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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

University of Nebraska Lincoln

No. 2004-5, April 16, 2004

UNL team examines soybean rust in Brazil

Researchers and Extension specialists from the University of Nebraska-Lincoln recently returned from Brazil, where they attended the World Soybean Research Conference. After the conference they toured research facilities and farms, targeting specific issues in soybean production and pest management. CropWatch contributors Loren Giesler, extension plant pathologist, and John Wilson, extension educator in Burt County, went on a week-long tour with soybean rust experts from around the world and describe what they saw in the following article.

(Left to right) Loren Giesler, UNL plant pathologist, John Wilson, Burt County extension educator, and Amy Ziems, UNL graduate student in plant pathology, examine soybean rust in Brazil.

Following the World Soybean Research Conference, we toured fields infected with soybean rust in southern Brazil and eastern Paraguay. We observed some of the fungicide efficacy trials and the impact of fungicide applications on this disease. Personally viewing the disease as well as treatments and management efforts will be very useful in helping soybean producers and commercial agriculture representatives identify and manage this disease when it arrives in the United States.

It was very evident that Brazil is using fungicides to manage soybean rust outbreaks. One expert estimated that Brazilian soybean producers would spend over $750 million on fungicide treatments this year. On most acres there are two applications, typically starting around flowering, the stage when soybean rust typically becomes a significant problem.

The most striking thing we observed was the high use of fungicides and the presence of wheel tracks in many fields. When rust develops in the United States, some views about practices may need to become more flexible to provide disease management options. Most producers would not like to see tracks in their fields, but will have to or fly on applications. In southern Brazil where we toured, most ground applications were made with very small equipment having 50 foot booms.

The other production issue which makes soybean rust more of a problem for our competitors is that soybeans or alternative host plants grow year round there. In many locations we observed all stages of growth, from seedlings to mature soybean. This and alternative weedy hosts such as kudzu, which are common in the area, result in continuous spore production. When conditions becomes favorable for rust development, the inoculum is always available.

After seeing soybean rust first hand, our recommendation for Nebraska producers is to be on the lookout for this disease. Based on current information, this disease will eventually occur in Nebraska, we just don't know how soon. When it does occur, we want to be prepared and catch it early.

Loren J. Giesler
Extension Plant Pathologist
John A. Wilson, Extension Educator, Burt County

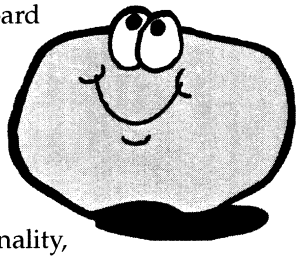
Focus on Soybeans

Inside

Ag briefs

What's in a name?

Well, possibly an evening out with your family or friends. The Nebraska Soybean Board is sponsoring a contest to "Name the Bean." A very cheery but unfortunately anonymous soybean *(below)* is featured on the Nebraska Soybean Board Web site.



To provide this character with a little more personality, the Board is offering a prize for the best name submitted. The winning entry will win four tickets to the Nebraska vs. Texas A&M baseball game on Friday, April 30 and a gift basket of delicious soyfoods.

To submit an entry, contact the Nebraska Soybean Board by phone: (402) 441-3240; fax: (402) 441-3238; or email: ns10020@alltel.net.

For more information about the research, educational programs and development of alternative soybean uses sponsored by the Nebraska Soybean Board, visit their Web site at Web site at *http://nesoybeans.unl.edu/* See *page 46* for a list of current projects.

Hot off the press

University of Nebraska Cooperative Extension recently released several new or revised publications which are available from your local Cooperative Extension office or on the Web, along with more than 1,500 other Extension publications, at *http://ianrpubs.unl.edu/*

The April 30 ***CropWatch*** will feature current information on insect and disease management in soybeans.

- **2003-2004 Dairy Report** (MP82), available online at *http://ianrpubs.unl.edu/dairy/dairyrpt.htm*
- **Surveillance for Bovine Spongiform Encephalopathy** (NF04-595), available online at *http://ianrpubs.unl.edu/animaldisease/nf595.htm*
- **Understanding How USDA-FSIS Determines the Age of Cattle for Current BSE Regulations** (NF04-593) available online at *http://ianrpubs.unl.edu/animaldisease/nf593.htm*

Crop report

Wheat condition rated 14% very poor, 20% poor, 35% fair, 29% good, and 2% excellent, below last year and average, according to the USDA Nebraska Agricultural Statistics Service.

Corn planting had begun in several areas with less than 1% seeded to date.

