terry Gompert, Extension Educator in Knox County: Heavy rains (up to 4 inches) fell last week end. Field work is at a stand still. Grass is starting to grow and cattle will likely be turned out the grass this week. Calving has been a struggle. Calf loss will be higher than normal for both early and late calving herds.

Nebraska Agricultural Statistics Service: Winter wheat rated 2% very poor, 12% poor, 31% fair, 50% good, and 5% excellent. About 3% of the crop had jointed, compared to 29% last year and 13% for the five-year average. Reports from southeast Nebraska indicated above average winterkill.

As of Monday, corn planting had progressed to 2% across Nebraska, delayed some by weekend storms. Last year at this time, 11% had been planted with the average at 6%. Oat planting progressed to 54%, which compares to 97% last year and 75% for the five-year average. Sugar beet planting was about one-third complete at Sunday.

Pasture and range conditions were rated at 6% very poor, 18% poor, 41% fair, 24% good, and 2% excellent. Cattle and calves condition rated 2% very poor, 12% poor, 41% fair, 39% good, and 6% excellent. Calving since January 1 had reached 90% statewide. Supplemental haying and feeding of cattle continued as most pastures need additional growing time to provide proper grazing potential. Cool temperatures continued to slow grass growth.

Nebraska feedlots, with capacities of 1,000 or more head, contained 2.35 million cattle on feed on April 1. This inventory was up 2% from last year and 8% above April 1, 1999. Fed cattle marketings for March totaled 335,000 head, down 14% from last year and 4% below two years ago.

Placements during March totaled 320,000 head, down 20% from last year.
Seed treatments  (Continued from page 59)

year because much of the poor seed quality is due to drought during seed fill in 2000, which resulted in thinner soybean seed coats. The drought conditions also made the seed dry quickly, resulting in more cracking during harvest and processing.

When the seed is germinating, some pathogens use this leakage, which occurs around seed with cracked seed coats due to physical injury or imbibitional injury, as an energy source. This allows the pathogen to grow and infect the seed resulting in what we commonly refer to as seed decay or damping off. Low quality seed lots are particularly sensitive to any stress conditions, including early planting in cooler soils.

Many of you will place soybean seed, given good or bad quality, into less than optimal environments for rapid germination and emergence. The seed environment often may be characterized by temperatures below 50 F, soil moisture content high enough to exclude oxygen and the presence of your favorite pathogens.

Given all of this, I would recommend a fungicide seed treatment if any of the following apply:

1. History of seedling/emergence problems. If you have a field with a history of stand problems, this year you will want to treat the seed with a good combination product.

2. Low germination seed. Many seed lots are being sold treated when they are in the 75 – 80% germination levels.

3. Early planting. If you are considering early planting, fungicide seed treatments are a necessity. Cool, wet soils are very conducive to poor stands without treatment. No-till fields will have cool soils later in the season than fields receiving some tillage. These will more commonly have seedling disease problems.

4. Phytophthora history. Fields with a history of Phytophthora will need a seed treatment to get the plants up so that resistance can be effective in varieties with RPS-resistant genes.

Seed treatment options

Commercial treatments are most effective due to better seed coverage. Some products will be labeled for on-farm treatment. Be sure to read the label carefully as to how the treatment is intended. For example, ApronMaxx RTA is labeled for on-farm treatment using standard mechanical slurry or mist-type seed treatment equipment, but due to low use rates would not be as effective if mixed in the hopper box. Other products, which are labeled for planter box treatment, may not be as effective as commercial treatment.

Remember that you are trying to protect each seed. If the seed does not receive the chemical, the seed has no protection.

A list of seed-applied fungicides and their activity is listed in Seed Treatment Fungicides for Soybeans, NU Cooperative Extension NebFact NF00-411.

