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8-22-2003

CropWatch No. 2003-21, August 22, 2003

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Jasa, Lisa, "CropWatch No. 2003-21, August 22, 2003" (2003). *Crop Watch*. 47.
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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

UNIVERSITY OF
Nebraska
Lincoln

No. 2003-21, August 22, 2003

Lessons learned with Clearfield wheat in 2003

The Clearfield Production System for Wheat (CPSW) was introduced last year by its developer, BASF Corporation. This system combines the use of Beyond™ herbicide with a winter wheat cultivar containing a gene that confers tolerance to this herbicide. This allows for selective control of winter annual grass weeds such as jointed goatgrass, downy brome, and feral rye in winter wheat.

Wheat cultivars with this gene may be treated with Beyond™ herbicide with minimal risk of crop injury. Beyond will seriously injure or kill winter wheat cultivars without the tolerance gene.

In field research in western Nebraska and throughout the western winter wheat belt, CPSW provided excellent (95%+) control of jointed goatgrass and downy brome when weeds were treated with 4 ounces of product per acre in the fall or early spring. Fair to good

(80%+) control of feral rye required an early fall application with 5 ounces of product per acre. It provided optimum control of feral rye with little wheat injury when Beyond was applied before rye plants had produced a tiller and

wheat had at least three leaves emerged. Some wheat growers in the Nebraska Panhandle reported inconsistent control of feral rye with Beyond herbicide in the 2002-2003 crop. Cold weather conditions

(Continued on page 195)

Take online 'virtual' wheat tour to compare, select varieties

If you missed the wheat variety tour for your area or are looking for more information on what varieties are best suited to your farm, you can take a "Virtual Wheat Tour" online from the comfort of your air-conditioned home.

NU Extension specialists have developed a web site with detailed descriptions of varieties, their pedigrees, release dates, certified seed producers selling them, and even a photo. The site features hard white wheats, hard red winter wheats and irrigated wheats and is available at <http://www.panhandle.unl.edu/wheat/>

Through the site you can compare varieties for characteristics such as winter hardiness, disease and insect resistance, straw strength, and plant height.

When selecting a new variety, consider the strengths and weaknesses of each variety and how it will fit with the farming practices and wheat varieties you're currently using. Choosing varieties that

Virtual wheat tour

www.panhandle.unl.edu/wheat/

complement each other will improve yield stability and maximize protection from disasters brought on by diseases, insects, or drought. After using the site to locate a few varieties that seem to meet your criteria and that fit well with your operation, view the results of the 2003 wheat variety trials to see how the selected varieties performed in trials near your farm. This data is at <http://varietytest.unl.edu/whtst/2003/>

Variety selection is one of the most important decisions a wheat grower makes. This site can provide the information you need to select varieties best suited for your farm operation. It's the next best thing to attending a University of Nebraska field variety tour near you.

Drew Lyon, Extension Dryland Cropping Systems Specialist
Lenis Nelson, Extension Crop Variety Specialist

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Updates

Del Hemsath, Extension Educator in Dakota, Dixon, and Thurston counties: There has been no general rain here since mid June. Some spotty rains have occurred, enabling the crop to remain healthy a bit longer. Dryland corn is green, but has used all the stored water in the soil profile and is suffering. Corn fields have rolled leaves by noon and some plants are yellowing and the lower part of the stalk is drying up. Soybeans are in the critical stage for seed fill and are just staying green. They will suffer if the dry weather continues. Alfalfa third cutting is coming off, regrowth will be marginal and there will not be another cutting unless it happens to rain. Pastures are done for those who do not rotate or have intensive grazing systems set up. Producers needing additional feed could use their corn for silage; however, most farmers will probably take what grain they can get from the field. Regarding insects, all soybean fields have aphids and some grassy areas have grasshoppers.

Noel Mues, Extension Educator in Furnas County: After receiving timely rains this spring, it has turned extremely hot and dry during July and August. Crop conditions declined as the month progressed. Surface water irrigators will be far short of required water as we head into the final stages of the growing season. Livestock producers will need to seek alternative feed sources as pastures dry up. With the low water levels in area lakes it is obvious that the drought still has a strangle hold on much of the central and western United States. On the bright side, an excellent wheat harvest was reported by most area producers with yields in the 50's and 60's common throughout the area.

Ron Seymour, Extension Educator in Adams County: Irrigated corn is in excellent condition and in the late dough to early dent stages. Due to drought stress, dryland corn is in poor condition and only about 10% of the crop will have

any significant yield. Soybeans are maturing, with the irrigated crop in excellent condition. Soybean aphids have been identified in a number of fields, but not enough were found to

initiate insecticide applications. Recent rainfall has helped some of the grain sorghum fields but the crop is still under significant moisture stress in a number of areas.