Oat planting progressed to 63%, ahead of last year at 42% and average at 49%.

Sugar beet planting made good progress in the Panhandle and southwest with 24% completed, ahead of 7% a year ago.

Water-saving irrigation

An irrigation demonstration and research project at NU's West Central Research and Extension Center is focused on methods of making the most efficient use of available irrigation water. Steve Melvin, Extension educator in Frontier County, described the project, its process, and its findings on a recent Market Journal. One of the methods being tested provided a 4-inch water savings and yields comparable to trial fields.

To access the audio or video interview (8 minutes) visit the Market Journal archive at *http://marketjournal.unl.edu/archive/040410.shtml* (video/audio).

Market Journal is presented by University of Nebraska Cooperative Extension, in cooperation with the Nebraska Grain and Feed Association. It is funded in part by the U.S.D.A. Risk Management Agency and produced by the University's IANR Communications and Information Technology. Visit the Market Journal Web site at *http://marketjournal.unl.edu* for other stories on agricultural risk management and marketing.

CROP WATCH

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Lisa Jasa, Editor; Email: ljasa1@unl.edu

Base: 150,000 seeds per acre

Setting soybean seeding rate and planting date

If this spring's weather continues the pattern set the last few years, there'll be an accelerated corn planting season and earlier-than-normal soybean planting. Plus, it appears like it may be another dry year for western Nebraska. As we prepare for soybean planting, let's review how to customize seeding date and seeding rate to local conditions and expectations.

Seeding date

Soybeans tolerate a wide range of planting dates, in contrast to corn. This provides some latitude in early season management of labor and equipment. Optimum planting dates for Nebraska and most northern states range from early to mid May. In most cases yields appear to decline rapidly when soybeans are planted in June. Work by UNL Extension Engineer Paul Jasa suggests that yields of soybeans planted in early March are similar to those planted in mid to late May (see the April 28, 2003 *CropWatch*).

Normally, it is probably best to wait to plant until soil temperature is close to or at 60°F. The optimum temperature for soybean germination is 86°F. Planting into seedbeds that are in the low 50s is not advisable unless the seed is treated and/or soil temperatures are rising rapidly. Average soil temperatures in Nebraska for April 5-11 ranged from 49.6 in Gordon to 60.2 in Havelock, with most soil temperatures averaging in the low 50s for the seven-day period. These represented temperatures that were from 4.6 to 13.7 above normal for the same period. (For a daily update of soil temperature readings at 36 Nebraska sites, visit the *CropWatch Weather Web* page at *http://cropwatch.unl.edu/weather.htm/*)

Planting date affects the size of plant attained before flowering begins. Indeterminate soybeans planted in early May or mid to late June usually are shorter and have fewer nodes. Planting between May 10 and May 20 provides time for adequate vegetative growth and good yield potential. Late-planted determinate soybeans often have similar or greater heights and node numbers compared to those planted earlier.

Planting late-season adapted varieties early in the planting season followed by early to mid season adapted varieties in mid May to early June has some merit. Mid season adapted varieties are good for later planting dates including double crop and relay-intercrop situations. These varieties will provide greater height and node numbers than shorter season varieties when planted late and will have reduced risk of late-season frost injury compared to long season varieties.

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Remember, there is a good chance that the seeds in your bags this year are smaller than in the past. Adjust your planting accordingly! See the March 5, 2004 *CropWatch* for more information on the smaller soybean seed size and see page 43 for a story on adjusting your planter.

Adjusting rate to your conditions

The general recommendation of 150,000 viable seeds per acre is for wide rows with conventional tillage systems. This rate will need to be modified based on changes in the tillage, planting date or row spacing used:

- Increase seeding rates 10-20% if a drill is used.
- Increase seeding rate 10% in poor seed beds.
- Increase seeding rate 10% for "thin-line" or early-maturing varieties.
- Increase seeding rate if poor seed-to-soil contact is expected.
- Increase seeding rate 20% when planting before or after the optimum date.
- Decrease seeding rates with high-value seed, but under most circumstances do not seed fewer than 120,000 viable seed per acre.

The goal is to end with a harvestable stand of about 100,000 plants per acre. Since soybean seed size varies greatly, insure that seeding rates are based on seeds per acre rather than pounds per acre.

Mid-range row spacing tests well in soybeans

Nebraskans intend to plant over 4.6 million acres of soybeans this spring, much of which may be in drier-than-normal conditions. However, there may be a silver lining if these conditions do persist and precipitation and cloud cover are limited -- more light may be available for crop production. This may be something you want to consider as you determine row spacing.