Loren J. Giesler
Extension Plant Pathologist

Consider pre-season irrigation of alfalfa

Pre-season irrigation of alfalfa may be beneficial in many areas where subsoil moisture levels may not have recovered after last summer’s drought, even under irrigated conditions. Take subsoil moisture readings (see table, page 64) to assess the situation for your soil and field conditions. In some areas, it may take several seasons of above normal precipitation for subsoil moisture to recover.

Consider the following advantages of pre-season alfalfa irrigation:

1. Water at a 55 F temperature may warm the soil and accelerate early growth.

2. Preseason is the only time you can add water faster than alfalfa uses it.

3. A water reserve can be created in the subsoil for summer use.

4. Subsoil moisture encourages alfalfa to root more deeply.

5. Fewer weed problems may develop when a subsoil moisture reserve allows you to delay watering in summer after cutting.

6. If deep moisture is available and irrigation can be delayed later during the summer, faster alfalfa regrowth will occur.

7. Irrigation is more efficient during cool weather.

8. Moisture shortages during first growth waste the most water-efficient growth period for alfalfa.

9. Energy costs may be lower now.

Of course, irrigating alfalfa during early spring isn’t for everyone and there may be disadvantages. Following are some reasons suggested by producers for not using a pre-season irrigation:

1. Labor competition with other field work.

2. Energy costs will be incurred earlier than normal.

3. Water isn’t available from the district until later.

4. Opportunities for storing “free” rain water may be wasted.

The first three reasons are good, legitimate excuses although sometimes the value of having the water already in the soil might overcome the costs associated with labor competition and energy use. Regarding the fourth reason, this can be resolved by timing irrigation to provide at least one good drying day between irrigation and predicted rain showers.

Bruce Anderson
Extension Forage Specialist
Irrigation energy sources (Continued from page 59)

changes such as engine modifications and hook up charges.

Table 1 provides equivalent fuel costs for the typical energy sources compared to $0.90 through $1.20 per gallon diesel fuel. For example, if the price of propane is greater than $0.496 per gallon, the cost of operating a pumping plant powered by diesel fuel at $0.90 per gallon is less expensive. If fuel prices stay high, electricity will likely be the least expensive energy source for the coming season.

The key is how much money could be saved by converting to another energy source. Table 2 presents a comparison between total annual operating costs for electricity (across the top of the table) and diesel fuel (down the left side of the table). The numbers in italics show energy cost savings using electricity compared to diesel fuel. For example, if you can buy electricity at $0.04 per kilowatt hour and diesel fuel costs $1.10 per gallon, you would save $1,580 per year using electricity. However, if you play $.10 per kilowatt hour for electricity and diesel fuel costs $0.90 per gallon, you could save $1,270 per year. Finally, the cost of electricity must be quite low to generate enough savings to justify switching energy sources.

To make a good comparison between electricity and other energy sources, annual electrical hookup or standby charges must be added to the electric power cost. For example, assume that a system is powered by a 50 hp electric motor using an average of 40 kwh/hr and operating for an average of 1000 hours per year. Electric demand charge is $0.06/kwh. If the power company charges a $15 per rated horsepower hookup fee, $750 would need to be divided over the 1000 hours of operation to determine the actual operating cost per hour. For this system, $0.75 would need to be divided by the average kilowatt hour of power use and added to the demand charge in $/kwh. Thus, the hookup charge would add about 1.9¢ per kwh to the electricity cost of the system. As the hours of operation decrease, the cost per kilowatt hour decrease.

Water Tour June 18-20

This year's summer water and natural resources tour will examine growing demands and challenges to water quality and natural resources management in urban areas of Nebraska, Kansas and Missouri. Tour buses leave Lincoln and Kearney on June 18 and finish at those locations on June 20.

For more information, contact the Kearney Area Chamber at (800) 652-9435 or the UNL Water Center at (402) 472-3305.

If fuel prices stay high, electricity will likely be the least expensive energy source for the coming season.