Manure management field days continue in September

Three manure management field days -- "From Brown to Gold" -- will be held in September. Each program is divided into an optional morning session and an afternoon session. The afternoon program will focus on manure and soil sampling and applicator calibration and include extra topics important in that region. The morning program will focus on interpreting soil and manure test reports and developing a manure application plan.

By attending both morning and afternoon sessions, participants will receive NDEQ "land application training" education credits. These are required of livestock producers who have received a livestock waste control facility permit since April 1998.

Meetings will be held Sept. 4 near Mead; Sept. 10 near North Platte; and Sept. 17 at Bridgeport. Morning programs start at 10:30 and afternoon programs begin with lunch at noon and end at 3:30 p.m.

The registration fee is \$30 for the full day and \$20 for the afternoon program. Space is limited for the morning program. Lunch will be provided to both morning and afternoon participants. Please pre-register by calling the Extension Office in the host county at least two days before the event.

This program is partially funded by a grant from the Nebraska Environmental Trust. For more details on the program, see the July 25 *CropWatch*, available online at <http://cropwatch.unl.edu/archives/2003/crop03-19.htm>

CROP WATCH



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Crop Watch is published from March to November by Cooperative Extension and Communications and Information Technology in the University of Nebraska Institute of Agriculture and Natural Resources, PO Box 830918, 108 Agricultural Communications Bldg., UNL, Lincoln, NE 68583-0918. To order a print subscription or to change your address, write to *Crop Watch* at the above address or call (402) 472-7981. The newsletter also is available on the web at cropwatch.unl.edu

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Clearfield *(Continued from page 185)*

within a few days of application may help explain some of the inconsistent performance. Although feral rye control with Beyond is not at the same level as with the other winter annual grasses, it is still the best selective control method available for feral rye at this time. Each grower will have to decide for themselves as to whether 80-85% control of feral rye is worth the \$20+ per acre treatment cost.

Among weed control specialists, the biggest concern with the Clearfield production system is the potential for developing herbicide-resistant weeds. Because Beyond provides such excellent control of jointed goatgrass and downy brome, it will exert a tremendous selection pressure for resistance. Beyond belongs to a class of herbicides known as ALS-inhibitors. Other herbicides in this class, such as Glean and Pursuit, have a history of quickly selecting for resistance in weed populations. Examples include ALS-resistant kochia, prickly lettuce, and pigweed. In the case of jointed goatgrass, resistance also may occur through pollen transfer. Jointed goatgrass and wheat share a common genome, the D genome, acquired from a common ancestor. Research has shown that there is a slight chance of moving the resistance gene from a Clearfield cultivar to jointed goatgrass within several generations. Without adequate safeguards, it is likely that weeds resistant to Beyond will be common in just a few years.

In order to delay the onset of herbicide resistance, fields treated with Beyond should not be treated with another ALS-inhibitor such as Ally or Peak. If additional weed control is needed, for example to control warm season broadleaf weeds like kochia or pigweed, use herbicides with a different mode-of-action. Herbicides containing 2,4-D or dicamba would be good choices for additional weed control.

The BASF Clearfield steward-

ship program for wheat requires the use of only certified seed in order to prevent the pollen flow required to produce a jointed goatgrass plant with resistance to Beyond. Growers will not be allowed to save back any grain for seed. The stewardship program also does not allow for using CPSW more than twice in a four-year period. University researchers in the Great Plains are concerned that this requirement is not adequate to sufficiently delay the onset of herbicide-resistant weeds. They recommend that the CPSW not be used more than once every three years. This would prevent growers in the winter wheat-fallow rotation from using the system every time they grow wheat.

Another concern with this system is the high cost of the herbicide. The herbicide costs about \$4 per ounce or \$16 per acre for a 4-ounce per acre rate.

For 2003 planting only three Clearfield cultivars will be available to Nebraska growers. These are 'Above', 'AP 401CL', and 'AP 502CL'. Above is a public variety developed at Colorado State University. It is a 'TAM 110' type with questionable winter hardiness for Nebraska. Although Above performed well in the 2003 University of Nebraska wheat variety test plots (see <http://varietytest.unl.edu/whittst/2003/index.htm>), several wheat growers in western Scotts Bluff and Banner counties were disappointed with its yield performance. The reason for the poor performance in

this area is not known, however it may be related to marginal adaptability of the variety to the higher elevations there. Agripro will have two Clearfield cultivars for sale. AP 401CL is a hard white wheat with the gene for tolerance to Beyond and AP 502CL is similar to Above. Dr. Stephen Baenziger, wheat breeder at the University of Nebraska-Lincoln, is expecting to have several high yielding, Nebraska-adapted cultivars for the CPSW available in fall 2005 or 2006.

The gene conferring resistance to Beyond was developed by mutagenesis, a technique that has been used in plant breeding for over 70 years. Cultivars with the gene are not considered to be genetically modified organisms (GMOs) thus market acceptability is not a concern with wheat cultivars used in this system.