When only light is limiting productivity, equidistant plant spacings have been show to maximize crop yields; however, in dry environments without irrigation, narrow rows have reduced yield potential.

At current plant densities, equidistant plant spacings occur between 6- and 10-inch rows. Indeed many recent research reports from northern states like Illinois, Iowa, Indiana, Minnesota, Missouri, and Ohio indicate that rows 10 inches or less increase yields relative to wider rows. However, research from Kansas and Nebraska (and more northern states like Michigan and Wisconsin) suggests that soybean in wider rows (20 inches) may yield more than those in rows equal to or less than 10 inches.

Narrow row production (10 inches) is giving way to mid-row spacings (15 to 20 inches) in the major northern soybean producing states.

These reports of low yields from narrow rows often are related to situations with poor early-season conditions or poor environments. Kansas data showed that yields were greater in 8-inch rows than in 30-inch rows in "high yield" environments, but that the reverse was true in "low yield" environments. They classified "high-yield" as those environments with yields greater than about 50 bushels per acre and "low yield" environments as those with yields less than about 40 bushels per acre. Even with early season stress that limits yield

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Seeding date *(Continued from page 41)*

Seeding rate

Soybeans have a remarkable ability to maintain high yields over a large range of seeding rates, row spacings, and dry or wet environments. Results from numerous seeding rate experiments across the northern U.S. production area have shown the same thing: seeding from 120,000 to 150,000 seeds per acre will optimize yield in wide rows with conventional tillage and indeterminate varieties. University of Nebraska research indicates that soybean responses to seeding rates are the same in both rain-dependent and irrigated fields and in low-yield and high-yield environments.

Seeding rates over 150,000 seeds per acre will neither increase nor decrease yield if plant lodging does not occur. Plants in fields with seeding rates above 150,000 seeds per acre in good environments may be tall, spindly, and more susceptible to lodging. If lodging occurs, the leaf canopy may be disrupted, potentially limiting grain yield and development and likely making harvest more difficult.

A planting rate of 150,000 seeds per acre with normal plant losses during emergence and the remaining growing season will result in 100,000 or more harvestable plants per acre. Plants in fields with harvest stands with fewer than 100,000 plants per acre will be short, have thick stems, be particularly heavy branched at the lower nodes, and will have many pods close to the ground, making harvesting difficult. Furthermore, weed control is more difficult with poor soybean stands.

Varieties with different growth habits can vary from these recommendations. Indeterminate varieties usually respond to increased seeding rates like the averages discussed above. Short determinate varieties generally follow the trends discussed, however, higher seeding rates will increase plant height and the lowest pod heights which may be an advantage for determinate varieties.

Although lower planting rates may suffice, it is still good management to plant varieties of both growth habits at about 150,000 viable seeds per acre to insure against stand reductions due to soil crusting and hail. Seeding rates also should be increased in no-till or minimum till fields where fewer plants survive. No-till studies in several northern states have shown that seeding rates of about 225,000 seeds per acre will maximize yield.

For more information see the NU NebGuide, *Soybean Seeding Rates*, G99-1395, available from your local Cooperative Extension office or online at *http://www.ianr.unl.edu/pubs/fieldcrops/g1395.htm*

Roger Elmore, Extension Cropping Systems Specialist

With soybeans

Set planting equipment for smaller seeds

Soybean seed size varies depending on the growing conditions in the seed production fields the year before. Across most of the Midwest last year, heat or reduced rainfall in August during pod fill resulted in smaller than normal seed for this year's planting season. Seeding rates have to be adjusted downward for those who plant their fields "by the pound" since there are more seeds per pound this year. Since soybeans seed is sold by the pound, most producers who plant their fields at a desired population are thrilled that their seed dollars are buying more seeds. However, some are concerned about how their planting equipment will handle the smaller seeds.

The smaller size may not affect planting rates for some as many current planters actually singulate the soybean seeds using seed disks or drums with cells for each seed. The air pressure, vacuum, or brushes holding the seeds in the cells may have to be adjusted to prevent multiple smaller seeds from filling the cells designed for singulation. Also, cutoff brushes or clearances may have to be adjusted as well to fit the smaller seed. If enough adjustments cannot be made, some manufacturers have seed disks or drums with smaller holes for smaller seeds which will improve singulation.

Some drills have seed singulation as well, using seed disks or belts with cells for each seed. As with the planters, clearances or cutoff brushes may have to be adjusted to reduce multiple seed cell fill with the smaller seed. On planters and drills with seed singulation, the seeding device will run at the same speed for a given population regardless of seed size, an advantage in years when seed sizes vary greatly. Consult the owners manual for tips on setting the metering devices to handle varying seed sizes.

