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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

No. 97-1
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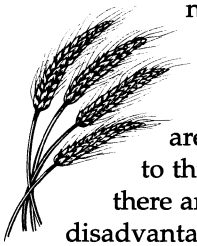
Special focus issue: wheat

Managing nitrogen in winter wheat

Prospects for a good wheat crop this year have many producers asking about nitrogen management. For various reasons, many producers are applying most of their nitrogen this spring. Depending on the nitrogen source and timing there are some advantages to this practice, but there are also some disadvantages.



Other nutrients

Spring fertilization means nitrogen fertilization. It's too late to apply other nutrients that might really enhance yield. Phosphorus needed to be in the soil or seed furrow last fall to benefit this spring's crop. This summer take adequate soil tests to determine phosphorus needs for next year's wheat. Most winter wheat is grown on fine textured soils where there has been little evidence of yield increases from adding sulfur. If you grow irrigated wheat on sandy soils and the irrigation water contains less than 6 ppm SO_4-S you may need 10-15 lb sulfur depending what you applied last fall.

Recent Nebraska research has shown that chloride (usual source 0-0-60) may enhance yields in eastern Nebraska where soil chloride levels are low (less than 50-60 lb/a in a 2-foot soil sample) or in western Nebraska if levels are less than 30-40 lb/a in a 2-foot soil sample and yield potential is above average. Chloride applications of 25-30 lb/a have been adequate to improve yields where response has been noted.

The chloride suppressed rust which accounted for the yield increase. A single spray of Bayleton near boot stage provided similar yield increases.

Spring nitrogen management

How much nitrogen do you need to apply this spring? The standard answer would be to soil test for residual nitrate to 3 feet (or have a soil test from last fall), know how much nitrogen you have already applied and apply the remaining amount. *Table 1* (*page 3*) shows recommended nitrogen rates for 50 bu/a wheat assuming nitrogen prices of $0.15 and $0.25 and wheat at $3 and $4 a bushel. The higher nitrogen cost slightly decreases optimum nitrogen rates.

Remember to subtract any nitrogen applied last fall from these recommendations.

There has been some wind damage in western Nebraska because of the fairly dry winter. Producers should first determine

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Resubscribe now

This issue only is free to previous *CropWatch* subscribers. Use the form on page 10 to order your 1997 subscription.

Crop Watch returns, in print and web versions

It's spring again and time to resubscribe to *Crop Watch*, except this year we've added a new twist. We'll continue to publish the pest management and crop production information you've told us you want to see in *Crop Watch*. (We really do use those readership surveys you submit.) In addition, we'll have several special focus editions on what's new for wheat, corn, soybeans and sorghum this planting season, information on changing from CRP to cropland and the benefits of crop rotation. We also hope to incorporate information from reports collected from around the state weekly to help keep readers up to date on pests and plant development concerns.

For those readers who like to get their information from the Web, we'll be offering an expanded newsletter there. The first issue — either the print or electronic version — is free. Subsequent issues will only be available by subscription.

The web version will be password protected and include the *Crop Watch* newsletter, special focus

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Remember restrictions on patented soybean varieties

Soybean producers taking their farm-saved seed in to be conditioned, shouldn't be surprised when they have to fill out an additional form this year. The form, recommended by the Nebraska Crop Improvement Association, stipulates that the seed does not have the Roundup Ready gene or any other patented transgenic technology.

These forms help protect the conditioner, who could be held liable along with the producer, if the seed was from a patented source. If a variety is patented or contains a patented gene, a producer may not save any seed for planting and a conditioner may not clean any saved seed.

Along with the disclaimer form, which should be completed and filed for at least three years, seed conditioners should save a small sample (one-half cup) of the unprocessed seed. The seed should be placed in an envelope and the envelope should be sealed with the signature of the seed producer across the seal.

Commercial seed companies are expected to be monitoring this situation carefully to protect their investment.

Roger Hammons, Asso. Manager
Nebraska Crop Improvement Assn

Crop Watch

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sections, such as on gray leaf spot, weather data (soil temps, GDD, evapo-transpiration rates), ag-related news releases, research updates, meeting notices and links to additional resources.

The subscription price for either version is $30. There will be 26 issues of the print version. The web version will be updated more often. Admittedly, we still have a few bugs to work out of the electronic web version and we will be adding to it for several weeks. We invite you to visit our site at http://www.ianr.unl.edu/cropwatch.

And as always, we welcome your comments any time.