Table 1. Equivalent fuel costs for diesel fuel, electricity, propane, natural gas, and gasoline.*

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Diesel cost (used as base for comparison)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$0.90</td>
</tr>
<tr>
<td>Electricity ($/kwh)</td>
<td>$0.064</td>
</tr>
<tr>
<td>Propane ($/gal)</td>
<td>$0.496</td>
</tr>
<tr>
<td>Natural Gas ($/100ft*)</td>
<td>$0.445</td>
</tr>
<tr>
<td>Gasoline ($/gal)</td>
<td>$0.624</td>
</tr>
</tbody>
</table>

(If your diesel prices are higher than those indicated, you can calculate the comparable energy costs using a direct ratio. For example, for every $0.10 increase in diesel fuel, electricity increases $0.007 and gasoline increases $0.07 per gallon.)

Table 2. Cost of operation difference between electricity and diesel fuel.*

<table>
<thead>
<tr>
<th>Diesel fuel cost per gallon</th>
<th>Electrical cost per kilowatt hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0.10</td>
<td>$0.08</td>
</tr>
<tr>
<td>$0.90</td>
<td>$0.10</td>
</tr>
<tr>
<td>$1.10</td>
<td>$0.12</td>
</tr>
<tr>
<td>$1.20</td>
<td>$0.13</td>
</tr>
<tr>
<td>$1.30</td>
<td>$0.14</td>
</tr>
</tbody>
</table>

**Numbers in bold italic print indicate potential savings when using electricity when compared to diesel fuel cost in Column 1.

William Kranz
Irrigation Specialist
Northeast REC
State’s irrigation reservoirs and subsoil moisture reserves low

Water reservoir holdings and subsoil moisture may be reduced by as much as 50% of normal in some areas of western and west central Nebraska, necessitating the need for limited irrigation allocations from at least two reservoirs. While some Nebraska water resources may still benefit from late spring snowmelt from the Rocky Mountains, the Republican River Valley does not. As of this week, the irrigation reservoirs ranged from being 38% to 100% of full capacity with spring rains expected to bring the lowest levels up to 50% by the start of the irrigation season (Table 1).

The Bureau of Reclamation at McCook has recommended to the Frenchman Valley and H&RW Irrigation Districts that the allocation from Enders Reservoir be 2.5 inches in a 2 1/2- to 3-week period. Exact release dates haven’t been determined, however the recommendation was that the water be released after July 1.

Peak irrigation needs for soybean may be three weeks later than for corn.

For the Frenchman Cambridge Irrigation District served by water out of Swanson, Hugh Butler and Harry Strunk reservoirs the estimated releases are: Meeker-Driftwood, Red Willow and Bartley canals 8 inches and the Cambridge Canal 9 inches. The plan is to start releases about July 1 and provide 1 inch of water per week. The reservoir with the most limited water supply is Swanson, which is at the upper end of the system.

Both the limited amount of water available and the time when it will be available are of concern this season. In these areas, it will be important to select crops and fields to be irrigated to achieve the most efficient use of the limited water available.

Irrigation timing for soybean

The reproductive stage, which includes flowering, fertilization and seed fill is usually the critical period for soil moisture for most crops. Soybean are an exception in that they set many more flowers than pods and frequently will reflower when there is a loss due to stress. Normal growth will occur if the soil moisture is maintained at or above 30% of the available range in the root zone during the vegetative, early and mid-portion of the reproductive stages. This may result in a shorter plant and a slightly earlier maturity, but usually does not adversely affect yield.