Most drills and air seeders (and some planters) use volumetric seed metering, where a given volume of seed is delivered for each rotation of the seed metering device. However, rate charts in the owners manual typically give the seeding rates using "average" seed sizes. With smaller seed, either the rotation speed of the meter or the opening of the seed meter has to be reduced to achieve the same population as with larger seed. By reducing the opening of the seed meter to match the smaller size of the soybeans, there will be fewer multiple seed drops compared to slowing the meters. By changing the sprockets on the drive, a slower speed will result in the correct average seeding rate, but multiple seeds may fill each flute or cup, decreasing spacing uniformity. However, reducing the opening too far may result in seed damage or may not allow the seed meter to fill.

After setting the seed metering using the owners manual as a guide, the seeding rate should be checked in the field for each seed size. Small differences in seed size may result in large differences in seeding populations, depending on the metering device and adjustments, especially when multiple seed drops occur. Producers can catch the seeds coming from the meters when planting a known distance and count the number of seeds collected to determine the population. By removing the seed delivery tube and tying a small cloth bag on the outlet of the seed meter, the seeds can be collected from a row. Be careful that the bag hangs down without getting caught in moving parts and hangs such that it doesn't restrict the seed flow out of the meter.

To catch a reasonable number of soybean seeds and to make the calculation easy, the distance equivalent to one hundredth of an acre should be driven: 174 feet 3 inches for one 30-inch row or 145 feet 2 inches for one 36-inch row. Then the population dropped is simply the number of seeds collected times 100. For drills on 7.5-inch, 10-inch, or 15-inch spacing, collect the seeds from 4, 3, or 2 meters, respectively, and drive the 174 feet 3 inches as if seeding 30-inch rows. For seeding equipment on 12-inch or 18-inch spacing, collect the seeds from 3 or 2 meters, respectively, and drive the 145 feet 2 inches as if seeding 36-inch rows. By collecting the seeds from several rows, an estimate of the seeding uniformity can be made and a more accurate estimate of the final population can be determined.

For example: if 452, 478, 406, and 504 seeds were collected from the four bags fastened to the seed meters on a drill with 7.5-inch spacing after driving 174 feet 3 inches -- the seeding rate would be approximately 184,000 seeds per acre [(452+478+406+504) x 100 = 184,000]. Driving a shorter distance

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> By reducing the opening of the seed meter to match the smaller size of the soybeans, there will be fewer multiple seed drops compared to slowing the meters.

Row spacing *(Continued from page 42)*

responses to narrow rows, canopy closure rates are faster with narrow rows than with wide rows. Indeterminate and determinate varieties often respond the same to row widths if early-season stress is not present.

In addition to concerns about yield, also consider the impact of row spacing on soybean diseases. Sclerotina stem rot is a greater problem in narrow rows because of canopy microclimate and more interrow shading in narrow rows than in wide rows (10- to 20-inch versus 30-inch rows). Narrow rows do not appear to affect Brown stem rot severity.

You may need to increase seeding rates if you use a drill. If a drill is used to plant narrow rows, seeding rates need to increase by 10% to 20% to improve plant emergence. Also avoid large seed (< 5300 seeds/kg or < 2400 seeds/pound) since it may be damaged by the seed-metering device in drills.

Mid-range row spacing may be the best choice for several reasons. Studies from Nebraska and other states including a mid-range row spacing in their research often show that soybean yields are optimized in row spacings of 15 to 20 inches. In a multi-state series of narrow-row, no-till studies, soybeans in narrow rows (7-10 inches) yielded more than those in wide rows (30-36 inches) in 6 of 21 sites. At one site wide rows yielded more than narrow rows. In general, narrow rows yielded the same as intermediate row spacings of 12-22 inches.

Indeed, narrow row (10 inches) production is giving way to mid-row spacings (15-20 inches) in the major northern soybean producing states. This change is due to several reasons:

1. White mold is becoming more of a problem in northern states where drilled soybeans were popular.

2. The higher cost of seeds derived from biotechnology make the typically higher planting rates required for drills less attractive. (Planting rates for drills sometimes are 10-20% higher than those recommended for wide rows.)

3. Producers are recognizing that row widths typical for grain drills (7-10 inches) are not necessary to maximize yields.