Growers interested in CPSW should check with their local BASF agricultural representative or agricultural chemical dealer. Growers will be required to enter into a contractual arrangement with BASF to ensure stewardship requirements are followed. With proper management, CPSW provides winter wheat growers with a very effective weapon to gain the upper hand in the battle against jointed goatgrass, downy brome and feral rye.

Drew Lyon
Extension Dryland Cropping
Systems Specialist
Gail Wicks
Extension Weeds Specialist

New corn lines may be good for the heart

Heart-friendlier products may be one of the benefits from new corn varieties developed by scientists with the USDA Agricultural Research Service and Iowa State University (ISU).

Some of the 14 new corn lines have yielded oils with 60% to 70% oleic acid, a compound that helps

products stay fresh longer and is thought to help lower blood cholesterol in people. Most commercially available corn oils contain 20-30% oleic acid. High oleic acid content also may lead margarine makers to skip hydrogenation, a process that creates trans fatty acids, which are believed to raise cholesterol.

Nebraska not alone in bearing dry conditions, sporadic rains

Hot temperatures and the lack of significant moisture across the southern two-thirds of the dryland corn region of Nebraska during the last six weeks has severely stressed major grain crops. In late June the corn crop looked like it had the potential to produce good yields, but ran out of subsoil moisture by late July. As of Aug. 17 the Nebraska Ag Statistics Service rated only 16% of the dryland crop in the good to excellent category, with the best reports from northeastern Nebraska. Last year at this time, only 4% of the dryland crop was rated as good to excellent.

Soybean and sorghum also have declined during the last six weeks with only 34% of the soybean crop and 15% of the sorghum crop now rated good to excellent. Rains Aug. 18-20 in the eastern third of the state may bring some relief.

The situation in Nebraska is similar to that in parts of Kansas, Iowa, Missouri, Minnesota, Illinois, and Wisconsin. The National Agricultural Statistic Service reported that nationally corn and soybean condition declined for the fifth consecutive week. Reports from the top 10 producing states indicated that the corn crop had dropped to 60% good to excellent, down from 74% on July 13. Soybeans rated 56% good to excellent, down from 70% on July 13.

Nebraska cattle on feed down 12%

Nebraska feedlots, with capacities of 1,000 or more head, contained 1.57 million cattle on feed August 1, according to USDA's Nebraska Agricultural Statistics Service. The inventory was down 12% from last year and 13% below August 1, 2001. Placements in feedlots during July totaled 350,000 head, down 12% from 2002 but 9% above 2001.

A review of state reports indicated that most fields in the northwest corner of Missouri were expected to produce little if any grain. Iowa fields were rapidly deteriorating on the upper halves of sloped fields and soybean aphid infestations were increasing to the point that aerial spraying was required. Minnesota and Illinois fields were showing signs of moisture stress. Corn and soybeans in Wisconsin were exhibiting severe stress, particularly in the sandier soils.

Ratings for Nebraska's irrigated corn crop were considerably better than the dryland crop, with 77% of the crop rated good to excellent. Limited water to no available water were reported across the Panhandle, southwest, south central, and southeast Nebraska. Soil moisture was virtually non-existent across much of the state as of August 17. Almost every station within the High Plains Climate Center's soil moisture monitoring network indicated little, if any moisture below 12 inches. Any moisture in the top 12 inches resulted from scattered thunderstorms in the last 7-10 days.

During the next two weeks, warm temperatures are projected to continue, but 100+ temperatures appear doubtful. Drier than normal conditions are projected until Labor Day weekend when a robust storm system is forecast. Otherwise, any precipitation is expected to be widely scattered, with the best likelihood occurring across the western third of the state as a result of monsoonal moisture and weak upslope flow. Unfortunately, for many dryland farmers, the recent moisture and predicted late August precipitation may be a little too late.

Al Dutcher
NU State Climatologist

Options for using drought-stunted, bloomed-out alfalfa

What should you do with your short, bloomed-out dryland alfalfa?

Everywhere you look, dryland alfalfa has stopped growing. Many of us have alfalfa fields with plants six to twelve inches tall getting more and more purple by the day. With little relief in sight, what should we do -- hay it, shred it, graze it, or just leave it?

First the good news: while it stays dry you can do whatever you feel like doing and you aren't likely to hurt your alfalfa. The bad news is that if it stays dry you won't do it much good either. So my recommendation is to use it or lose it.

As your alfalfa continues in a dormant state, it will slowly lose feed value and tonnage due to continued maturation as well as leaf loss from insect feeding, diseases, and old age.

A yield of at least one-half ton per acre probably would be needed to justify the fuel, labor, and other expenses involved with harvesting hay. Grazing might be relatively cheap in terms of out-of-pocket costs if you already have portable electric fence and don't need to transport cattle or water. Dry, bloomed-out alfalfa has a pretty low risk for bloat. It's not foolproof, but common sense animal husbandry should enable you to graze it safely.