After this period soil moisture needs to be maintained at at least 50% of the availability range in the root zone (2 to 3 feet in depth). The first irrigation on deep medium to fine-textured soils for soybean may not be needed until late July or even (Continued on page 64)

<table>
<thead>
<tr>
<th>Crop water use, in./day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
</tr>
<tr>
<td>Corn</td>
</tr>
<tr>
<td>Soybeans</td>
</tr>
</tbody>
</table>

![Graph showing crop water use]

Crop water needs vary throughout the production season with soybean needing the most water in late July or early August.

| Table 1. Water storage levels for five reservoirs in the Republican River Basin |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|
| Water level feet 2001           | 7 a.m.  | Elevation | Full | Down | Projected % of Full on 4/23 | % of full at start of irrig. season |
| Reservoir                        |         |          |      |      |                   |                                  |
| Enders                           | 3092.6  | 3112.3   | 19.7 | 39   | 39                | 50                                |
| Swanson                          | 2734.2  | 2752.0   | 17.8 | 38   | 38                | 52                                |
| Hugh Butler                      | 2576.3  | 2581.8   | 5.5  | 77   | 77                | 84                                |
| Harry Strunk                     | 2366.0  | 2366.*   | 100  | 100  | 100               | 100                               |
| Harlan County                    | 1943.2  | 1945.7   | 2.5  | 90   | 90                | 100                               |

*Have been releasing 50 cfm since March 19.
Reservoirs
(Continued from page 63)

later depending on rainfall, temperatures, wind, relative humidity, etc. Irrigators need to calculate the limitations of their irrigation system so they can maintain these levels.

The advantage of planting soybean over corn is that it needs less water (Table 2). The disadvantages of planting soybean, however, are that it needs water later in the growing season (see figure) and usually it will not be able to extract water from the depth that corn does.

The timing of planting has less affect on soybeans than it does on other plants. Soybean flowering is more closely related to photoperiod, the relative length of daily light and dark periods. The transition between vegetative and reproductive stages in soybeans is related mostly to the length of darkness. Adapted varieties flower soon after the dark period begins to lengthen in late June. Soybean flowering is also influenced to some degree by temperature. High temperatures hasten flowering, thus, given a very warm vegetative period, flowering could commence before the dark period begins to lengthen.

Since flowering response of corn and sorghum is more temperature dependent than with soybeans, growing degree days are reliable for estimating corn and sorghum growth stages but not for estimating soybean growth stages.

Producers should check their CRC insurance and with their Farm Service Agency before making any change in cropping practices and plans.


Bob Klein, Extension Cropping Systems Specialist
West Central REC

<table>
<thead>
<tr>
<th>Table 2. Seasonal crop water use (ET) in Nebraska.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crop</strong></td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Corn</td>
</tr>
<tr>
<td>Soybean</td>
</tr>
<tr>
<td>Dry Beans</td>
</tr>
<tr>
<td>Sorghum</td>
</tr>
<tr>
<td>Winter Wheat</td>
</tr>
<tr>
<td>Alfalfa</td>
</tr>
<tr>
<td>Sugar Beets</td>
</tr>
</tbody>
</table>

Soil moisture readings taken by the National Soil Survey Laboratory, U.S. Natural Resource Conservation Service, in Lincoln from April 9 to April 12. Percent soil moisture data in the shaded boxes are at or below plant wilting point. The field capacity and wilting point of the soils were determined by comparing soil textures at the sites with known soil textures and their average soil moisture percent for field capacity and wilting points as determined by the National Soil Survey Laboratory. When experts suggest not letting soil moisture drop below 50% that would be the point halfway between field capacity and wilting point.