Lisa Jasa, *CropWatch* Editor
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Precipitation and temps (7-day summary)

	Precipitation 3/5-3/11		*9/1-3/11*		*Temperature* 3/5-3/11		*Soil temperature* 7-day summary		
	Act.	*%*	*Act*	*%*	*Max*	*Min*	*Ave.*	*Norm.*	*Dep*
Ainsworth	0.02	5	7.94	123	55.5	22.2	34.9	40.7	-5.8
Alliance	0.01	5	3.10	78	59.8	21.7	30.8	41.8	-11
Beatrice	0.15	32	5.34	55	57.6	27.0	40.2	43.5	-3.3
Elgin	0.03	9	6.45	82	51.5	22.7	31.1	41.2	-10.1
Holdrege	0.12	31	6.99	105	58.9	24.9	39.1	43.2	-4.1
McCook	0.09	29	6.53	118	63.3	24.3	39.2	43.0	-3.8
Mead	0.14	30	3.93	40	63.6	24.3	36.9	43.0	-6.1
Concord	0.07	17	6.80	78	47.3	20.4	31.7	40.6	-8.8
North Platte	0.05	21	8.47	174	59.8	21.8	35.6	42.7	-7.2
Ord	0.05	13	5.56	70	56.33	22.9	36.2	42.0	-5.8
Red Cloud	0.09	23	6.04	86	58.5	24.6	40.5	43.1	-2.6
Scottsbluff	0.01	5	1.78	44	59.8	22.9	37.5	42.2	-4.6
Sidney	0.01	4	5.57	131	60.2	24.7	36.9	42.2	-5.3
York	0.09	21	4.96	56	55.7	25.4	35.1	42.4	-7.4

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Nitrogen for wheat *(Continued from page 1)*

if they have a good viable stand before considering additional nitrogen. The good moisture last fall and the lack of moisture this winter has limited the loss of nitrogen from leaching or denitrification. Nitrogen applied last summer and/or fall should still be in the root zone just waiting for the crop to begin growing. Table 1 provides a guide for adding nitrogen this spring. The highlighted line is a good average to use if you do not have a soil nitrate-N test. Adding nitrogen above recommended rates will not enhance yield of an already stressed crop.

If your yield potential is above or below 50 bu/a, add or subtract 10 lb nitrogen/a for each 10/bu/a change in expected yield.

Nitrogen sources

Nitrogen solutions

Determining remaining stand is equally important for weed control decisions which may be important when considering nitrogen fertilization. If nitrogen solution-herbicide combinations are used, they should be applied early for many broadleaf weed problems. Nitrogen should be applied by late March to allow distribution into the root zone with spring precipitation, however this timing may be too early to control some weeds. Later applications are optimum for weed control but may cause problems with plant injury because of the herbicide-fertilizer combination.

Research the past six years at North Platte has documented wheat crop damage and yield loss from herbicide-liquid fertilizer combinations. Different timings from early green-up (four-tiller) to pre-jointing were used. We cannot accurately predict the degree of damage or yield depression even if there is visual damage. **Don't stop using nitrogen fertilizer solutions for this reason, but be aware that potential damage can occur.**

Table 1. Recommended fertilizer nitrogen for 50 bu wheat.

$/bu of Wheat	$3.00		$4.00	
	-----Fertilizer Price $/lb N-----			
	$0.15	$0.25	$0.15	$0.25
Pounds nitrate/A in 3 feet	--lbs N/A to apply--			
18	115	105	120	115
35	90	80	95	85
53	**65**	**50**	**70**	**60**
70	40	25	45	30
88	15	0	20	0
105	0	0	0	0

The interacting factors that complicate yield loss related to visual symptom damage we have seen in producer's fields include:

- Floater track (more damage) vs non-wheel track (less damage)
- No fall nitrogen (more damage) vs fall fertilizer nitrogen (less damage)
- Disease status (more damage on diseased wheat)
- Drought status (more damage on drought stressed rather than vigorous growing wheat)
- Variety effects
- Night temperature before spraying (more damage with freezing temps than with warmer temps)
- Stage of growth (less damage early than later)

In our research plots yield losses have ranged from 2-10 bu/A and have occurred about 40% of the time, especially for applications made just prior to jointing. Crop injury was ranked from none to severe for the following treatments:

1) no herbicide; 2) ally + 2,4-D + nonionic surfactant; 3) 28-0-0 (UAN); and 4) ally + 2,4-D + UAN + ATS (12-0-0-26).