If you can't hay or graze, it's probably best to just leave it alone. Shredding will give you a cleaner, higher quality hay once your alfalfa receives enough rain for regrowth and it probably will start regrowing just a bit faster. In most cases, however, it's not worth it when you consider the cost and time involved in shredding.

Bruce Anderson
Extension Forage Specialist

Soybean aphid numbers building quickly in NE

Fast building populations of soybean aphids are being reported in eastern Nebraska and could still cause economic yield losses

In northeast Nebraska, populations jumped during the week of August 10-16. We have been "treated" to an amazing example of the reproductive potential of these aphids. Some growers have opted to spray their fields, while some have decided not to. Talking to quite a few consultants, growers and dealers has led us to conclude that populations had not been very high until that week. Soybean aphids are being reported in other areas of the state but are expected to cause less damage where plant growth is more advanced.

At this point, many growers in northeastern Nebraska are considering the potential for damage and whether treatment is warranted.

Heavy rainfalls may wash aphids off the plant, however rain has been spotty. Several fields scouted on Monday and Tuesday showed a huge leap in lady beetle and parasitoid numbers and we believe that many aphid populations are now stabilizing or even declining. Looking for predators, especially lady beetles, should be a key factor in deciding whether to treat. Fields where the aphid populations appeared to be decreasing had one or more lady beetles per foot of row visible on the tops of the soybean plant.

This week's hot weather may have provided another natural control method by reducing the aphids' reproductive potential. Aphids prefer moderate temperatures for the most rapid reproduction. The looming question now is "When will aphids leave the fields?" and unfortunately we don't have a sure answer.

The Catch-22 is that the longer you wait to treat, the less likely the return on investment as the beans continue to mature and the aphids

get nearer the time where they will leave the fields to search for overwintering sites. With most beans currently in the R5 stage we feel that at least 400 or more aphids per plant would be necessary to get an economic return from treating (this is assuming that populations are still increasing in that particular field). Fields that are delayed in maturity (less than R5) may benefit more from treating as the yield potential may be affected more.

Soybean aphids represent a new pest that is behaving in a way that has not been seen before. We can

only make educated guesses, put out test plots, and make careful observations that will help in future decision-making.

The June 27, 2003 *CropWatch* includes further details on the soybean aphid life cycle and management strategies. It is available on the Web at <http://cropwatch.unl.edu/archives/2003/crop03-16.htm>

Keith Jarvi
Extension IPM, Northeast REC
Tom Hunt, Extension
Entomologist, Haskell Ag Lab

Whiteflies unusually common in Nebraska soybeans this year

We have received numerous reports the last few weeks that whiteflies are common in eastern Nebraska soybeans. Whiteflies have been observed in Nebraska soybeans before, but they seem to be more numerous this summer.

Previous research and a sample taken recently from soybean fields on UNL's East Campus indicate that these are greenhouse whiteflies, *Trialeurodes vaporariorum*.

Whiteflies are sucking insects that feed on plant juices in both the immature and adult stages. The adult stage is about 1/16th inch long, with four whitish wings and a yellowish body. The wings are held roof-like over the body and are more or less parallel to the leaf surface. The adults are easily disturbed and often fly up as you walk through a field. The nymphs feed on the undersides of leaves.



Producers in central and eastern Nebraska are reporting unusually high numbers of whiteflies. (Photo by Jim Kalisch, UNL Entomology)

They are flattened and look like scale insects.

There are no published economic thresholds for greenhouse whiteflies in soybeans, and from all indications, the soybean aphid is probably the greater concern in Nebraska soybeans.

Bob Wright
Extension Entomologist

Seedbed conditions help dictate planting date

The 2003 winter wheat crop varied from poor to excellent across the state. The best dryland winter wheat yields were in the 80- and 90-bushel per acre range. The lowest yields were in areas that did not receive ample or timely rainfall, or were affected by freeze, high temperatures in late May, diseases such as stripe rust and wheat streak mosaic, or insects such as the army cutworm and the wheat head armyworm. Overall the yields in most areas were good to excellent but left little soil moisture for the next crop, raising the question of how long to wait for moisture before seeding.

For tilled seedbeds (usually fallow) where the seed can be placed in firm soil at the correct seeding depth for the winter wheat variety, the crop producer's best option is probably to go ahead and seed even if the soil is dry and the wheat seed will not germinate immediately. Wheat requires 41% seed moisture for germination which is 9% more than corn (32%) but 10% less than soybean (51%).

The maximum depth a winter wheat variety with a short length coleoptile can be planted is 2 inches in a silt loam soil. In extremely fine-textured soil with a high clay content, reduce planting depth by up to ½ inch. In coarse-textured soils with lots of sand, increase planting depth up to ½ inch. For winter wheat varieties with medium length coleoptiles these seeding depths can be increased by ½ inch; for varieties with long coleoptiles seeding depth can be up to 3 inches with the adjustment for the soil texture. Warmer soil tends to shorten the coleoptile length. The coleoptile penetrates the soil and results in seedling emergence. If the seed is planted too deep, beyond the elongation of the coleoptile, seedlings cannot emerge and the result will be a poor stand.