<table>
<thead>
<tr>
<th>Soil Moisture</th>
<th>FC 4 inches</th>
<th>Sam 10 inches</th>
<th>WP 20 inches</th>
<th>Sam 40 inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ainsworth</td>
<td>22.4</td>
<td>18.5</td>
<td>10.5</td>
<td></td>
</tr>
<tr>
<td>Alliance</td>
<td>16.6</td>
<td>7.8</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>Arapahoe</td>
<td>16.6</td>
<td>6.1</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>Beatrice</td>
<td>27.8</td>
<td>21.3</td>
<td>15.8</td>
<td></td>
</tr>
<tr>
<td>Concord</td>
<td>27.8</td>
<td>22.0</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>Elgin</td>
<td>16.6</td>
<td>8.2</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>Holdrege</td>
<td>26.0</td>
<td>25.6</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>McCook</td>
<td>26.0</td>
<td>17.8</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>Mead</td>
<td>26.0</td>
<td>17.1</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>Mitchell Farms</td>
<td>14.2</td>
<td>12.6</td>
<td>6.9</td>
<td></td>
</tr>
<tr>
<td>O’Neil</td>
<td>11.6</td>
<td>10.2</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>Ord</td>
<td>26.0</td>
<td>19.7</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>Pawnee</td>
<td>27.8</td>
<td>21.6</td>
<td>15.8</td>
<td></td>
</tr>
<tr>
<td>West Point</td>
<td>27.8</td>
<td>25.0</td>
<td>15.8</td>
<td></td>
</tr>
<tr>
<td>York</td>
<td>26.0</td>
<td>16.7</td>
<td>11.1</td>
<td></td>
</tr>
</tbody>
</table>

Percent soil moisture determined by gravimetric method.

FC = Field Capacity   Sam = Sample measurement   WP = Wilting Point
Comparing glyphosate products – read the label carefully, know what you’re buying

In case you haven’t noticed, it seems that glyphosate products are popping up all over these days. It is important to understand that all glyphosate products are not created equal. Many of these have a very similar chemistry to Roundup® but may have different formulations or surfactants. If the price on a particular glyphosate product seems too good to be true, it probably is.

When comparing glyphosate products, first look at the formulation. This is presented two ways, in terms of active ingredient (compounds with herbicidal properties) and acid equivalent. Glyphosate is an acid formulated as a salt to improve performance and handling. Two formulations may contain the same amount of acid equivalent but different amounts of active ingredient because the salts are of different weights. There are two different salts of glyphosate being marketed, isopropyl amine and di-ammonium salt. Isopropyl amine is the salt in Roundup and other generic glyphosate products. The di-ammonium salt is the active ingredient in Touchdown® with IQ. Since different salts can have different weights, formulations are expressed on an acid equivalent basis. Table 1 compares some common Roundup® and Touchdown® formulations.

Be sure to ask whether surfactants are present in the product. Products like Roundup Ultra include a surfactant while other products do not. A 4lb formulation of a generic glyphosate with no surfactants needs 0.5% volume/volume of a 70%+ active ingredient non-ionic surfactant. This translates into an extra $1 per acre. If a surfactant with less than 70% active ingredient is used, the recommended rate of non-ionic surfactant increases to 1% and the cost also increases. Some companies recommend AMS while others have included AMS in the surfactant systems. Adding 17 lbs of AMS per 100 gal of water at the 10 gallon carrier rate will cost about $0.29 per acre.

Rates are also an issue with different formulations. Table 2 compares the common Roundup® and Touchdown® formulations. In addition not all glyphosate products are labeled for Roundup Ready® crops. Remember that Touchdown w/ IQ is labeled for Round Ready® corn and soybeans while Touchdown 5 is not labeled for corn but is labeled for Roundup Ready® soybeans. The bottom line is to know what you are buying, what’s in the product, including surfactants, the quality of surfactant and the presence or absence of AMS and it’s quantity.

Brady Kappler, Extension Educator, Weed Science

Eastern Nebraska Field Crop Scout Training May 23

University of Nebraska Cooperative Extension is offering two opportunities for Field Crop Scout Training on May 23 — one in Grand Island and one at the NU Agricultural Research and Development Center near Ithaca. (The Grand Island training, which also includes alternative sites, was described in the April 20 Crop Watch.) Field Crop Scout Training will be conducted from 8 a.m. to 4:30 p.m. May 23 at the Research and Education Building at the Agricultural Research and Development Center (ARDC), near Mead. Growth and development of corn and soybeans, hands-on insect pest and weed identification, nutrient deficiencies, crop diseases and practical scouting methods will be covered. This workshop will include introductory information that is most appropriate for field scout interns.