4. Some corn farmers in northern states are shifting to mid-width rows (15-22 inches) because of yield improvements with corn and in areas where sugar beets are grown. A single planter can be used for all three crops. In some areas where narrow rows were not optimal for production, there is an increasing trend for narrow and mid-width planting systems. This is probably a result of the increase in glyphosate-resistant soybean systems and the availability of row-crop planters for planting crops in row widths of 15-20 inches.

Roger Elmore, Extension Cropping Systems Specialist

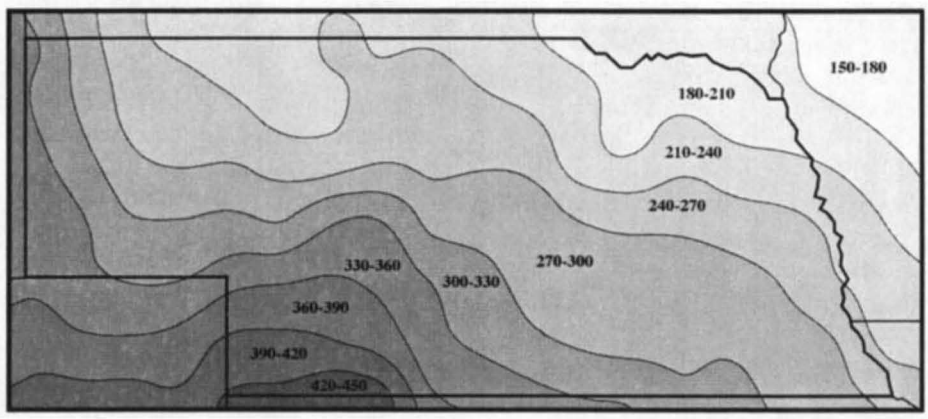
Planters

(Continued from page 43)

would result in less seeds to count but gives a less accurate estimate of seed drop. By driving only 17 feet 5 inches for 30-inch rows or 14 feet 6 inches for 36-inch rows, one thousandth of an acre would be covered, thus the collected seed count would be multiplied by 1,000 to get the seeding rate. However, a start-stop error of 1 foot in the driving distance would result in about 7% error compared to about 0.6% error in the distance for one hundredth of an acre.

By catching the seeds as they come out of the seed meter, they can also be examined for damage. If seed damage is occurring, the clearances in the seed metering devices should be checked and adjusted. This is especially important when switching to a variety which may have a larger seed size than the one previously planted. This calibration method should be done anytime the seed size changes and serves as a check of the planting rate charts in the owners manual.

Paul Jasa
Extension Engineer



Alfalfa weevil predictor

Accumulated growing degree days (GDD), using a base of 48 degrees, can be used to help predict alfalfa weevil activity. Feeding begins at about 250 GDD and could be occurring across much of the state. *(Map developed by Al Dutcher, state meteorologist, High Plains Climate Center)*

Save valuable moisture; protect yield

Early season weed control in soybean

With corn planting just beginning it may be hard to think about soybeans; however, if you get a few spare minutes, it would be good to plan or review your soybean weed management strategy. Let's look at several factors to consider.

Conventional tillage vs no-till

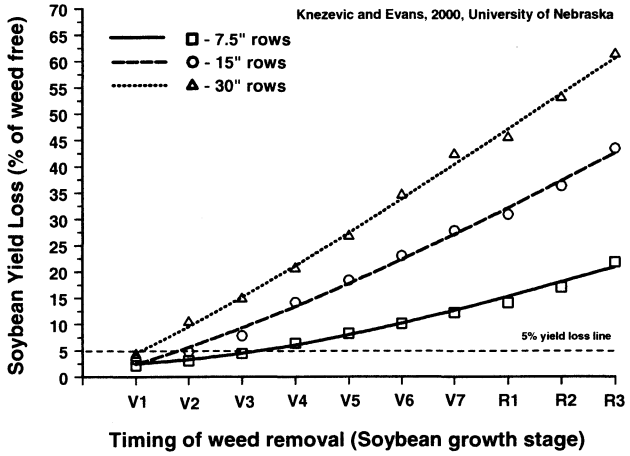
Depending on how you look at it, weed management strategies for these tillage types will either be very similar or worlds apart. Of course, while the concepts are still the same, the goals are somewhat different. Management strategies for each still focus on the bottom line of yield.

Conventional tillage soybeans

With conventional tillage, a good portion of weed management is removed from the equation. Many of the early emerging summer annuals, including giant ragweed, kochia, crabgrass, lambsquarters, and Russian thistle are removed during tillage, allowing the crop and any new weeds to emerge together.