If the seedbed is loose and the seed would be placed in loose soil, delay seeding until there is moisture is received to firm the seedbed. Seed

placed in a loose seedbed is one of the leading causes of winter injury - root and crown rot. (See the Aug. 9 *CropWatch* for more information.)

Before beginning to plant, make sure openers and disks are not worn. For hoe drills, good quality spear point or eagle back openers usually improve performance. Hoe drills, especially those with wider row spacing, are able to plant the seed deeper because they can build a ridge and plant in the furrow. Slow ground speed so adjacent rows are not covered with soil. The seeding depth then becomes the soil cover over the seed. If the seedbed was not tilled too deep, it usually is possible, with the hoe drill, to place the seed in firm, moist soil. Deep tillage or applying anhydrous ammonia with knives can dry out the soil, so it could be impossible to place the seed in firm moist soil even with a hoe drill.

As with everything, there are drawbacks to the hoe drill. The biggest is that if a hard rain occurs, the ridges will be destroyed and the seed, or developing plant, will end up under too much soil cover.

Seeding with a disc drill in a loose seedbed almost guarantees disaster and should probably be delayed until there is moisture.

For continuous cropping do not till. If you do till, the seedbed will dry out to the depth of tillage. The soil should be firm after soybeans are harvested. If planting winter wheat this year, make sure the drill is running lower in back than normal. Transfer more drill weight to the back of the drill and add extra weight to the drill. This will allow for penetration into dry, hard soil, forcing the seed into the soil and insuring seed to soil contact. Also, don't plant wheat too shallow. When using disc drills, plant at a depth of 2 inches.

Do not seed winter wheat much earlier than the suggested seeding date for your area. (See page 199) Early seeding leads to problems with diseases such as wheat streak mosaic and insects such as the hessian fly.

As with all these rules there are exceptions. The biggest is make sure you seed by the required date for crop insurance in your area.

Robert Klein, Extension Crops Specialist, West Central REC
Paul Jasa
Extension Ag Engineer
P. Stephen Baenziger
Professor of Plant Breeding

Table 1. Final planting date for winter wheat (grouped by dates) for crop insurance.

October 5, 2003	Lincoln
Banner	Madison
Box Butte	Perkins
Cherry	Phelps
Cheyenne	Pierce
Dawes	Red Willow
Keye Paha	Sherman
Kimball	Stanton
Logan	Thurston
Loup	Valley
McPherson	October 15, 2003
Morrill	Adams
Rock	Butler
Scotts Bluff	Cass
Sheridan	Clay
Sioux	Colfax
October 10, 2003	Dodge
Antelope	Douglas
Boone	Fillmore
Buffalo	Franklin
Burt	Gage
Cedar	Hamilton
Chase	Jefferson
Cuming	Johnson
Custer	Kearney
Dawson	Lancaster
Deuel	Merrick
Dundy	Nance
Frontier	Nemaha
Furnas	Nuckolls
Garden	Otoe
Garfield	Pawnee
Gosper	Platte
Greeley	Polk
Hall	Richardson
Harlan	Saline
Hayes	Sarpy
Hitchcock	Saunders
Holt	Seward
Howard	Thayer
Keith	Washington
Knox	Webster
	York

Managing fall weeds in winter wheat

Winter annual weeds, both grasses and broadleaves, cause the largest crop losses in winter wheat because they compete with wheat for nearly the entire season. Weeds emerging with the crop are much more competitive than those emerging later in the season and can cause significant yield reductions.

Research at the Hays Experiment Station (Kansas State University) found that 100 downy brome plants per square yard that emerged within one week of wheat, reduced wheat yields over 35%. Downy brome at 100 plants per square yard that didn't emerge until three to four weeks after the wheat, only reduced wheat yields 6%. In addition to

yield losses, winter annual weeds such as downy brome, feral rye, and jointed goatgrass also cause lodging, harvest difficulty, and dockage.

Check your winter wheat fields shortly after emergence. If they look like a lawn, you may have a downy brome problem. Downy brome and winter wheat are both grasses with a winter annual growth habit. Crop rotation is the best option to control downy brome in winter wheat; however, Maverick Pro herbicide makes selective downy brome control feasible. Maverick Pro is a sulfonylurea herbicide similar to other common wheat herbicides such as Ally and Amber, except that

it also may provide excellent control of grasses in the *Bromus* genus such as downy brome, Japanese brome and cheat.