Cost of this training is $65 and includes a reference notebook and lunch. For more information, call 402-624-8030 or email: cdunbar2@unl.edu.

Barbara Ogg, Extension Educator, Lancaster County

Table 1. Comparision of Roundup and Touchdown Formulations

<table>
<thead>
<tr>
<th>Product</th>
<th>Company</th>
<th>Active Ingredient</th>
<th>Formulation</th>
<th>Acid Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundup Ultra</td>
<td>Monsanto</td>
<td>4.0 lb/gal</td>
<td>3.0 lb/gal</td>
<td></td>
</tr>
<tr>
<td>Roundup UltraMax</td>
<td>Monsanto</td>
<td>5.0 lb/gal</td>
<td>3.75 lb/gal</td>
<td></td>
</tr>
<tr>
<td>Touchdown w/ IQ</td>
<td>Syngenta</td>
<td>3.6 lb/gal</td>
<td>3.0 lb/gal</td>
<td></td>
</tr>
<tr>
<td>Touchdown 5</td>
<td>Syngenta</td>
<td>5.0 lb/gal</td>
<td>3.75 lb/gal</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Comparison of Roundup and Touchdown use rates

<table>
<thead>
<tr>
<th>Roundup®</th>
<th>Touchdown®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultra</td>
<td>Ultra Max</td>
</tr>
<tr>
<td>1.0 qt</td>
<td>0.8 qt</td>
</tr>
<tr>
<td>1.25 qt</td>
<td>1.0 qt</td>
</tr>
</tbody>
</table>
Sorghum offers advantages in crop rotations

While many farmers have switched from milo to corn on their dryland acres, milo grown from Steinauer to Ragan is well placed in one of the toughest growing areas in the Nebraska for dryland crops. Southern Nebraska has heat, drought, and good ole’ Great Plains variability working for it nearly every year. The rest of the state is a gravy train compared to the toughness of farming in this area.

Often grain sorghum is economically competitive or even more profitable than dryland corn production. Unfortunately though, it just doesn’t receive the attention it should from growers, researchers, industry and government programs for a variety of reasons. The 25 or so seed companies which used to sell milo have been pared to six to eight seed companies. Why should they promote a crop which warrants only a fraction of the profits of corn and the new high priced biotech soybeans? The fact that milo has been selling at or above corn for the past six months can’t even be reported to the world because milo doesn’t have a place on the big board.

As was evidenced in many fields across southern Nebraska last year, milo growers know that when it comes to drought and heat, there is no contest. Milo will make a crop in all but the most extreme conditions. The cost of producing an acre of milo is $50 per acre less than corn. Are the days of farming with base hits gone? Do all crops have to be homeruns? There is no question that we need good yields. The average, however, is made of highs and lows. Most Kansas line farmers are well aware of the lows. What they need are crops which yield well and reduce the chances of lows.

Milo yields in a Gage County rotational yield study show clearly that milo has a place in the rotation plan. Milo may be second choice in higher potential yielding fields such as those following wheat; however, the dryland farmer should be looking at the ability of milo to provide greater diversity to their rotations as an alternative to corn on drier upland terraced fields. A recommendation for southeast Nebraska might be to use a corn-soybean-wheat-corn-soybean-milo rotation. This keeps the itch to a minimum, while still providing a new crop each year and a diversity in planting and harvest season and crop yield risk.

Paul Hay
Extension Educator
Gage County

Weed control in sorghum

With sorghum planting around the corner and few new herbicides available for sorghum, you’ll need to carefully plan your weed management options. Weed control in sorghum can be broken down into three basic steps: burndown/preplant, pre-emergence, and post-emergence.

Since sorghum is planted fairly late, fields may need some form of weed control before planting. In conventional tillage systems, tillage may be used. With no-till systems, a burndown treatment can be used. Simply controlling weeds in late April with a non residual burndown treatment may not provide adequate control at planting and a residual preplant herbicide may be necessary.