Under this system, a preemergence herbicide can work really well. It can remove a lot of the weeds that would emerge with the crop and compete heavily with the soybeans. This gives the crop an advantage by several weeks, removing competition during the first portion of the critical period of weed control (*see figure*).

Research at the University of Nebraska has shown that each crop has a critical period during which weeds must be controlled to maintain maximum yields (*Figure 1*). For soybeans, this period is from the second trifoliate to approximately the beginning of podset. This is roughly the 10th to the 40th day of crop growth. This shows that while you may save some money by going with a a single POST program in your Roundup Ready® beans, you also are hurting yields by delaying weed control. This means that you may need to consider using two applications of glyphosate or including a pre-emergent herbicide into your Roundup program to widen the window of application.



NU research has shown that the critical period of weed control for soybeans is from the second trifoliate to approximately the beginning of podset.

One may interpret that weeds in front of this window need not be controlled. However, other factors such as reduced soil moisture and unsightly field clutter need to be considered. Given the dry years we have been having, controlling these early season weeds may be very important.

No-till soybeans

In dry years no-till farmers may be ahead of the game, as they are likely to conserve more soil moisture. However, this moisture can be a yield limiting factor in a drought year too since it may allow for the germination of early summer annuals and support winter annuals that emerged last fall.

Burndown treatments will eliminate soil moisture loss from early summer annuals and existing winter annuals. Many herbicide strategies exist to accomplish this while still providing some residual control before the crop is planted.

One strategy is to apply an early preplant treatment with the burndown 10 to 30 days before planting. This removes weed competition up front while providing the residual control needed for the early part of the season. The advantage of this strategy is that most summer annuals have not emerged yet, rendering the residual herbicide very useful.

Another advantage is that more time is given for a rainfall event to occur for herbicide incorporation and activity. Finally, depending on the weed spectrum, the early preplant may eliminate the need of an additional burndown, saving money. However one disadvantage is that the herbicide will lose residual activity earlier in the growing season and post treatments must be planned more carefully.

A second strategy is to apply a burndown herbicide alone ahead of planting, such as glyphosate at 32 oz/ac equivalent rate. When combined with 1.0 pt/ac 2,4-D ester,

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Weed control

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glyphosate can be reduced to 24 oz/ac. Remember that there is a seven-day interval between application of 1 pt of 2,4-D and soybean planting. Any application greater than 1 pint of 2,4-D requires 30 days before planting. Dicamba should not be used before planting soybeans.

A disadvantage to this strategy is the window between the burndown treatment and the treatment applied at planting. The bigger the gap, the more likely it is for additional weeds to emerge ahead of planting.

A third technique is to apply a two-thirds rate of residual herbicide with the burndown followed by another one-third residual at planting. This allows for a longer window between the burndown and planting in case the planting gets delayed. In addition it provides another dose of residual at the time of planting to increase the weed control at crop emergence by a few days. This system allows more flexibility in postemergence herbicide applications since environmental conditions such as rainfall or wind may occur at your normal time of POST application and delay spraying operations.

With each management strategy, producers should remember two things. First, early season weed competition can reduce yield, especially in a dry year. Second, the best strategy is likely the one that provides the most flexibility for your management style. Each strategy will have its own shortcomings, so be able to recognize them and adjust as needed.

For more information on selecting a pre-emergence herbicide for soybeans see pages 43-51 in the *2004 Guide for Weed Management in Nebraska*. This guide is available at your local University of Nebraska Cooperative Extension office for $3.

Brady Kappler, Extension Educator Weed Science

NSB promotes soy biodiesel, supports research, education

The Nebraska Soybean Board funds a variety of research and educational projects and producer programs related to soybean production and profitability and the development of alternative uses and markets.

One of the Board's recent priorities has been soy biodiesel. Derived from a renewable resource, soy biodiesel is a high-lubricity, clean-burning fuel for diesel engines. It is derived from virgin soybean oil which has been converted to a "methyl ester" by removing glycerin, according to the NSB Web site.

Soy biodiesel is available in three product types: B2 is a blend of 2% soy biodiesel with 98% petroleum diesel. B20 is a blend of 20% soy biodiesel with 80% petroleum diesel. B100 is 100% soy biodiesel. The NSB Web site at *http://nesoybeans.unl.edu/biodiesel.html* lists more than 225 Nebraska businesses who sell soy biodiesel or a soy-derived additive for diesel fuel. The site also lists suppliers.