Like many of the other sulfonylurea herbicides, Maverick Pro has a long persistence in the soil. Recrop options within the first year are currently restricted to winter and spring wheat. A field bioassay should be taken one year after application to determine if injury to the intended rotational crop will occur. Recrop options will likely be expanded after further research, but grain sorghum and sunflower appear to be particularly sensitive to Maverick Pro carryover, while proso millet appears to show good tolerance to Maverick Pro 18 months after application.

Maverick Pro should be applied at a rate of 2/3 ounce in 5 to 20 gallons of water per acre per cropping season. It may be applied preemergence or postemergence in winter wheat. A non-ionic surfactant should be applied to postemergence treatments at 0.5% on a volume basis.

In University of Nebraska testing, Maverick Pro performed best on downy brome in wheat when applied early postemergence, that is shortly after the downy brome emerged in the fall. Control during this period ranged from 80% to 100%. Sufficient rainfall prior to late October improved soil activation and root uptake of the herbicide, providing for excellent downy brome control. Without fall precipitation after application, downy brome control has been closer to 80%.

Applications after Nov. 1 provided less control, probably due to reduced precipitation and a slower rate of plant growth. Spring applications to downy brome have been more inconsistent, with an occasional control rating as high as 85%, but with more typical control

Panhandle only

Elevation Feet	Planting Date
3500	Sept. 15
4000	Sept. 10
4500	Sept. 5
5000	Sept. 1

Planting dates for winter wheat

Plant wheat as close as possible to the suggested planting date for your area. (See figure above for beginning dates and table on page 197 for ending dates). Earlier seedings are more subject to root and crown rot, wheat streak mosaic, and many other diseases as well as insects such as the Hessian fly.

If you seed more than a week to 10 days after the recommended seeding date, use row-applied starter fertilizer. This is

important even if your soil tests high in phosphorus. Also, since less tillering occurs with later plantings, it is usually beneficial to increase seeding rates. Plan to seed about 1.4 million seeds per acre dryland and 2.0 million seeds per acre under irrigated conditions. With late seedings, narrow rows are preferred -- 7.5 inches for dryland and 6 inches or less for irrigated.

Bob Klein, Extension Crops Specialist, West Central REC

(Continued on page 201)

Tight packing and inoculation can improve silage

Most silage producers make large investments in choppers and trucks that can fill silos rapidly. This reduces the risk of weather delays and allows for more of the crop to be harvested at the proper growth stage.

However, as the filling rate increases, it takes more tractor packing weight to avoid trapping undesirable amounts of air inside the silage pile. If bunkers are filled faster than they can be packed well, many desirable nutrients will be lost due to excessive respiration, heating, fermentation, and mold.

So, how much tractor weight is needed? Research shows that if you multiply the number of tons of silage being filled per hour by 800, this will equal the total weight needed by packing vehicles to do a good job of packing. For example, if you are filling a silo at 40 tons per hour, multiply 40 by 800 to get 32,000. This represents the pounds of packing vehicle needed. This might be accomplished with one

bulldozer or two medium weight tractors.

When you pack, spread out each load so you have less than six inches of fresh, unpacked silage under the packing wheels. This also will help reduce air pockets.

Inoculating silage

To make good silage, sometimes inoculants are needed to improve fermentation. There is no clear-cut, consistent way to predict when inoculants will be most useful. Silage fermentation is just too complex.

Inoculants primarily reduce storage losses. Fermentation starts and ends quicker with inoculated silage so more silage remains for feeding. And some inoculants can improve feeding value, although results are a bit inconsistent.

Inoculants do consistently improve wet silage, especially sorghum silage. If you start chopping a little early to prevent silage

from being too dry at the end, inoculants should help. When you begin chopping, grab a handful and squeeze it tightly in your fist. If free juice squeezes from the forage, it is wet enough to benefit from use of an inoculant.

In the past, inoculants rarely improved properly made corn silage — silage at the right moisture, chopped fine, packed well, and sealed tight. Nor did they improve dry silage. However, recently developed inoculants with more effective strains of fermentation bacteria are producing slightly better quality silage.

If you use an inoculant, make sure it contains live bacteria and provides at least 100,000 colony-forming units per gram of wet forage when applied at the recommended rate. You need plenty of live bacteria for the inoculant to work well.

Bruce Anderson
Extension Forage Specialist

Solution Days offer proven answers for ag

Practical solutions to agricultural questions will be the focus of Solution Days 2003 near Goehner.

The Aug. 26-27 event will offer realistic solutions for producing higher crop yields while keeping production costs economical, said Keith Glewen, extension educator in Saunders County.

The benefits for agricultural professionals from attending Solution Days 2003 will be well worth the time invested, said Norm Husa, chairman of the Nebraska Soybean Board. Sound advice from expert presenters coupled with up-close plot tours will provide an excellent learning opportunity, he said.

Topics will include weed resistance management, components of corn and soybean yield,

water management and use, seed treatments, refuge acres, and resistance management.