Burndown/Preplant

Burndown choices are similar to those in corn. Atrazine, 2,4-D, Banvel, Gramoxone Extra, Roundup Ultra/Touchdown and combinations of these products are all viable burndown options depending on the type of weeds present. Be sure to allow 10 days after 2,4-D application and 20 days after Banvel application before planting sorghum.

For residual weed control, consider a preplant herbicide program. Just as in corn a preplant herbicide can be applied up to 45

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Sorghum (Continued from page 66)

days before planting. Preplant treatments for sorghum in continuous row crops include Atrazine, Bicep II Magnum, Bicep Lite II Magnum, Bullet, Dual II Magnum, Dual IIIG, Frontier, Outlook, Guardsman, Leadoff, Lariat and Micro-Tech. All of these except Atrazine require a safener on the seed. If the interval between herbicide application and planting is 28 or more days, usually a split herbicide application is best. One example of this would be 1.1 qt of Bicep Lite II Magnum at 30 days before planting followed by 0.5 qt one day after planting.

Pre-emergence

If you plan to apply the herbicide as a pre-emergent, Atrazine, Bicep II Magnum, Dual II Magnum, Bullet, Micro-Tech, Lariat and Leadoff are all suitable choices in conventional tillage systems.

Post-emergence

The third step to weed control in sorghum is postemergence herbicides. One addition this year includes the full registration of Aim herbicide use in sorghum. Aim can be used post up until the sixth leaf growth stage. In addition, it can be tankmixed with some burndown compounds for application up to 30 days before planting. Use rate for Aim POST in sorghum is .33 oz. The total Aim use per season, including burndown, should not exceed 0.6 ounces. Other herbicides registered for use in sorghum include Atrazine, Laddok 5-12, Marksmen, Banvel/Clarity, 2,4-D, Buctril, Paramount, Peak, Permit and certain combinations of these products. Use caution when applying 2,4-D before the 5-inch stage. Also, 2,4-D should be used only with drop nozzles when the sorghum is past the 8-inch stage. The same 8-inch restriction also holds for Banvel and Clarity. Do not apply 2,4-D between the early boot and soft dough stage of sorghum.

Sorghum is particularly sensitive to herbicides on soils that are coarse textured (sandy) and/or have low organic matter. Many preplant/preemerge herbicides are reduced or simply not labeled for these soils.

For more detailed information on sorghum herbicides, including rates and additives, see pages 33-37 of the 2001 Guide for Weed Management available from your local NU Cooperative Extension Office.

Conversion rates for old, new formulations of Balance®

This year Adventis released a new formulation of Balance® herbicide. It is the liquid formulation which improves mixing characteristics of the herbicide over the granular formulation. This new formulation is being marketed under the name of Balance Pro. The older formulation, Balance WDG was a “dry form” of the herbicide. While Adventis company is now selling only Balance Pro, there are still chemical dealers across the state that sell last year’s Balance WDG and the new Balance Pro. This may create serious problems because the two herbicides differ in their use rates. Therefore the goal here is to help you avoid possible mistakes with their use.

The rates of Balance Pro are about 50% higher. To get your Balance Pro rates simply multiply the Balance WDG by 1.5 (Table 1). For example, 2 oz of Balance WDG is equivalent of 3 oz of Balance Pro.

Most of the other characteristics of the two herbicides are the same but make sure to read and follow the label. The label is the law.