Other research projects being supported by the Nebraska Soybean Board include: winter nursery for soybean breeding and genetic research; development of improved soybean varieties for Nebraska; enhancing soybean germplasm through biotechnology; development of an insect defoliation-dependent weed management program in soybeans; soybean aphid survey and early warning program; improving the profitability of soybean cropping/capturing more yield potential; soybean surveilance network: monitoring for soybean rust and insect pests screening; technologies and resistance sources for development of sclerotinia stem rot resistant varieties in Nebraska; development of an oxidatively/thermally stable soybean oil (for lubricant applications); freshwater prawn team; control of problem weed species in Roundup Ready soybeans; and the North Central Soybean Research Program. For more information about the work of the Nebraska Soybean Board, visit their Web site at *http://nesoybeans.unl.edu/*

Setting a realistic corn yield goal

Corn growers need to set a realistic corn yield goal to make sound decisions on corn hybrid, seeding rate, fertilizer application, and irrigation need. The goal should be the most profitable yield that can be expected for the particular set of soil, climate, and management practices.

A newly revised NebGuide, *Setting a Realistic Corn Yield Goal* (G79-481), guides the reader through the process of assessing factors that affect corn yield and setting a realistic goal for their conditions. It also includes a table of attainable corn yields for different regions in Nebraska and county maps showing annual growing degree days, annual precipitation, maximum irrigated corn yield and maximum rainfed corn yield. The NebGuide is written by Achim Dobermann, soil fertility and nutrient management specialist, and Charles Shapiro, soil scientist-crop nutrition.

Excerpted from the NebGuide:

"The yield goal should reflect what can be grown if normal weather prevails and good management is achieved.. . . Striving for rarely achieved yields wastes money and may contaminate the ground and surface water.

The NebGuide is available from local Cooperative Extension offices.

Early irrigation of alfalfa may be warranted

With the diminished soil moisture and low precipitation levels in some areas, alfalfa growers may want to start irrigating. It may seem early, but this may be the only time you can actually build a reserve water source for summer use.

Alfalfa can develop roots more than eight feet deep, but it will only do this when surface moisture does not meet crop needs and moisture is available all the way down to those depths. Deep roots and deep moisture will make your summer irrigating much easier by providing extra moisture when plants use as much as half an inch per day. Typical shallow watering during summer encourages only shallow rooting.

The biggest advantage of reserve water comes after each summer cutting. Alfalfa roots need oxygen in the soil if plants are to regrow rapidly. Watering right after cutting suffocates roots and slows regrowth. Immediate watering also stimulates shallow rooted or sprouting weeds, especially at a time when alfalfa plants are not very competitive. Both problems are reduced when water is available for deep alfalfa roots while the top several inches of soil remain dry.

Early spring irrigation also tends to help warm up the soil since irrigation water usually is about 55 degrees. This can help speed early alfalfa growth.

In areas where dry conditions prevail, remember that early watering may be a way to ensure you meet your goal of having six to eight feet of soil at field capacity for moisture at first cutting.

Bruce Anderson
Extension Forage Specialist

Grazing alfalfa may aid pastures, spread workload

Improved pasture management and time management are two reasons you may want to graze your alfalfa and delay first harvest this spring. Allowing some grazing now can reduce pressure on spring grass and delay the first cutting of alfalfa several weeks. In turn, this can allow you a little extra time to complete spring field work or spread out the window when your alfalfa fields will need to be cut.

Using grazing as a hay management tool may seem a little radical, but early grazing will delay first bloom a week or more. The length of the delay will depend primarily on how hard and how late you graze the alfalfa. The later the grazing, the later your alfalfa will bloom.

You might even stagger your grazing across several fields to cause each field to be ready for cutting at different times. You may need to experiment a little, though, to learn how much grazing will cause the desired delay.

If you're interested in pursuing this management option, there are several factors you need to consider. First, be careful when grazing early alfalfa. Avoid grazing when soils are wet and soft, otherwise hoof damage might severely injure alfalfa crowns and damage stands. Also, young alfalfa can easily cause bloat. Manage grazing to avoid large meals of young alfalfa and consider feeding animals a daily supplement that contains a chemical bloat preventer.

Bruce Anderson
Extension Forage Specialist

Celebrate National Soyfoods Month

April is National Soyfoods Month. Soyfoods are an excellent source of high-quality protein and dietary fiber and are cholesterol free and low in saturated fat.

Studies have shown that soy protein can actually lower cholesterol levels in people with elevated cholesterol levels. Other studies have shown that soy protein reduced the LDL or "bad" cholesterol levels associated with heart disease, while the HDL or "good" cholesterol levels remained relatively unchanged. Researchers also are looking at genistein, which is only found in soy. Genistein inhibits the growth of blood vessels in tumors and may be an aid in fighting cancer.