Presenters include industry consultants and University of Nebraska specialists. The program is from 9 a.m. to 2:30 p.m. each day with in-field presentations.

To reach the Syngenta farm near Goehner, take exit 373 on Interstate 80 and go one-fourth mile south.

For more information or a brochure, contact a local Syngenta Seeds and Crop Protection representative or call (402) 420-6664, the Nebraska Soybean Board at (800) 852-BEAN, Saunders County Cooperative Extension office at (800) 529-8030 or visit the Web at: <http://ardc.unl.edu/solutiondays.htm>. Participants are asked to bring their completed ticket panel to the field

day to expedite registration

Solution Days 2003 is sponsored by Syngenta Seeds and Crop Protection and the Nebraska Soybean Board in cooperation with NU Cooperative Extension in NU's Institute of Agriculture and Natural Resources.

Continue mosquito control efforts

Nebraskans should continue mosquito control efforts until first frost to avoid the spread of West Nile virus. In some western Nebraska counties, as many as 50% to 60% of *Culex* mosquitos carry West Nile, while in Lancaster County, about 11% of *Culex* mosquitos carries the virus.

In the North Platte Valley

Surface water resources drying up

Most irrigators in the Panhandle's North Platte Valley will be running out of water during the last week in August. The Wyoming reservoirs used to store their water are nearly empty. There were some gains from recent rains, but these likely added only a few days to the water that can be delivered. At this point, farmers will have no other choice than to rely on precipitation to finish out their crops. Farmers representing approximately one-third of the irrigated land in the valley will be able to pump groundwater, but even that may be in short supply.

The irrigation canals provide recharge to replenish the groundwater. The drought over the past few years has caused irrigation districts to delay their start up in the spring and shut down early in the fall. With a reduction in surface water diversions over the last couple of years, less water is available for recharge and demand for groundwater has increased. The result has been declining groundwater in the valley, resulting in some shallow domestic and stock wells going dry.

Hopefully, by late season the maturing crops already should have established a good deep root system that can efficiently extract soil water held in the profile. Given there's adequate soil water through August, cooler temperatures and increased probability for precipitation, most crops should reach maturity with minimal yield reductions due to water stress.

At the end of August, most dry beans will be maturing and require less than 1.0 inch of additional water. In western Nebraska corn will need 3.5 - 4.0 inches of water to finish after the end of August. Remember that a medium-textured soil can store nearly 3.0 inches of water in the top 3.0 feet of soil. This means a field irrigated the last week in August will store approximately

80% of what corn needs to finish out the year. Of course coarser textured soils will store less and experience more water stress. For alfalfa producers, water use continues until frost. A key factor will be getting some regrowth after the final cutting as you move into the winter season. Sugarbeets will need 5.0 - 6.0 inches of additional water after September 1. Without water, stress and yield reductions will likely occur. Most critical is whether enough precipitation occurs late in the season to facilitate the harvest process.

Like last year, some valley producers will likely decide to plant a portion of their acres to winter wheat in anticipation of another water-short year in 2004. Planting winter wheat after dry beans or corn harvested for silage will likely be most common. In either case, available soil water likely will have been used by the previous crop and the winter wheat will be dependent upon fall precipitation.

C. Dean Yonts
Extension Engineer

Crop condition

The Nebraska Office of the USDA Agricultural Statistics Service reported this week that soybean condition had declined to 13% very poor, 19% poor, 34% fair, 28% good, and 6% excellent, above last year but below average. Pods were being set on 83% of the acreage, behind 91% last year and 89% average. Fields had begun to turn color in eastern and southern counties.

Sorghum condition declined and rated 15% very poor, 29% poor, 41% fair, 15% good, and 0% excellent, above last year but below average. Seventy-two percent of the acreage was headed, behind last year at 80% and average at 85%. Heads were turning color on 9% of the acreage,

Weeds in wheat

(Continued from page 199)

ratings of 35%-70%. Usually these plants are significantly stunted, but still produce seed. Again, precipitation after application appears to be important for improved herbicide activity.

While crop rotation with summer crops is an excellent way to reduce the impact of downy brome in winter wheat, Maverick Pro herbicide may help wheat growers who find themselves with a downy brome infestation despite their best efforts at cultural control. Growers should be aware of the rotation restrictions with this product and the effects of weather and application timing on its downy brome efficacy.

If jointed goatgrass or feral rye are causing problems, winter wheat growers may wish to consider using the Clearfield Production System for Wheat. *(See story, page 185)*

For fall control of winter annual broadleaf weeds such as mustard and pennycress, growers should use one of the sulfonylurea herbicides labeled for wheat. These include Ally, Amber, Finesse, and Peak. Maverick Pro also will control many of these weeds, although Maverick Pro provides poor control of blue mustard and is more expensive than the other sulfonylurea herbicides.