Table 1. Conversion rates for Balance®

<table>
<thead>
<tr>
<th>Balance WDG</th>
<th>Balance PRO</th>
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</thead>
<tbody>
<tr>
<td>1.00 oz / acre</td>
<td>1.5 oz / acre</td>
</tr>
<tr>
<td>1.25 oz / acre</td>
<td>1.88 oz / acre</td>
</tr>
<tr>
<td>1.50 oz / acre</td>
<td>2.25 oz / acre</td>
</tr>
<tr>
<td>1.75 oz / acre</td>
<td>2.63 oz / acre</td>
</tr>
<tr>
<td>2.00 oz / acre</td>
<td>3.00 oz / acre</td>
</tr>
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</table>

NU resources for insect management on the Web

We have been working to deliver more of our insect management information through the Internet. In some cases these resources have replaced printed publications, helping us to reduce costs and provide updates as needed.

Light trap data for 2001:
- http://entomology.unl.edu/fldcrops/fldcrops.htm

Data from insecticide efficacy trials:
- http://ianrwww.unl.edu/ianr/screc/Entomology/index.htm
- http://nerrec.unl.edu/ipm/jarvi.htm
- http://entomology.unl.edu/fldcrops/pestipm.htm

We hope you will find information at the following links to be useful:

Biology and treatment recommendations for field crop pests:
- http://entomology.unl.edu/fldcrops/pestipm.htm

Bob Wright
Extension Entomologist
South Central REC

Stevan Knezevic
Extension Weeds Specialist
Begin scouting for alfalfa weevils

Alfalfa weevils have been serious pests of alfalfa in Nebraska for some time, however, damage has intensified in southern Nebraska and in the Panhandle the last few years. In addition, severe damage occurred in northern Nebraska in Holt and Boyd counties in 1998.

While it’s hard to predict where alfalfa weevil will be a problem from year to year, the potential for damage always exists. While row crop planting and field work may seem more pressing, if you’re raising high quality alfalfa, make time during the next month to monitor fields for weevils.

Most weevils overwinter as adults in sheltered areas. They emerge when the weather warms and lay eggs in alfalfa stems. A few eggs will be laid in the fall, and some larvae will overwinter and cause early feeding damage. While this is not common in Nebraska. After spring-laid eggs hatch, alfalfa weevils generally feed on first cutting alfalfa as larvae, and on regrowth after the first cutting as adults. In recent years, however, weevils in the Panhandle and northern Nebraska have not developed as rapidly as one would predict using growing degree days. When this happens, larvae continue feeding after the first cutting, which results in significant stubble feeding and delay of regrowth. This type of feeding was particularly severe in Boyd and northern Holt counties in 1998.

Sampling activities for alfalfa weevil need to be timed properly because it is inefficient to sample when the pest is not active or present. Conversely, delayed sampling is financially risky because economic damage can occur before management is implemented.

Integrated pest management programs often use degree-day accumulations to initiate activities, while producers often use calendar dates. Calendar scheduling is traditionally based on subjective experience and is not as precise as degree-day accumulations.

Integrated Pest Management
Northeast REC

Sulfur may benefit cold soils

The probability of yield response to applied sulfur is expected to be higher than normal this year due to cool spring temperatures. Enhanced early crop growth due to sulfur application is most likely for no-till situations on light colored soils that are low in organic matter.

Low early sulfur availability due to low soil temperature can be overcome by applying 5 lb/A of sulfur in a band beside the seed row, but not with the seed. Alternatively, broadcast apply 10 lb/A. The sulfur should be in a sulfate form such as ammonium thiosulfate, zinc sulfate or ammonium sulfate. Elemental sulfur will be less effective for early growth as its conversion to the plant available sulfate form will be slow due to low temperature. If sulfate is already applied as part of the regular fertilizer program, an additional application should not be necessary.

Nitrogen and sulfur availability are affected by the rate of mineralization of crop residues and soil organic matter. Mineralization is very dependent on soil temperature. The cooler temperatures do not call for an increase in nitrogen fertilizer application this spring, however, as soil nitrate levels in samples collected last fall and this spring have generally been higher than normal. Also, the cool temperature effect on nutrient availability is of concern for early growth only. The supply of nitrogen and sulfur from the soil will return to normal once the soil is warm.

Charlie Wortmann
Extension Soils Specialist