No-till planting

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may add to wear on the parallel links and their bushings, especially during transport, and may require more front end weight on the tractor for mounted planters.

Add the weight and/or springs and you'll be amazed at how much better the planter performs. Make sure you set the depth stops slightly deeper to make up for the layer of residue that you'll be riding on. This will help ensure that you get the seed down to desired seeding depth. The drier the soil, the more weight you'll need. On wetter soils, you may have to reduce the weight or downpressure if the depth gauge wheels start leaving a track or start compacting the soil beside the seedvee.

Crop Scout Training to be May 10 at the ARDC

A University of Nebraska crop scout training course will provide crop scouts an opportunity to enhance their skills.

The training is designed for entry level scouts who will be working for crop consultants, industry agronomists or farm service centers across Nebraska and neighboring states, said Keith Glewen, Extension educator.

The course is from 8:30 a.m. to 5 p.m. May 10 at the University's Agricultural Research and Development Center near Mead.

"Past participants have given the training high marks," Glewen said.

"In fact, 100% of last year's participants rated the program as above average or one of the best programs of its type available."

Topics include: corn and soybean growth and development — how to stage the growth of corn and soybeans and the importance it has on the management of pest control; corn and soybean insect pests — identification, damage and life cycles; natural enemies — predators, parasites and pathogens; weed identification; crop diseases; nutrient deficiencies; and sampling methods — scouting dos and don'ts.

"A few of the benefits registrants stated the training provided included improved confidence in scouting and working with growers and acquisition of better identification skills," Glewen said. "Other participants appreciated the hands-on, practical format."

The registration fee before May 3 is $65; afterward it's $75. A total of 5.5 Certified Crop Advisor Continuing Education Units is anticipated in the integrated pest management (4.0), crop production (1.0) and soil fertility (0.5) categories.

For more information or to register, contact the ARDC, CMDC Programs, 1071 County Road G, Ithaca, Neb., 68033, call (402) 624-8030, fax (402) 624-8010, e-mail cdunbar2@unl.edu or visit the Summer 2004 Training Web page at *http://ardc.unl.edu/training.htm.*

The training is part of the Cooperative Extension Crop Management Diagnostic Clinics and is sponsored by extension, which is part of the University's Institute of Agriculture and Natural Resources.

Other summer courses include: mid-summer diagnostic clinics on July 15 and 16, a late season clinic on Aug. 18 and a precision farming management and technologies clinic Aug. 26.

IANR News Release

How can I ensure consistent no-till planting depth?

Q. **Northeast Nebraska Producer:** I attended a University no-till conference earlier this spring and went home very enthusiastic. I plan on going 100% no-till this year and have signed up my acres in a continuous no-till incentive program for five years.

I talked to a veteran no-till farmer at the conference and was concerned about the cost of converting my older JD7000 for no-till planting. He said I don't need row cleaners or heavy-duty downpressure springs. He attached a steel shield in front of each row to knock down stalks and to prevent stalks from throwing off chains on the planter. For down pressure, he adds rocks or sand in the insecticide boxes.

I attached the steel shields and tried it in heavy corn stalks this week. There is no problem going through the residue, but the openers ride on top of the ground when it hits heavy trash. Will the rocks in the boxes provide the down pressure I need to solve this? Would a no-till coulter help? The man said the no-till coulter will just pack the ground. I want to do what will work best and not have to run out at the last minute to get a retrofit for my planter. Any suggestions you can supply me with will be much appreciated. *(slightly abridged)*

A. **Paul Jasa, Extension Engineer:** I agree, you don't need residue movers or coulters. Coulters create far more problems than they solve, especially if the soil is wet or sticky. Residue movers cut the residue loose so that it slides or blows. You have no problem handling the residue as you said because it's still anchored and attached.

The problem you described regarding riding over residue is easily solved by adding downpressure springs and/or weight, provided your seed furrow opener disks are sharp and working together. I like to use heavy-duty downpressure springs and transfer weight from the toolbar to the planter units. (I add weight to the toolbar.) Add enough downpressure to make sure that the planter units don't ride over the residue and that the depth gauge wheels are in firm contact with the ground. Add enough weight so that the planter's drive wheels don't slip as the springs will be "lifting" weight off the toolbar.

Others like to add the weight directly to the planter units so that they don't need heavy-duty springs. This leaves the weight of the toolbar on the drive wheels, reducing slip of the seed metering. Adding weight to the rear of the planter unit also improves seed-to-soil contact. However, weight on the back of the planter unit

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