Some wheat varieties are more sensitive than others to fall application of these herbicides. Growth hormone imitator herbicides like 2,4-D or Curtail should not be applied to winter wheat in the fall before plants have at least four tillers, or injury may occur to the wheat. The injury may not be noticeable until the next spring when wheat heads may become trapped as they try to emerge from the stem. See EC-130, *Guide for Weed Management in Nebraska*, for more information.

**Robert Klein, Extension
Cropping Systems Specialist
West Central REC**
**Drew Lyon, Extension Dryland
Cropping Systems Specialist
Panhandle REC**

At Husker Harvest Days

Visit UNL exhibits, talk with specialists

Stop by the University of Nebraska building during Husker Harvest Days Sept. 9-11 to visit with some of the regular contributors to *CropWatch* and learn more about the NU programs that can benefit you and your ag operation. Look for the large "Husker Red" metal building at Lot 325 at the Husker Harvest Days site west of Grand Island.

The Institute of Agriculture and Natural Resources (IANR) will offer more than 20 exhibits and displays as well as five live issue-based *Market Journal* broadcasts. Some of the displays will be interactive, include short demonstrations, or offer educational materials to provide more information on a specific topic. A selection of free Extension publications and *CropWatch* materials also will be available.

Exhibits related to crop production will include: Insect and disease management in crops; Precision agriculture: High technology down on the farm; Marketing tips for crops and livestock; Drilling for Nebraska's precious water; Quality seed – your crop's foundation; Farm financial analysis; Nebraska's research in water quality; New designs for pesticide labels; Conserving Nebraska's natural resources; Integrated crop management; and *CropWatch/Market Journal*.

Other exhibits will target rural issues, livestock production and opportunities at UNL. They will include: Building strong families during hardships; Educational opportunities at UNL: an investment for Nebraska; Nebraska livestock production; Livestock biosecurity; Cost share funds for livestock producers; LEAD: developing Nebraska's leaders; Food preservation through irradiation; the International Quilt Study Center; and Discover 4-H, Discover You.

If you or someone in your family is interested in pursuing educational opportunities at UNL, representatives from the College of Agricultural Sciences and Natural Resources and the Nebraska College of Technical Agriculture (Curtis) will be available to discuss their programs.

The building also will be the site of a news conference Wednesday with Governor Mike Johanns and Director of Agriculture Merlyn Carlson. The conference will be available via live video streaming at the *Market Journal* web site (<http://MarketJournal.unl.edu/>).

Larry Schulze
Pesticide Education Specialist

Share your opinions and questions on *Market Journal* broadcasts

You're invited to stop by the NU building at Husker Harvest Days and listen to speakers or take part in live discussions hosted by *Market Journal*, the NU Cooperative Extension pro-gram on agricultural risk management. It will broadcast two shows a day from Husker Harvest Days. Seating will be under a tent next to the NU building on Third Street, just east of Central Avenue.

In addition to webcasting the

45-minute public forums, *Market Journal* will webcast shorter video programs with exhibitors. If you can't attend Husker Harvest Days, the *Market Journal* presentations will be webcast live, recorded, and archived for later viewing online. at <http://marketjournal.unl.edu> for links.

Market Journal is presented by NU Cooperative Extension and produced by IANR's Communications and Information Technology.

Market Journal schedule for Husker Harvest Days

Marketing Bio-Tech Crops in the Food Chain, 11:00 - 11:45 a.m. Tuesday, with Dinos Giannakas, NU professor, food and agribusiness marketing; Norm Husa, chair, Nebraska Soybean Board; Don Lee, NU professor, agronomy - genetics; and Alex Martin, NU weed control specialist.

Water Issues in Nebraska, 2:30 - 3:15 p.m. Tuesday, with Bruce Dvorak, NU extension environmental infrastructure engineer; Mike Jess, NU, Acting Director, Water Center; Sharon Skipton, NU extension water quality educator; and John Turnbull, General Manager, Upper Big Blue NRD.

Checkoffs: Do They Have a Future?, 11:00 - 11:45 a.m. Wednesday; with David Aiken, NU extension water and ag law specialist; Don Hutchens, executive director, Nebraska Corn Board; and Al Svajgr, Cattlemen's Beef Promotion and Research Board.

Policy Issues Affecting Livestock Marketing, 2:30 - 3:15 p.m. Wednesday, with Mike Briggs, beef producer; Galen Erickson, NU extension beef feedlot nutrition specialist; Darrell Mark, NU extension agribusiness management specialist; and Al Prosch, director, NU's Pork Central.

Large Livestock Operations on Nebraska's Landscape, 11:00 - 11:45 a.m. Thursday, with Mike Brumm, NU extension swine specialist; Annette Dubas, Mid-Nebraska Pride; Rick Koelsch, NU extension livestock environmental engineer; and Susanna Von Essen, UNMC professor, pulmonary and critical care.

Market Journal Live, 2:30 - 3:15 p.m. Thursday, with host Doug Jose, NU extension farm management specialist.