These plots were weed-free so yield loss was not due to weed competition. This wheat also received 40 lb N/a preplant in the fall before seeding so it was not nitrogen stressed. Spraying was done so no wheat was crushed by tires (15" wheat rows, 14" tractor tires between rows). The UAN nitrogen rate used was 40 lb/A nitrogen so injury may be greater or less depending upon your nitrogen rate. Wheat under stress was damaged more than vigorously growing wheat and damage was greater on more developed wheat.

Urea

Urea (46-0-0) is a good choice for spring topdressing. The cooler temperatures and the greater probability of precipitation assure a lower potential for nitrogen volatilization loss than later in spring.

Ammonium nitrate

Ammonium nitrate (34-0-0) is still an excellent nitrogen source for topdressing wheat, but is available only in limited supplies.

Urease inhibitor

A new product on the market (Agrotain) is a urease inhibitor which can be applied to urea or mixed with UAN solution. It reduces the chance for volatilization of nitrogen by slowing the conversion of urea by the enzyme urease which is present in the soil, growing plants and crop residues. Should you consider using it with your urea or UAN for spring top dressing on wheat? Probably not, due to limited nitrogen loss potential with early nitrogen applications.

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Kansas reports warrant watching fields

Inspect wheat, alfalfa for army cutworms

Insect problems can develop as wheat and alfalfa break dormancy and begin to grow in the spring. It is important to monitor the regrowth to identify developing insect problems. Reports from southern and southwest Kansas have indicated that army cutworm activity is beginning, and in some areas larval numbers are at economic levels.

Army cutworms feed on foliage in alfalfa and wheat fields. Army cutworm moths lay eggs in the fall, and larvae hatch and begin development later in the fall. As a result they overwinter as partially grown larvae and will be large enough in the spring to do a significant amount of feeding.

In alfalfa they feed right at the soil surface. If enough cutworms are present, they will keep new spring growth clipped back so green-up is severely delayed. If populations are large enough they

Army cutworm

can keep the new growth clipped back long enough to threaten stand. The treatment threshold is set at four or more cutworms per square foot in established alfalfa. Newly seeded fields are more vulnerable to stand loss because of the reduced reserves in the plants. Therefore, the threshold for newly established alfalfa is two or more army cutworms per square foot. Any delay in expected alfalfa green-up should be monitored closely to determine the problem.

In wheat the cutworms feed on foliage and the threshold is four to five cutworms per square foot in healthy wheat. This threshold should be lowered if wheat is stressed and has limited foliage for this insect to graze. It is important to properly identify this pest since some cutworms will likely be less damaging than army cutworms and others may be more damaging than army cutworms (e.g. pale western cutworm).

If treatment is needed, cutworms are best controlled with pyrethroid insecticides, which are labeled for this use in wheat and alfalfa.

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Most of state's winter wheat from UNL varieties

More than three-fourths of Nebraska's 2 million winter wheat acres are planted to varieties developed through joint University of Nebraska-U.S. Department of Agriculture research, according to a 1997 survey by Nebraska Agricultural Statistics Service.

Named Nebraska varieties account for 70.3% of the winter wheat acreage. Another 5.4% is planted to "other public" varieties, predominantly developed at NU, bringing the total acreage of Nebraska-developed varieties to 75.7%

That is the highest percentage of Nebraska acres planted to NU varieties in recent years.

The variety Alliance, released in 1993, made up 2.7% of the 1996 acreage. This year, it's up to 7.3%. Another newcomer making a big leap is Niobrara, released in 1994. It's now growing on 6.5% of the acreage, up from 1.4 in 1996. The largest percentage of wheat acreage belongs to Arapahoe, a longstanding favorite that NU released in 1988. At 30.1% of the acreage, it remains the most popular variety. Arapahoe is grown on more acres than all the other public and private varieties combined.

Some states, such as South Dakota, have depended in the past on Nebraska's wheat breeding program for new varieties. Currently, more than 75% of the winter wheat sold by South Dakota Foundation Seed are varieties developed by the NU-USDA team and co-released with the South Dakota Agricultural Experiment Station.

The Nebraska Wheat Board and USDA help fund NU's wheat breeding research, which is conducted in cooperation with the IANR's Agricultural Research Division. The Nebraska Wheat Board also funded the statewide wheat survey.

Stephen Baenziger
Wheat Breeder
NU Institute of Agriculture and Natural Resources

Spring wheat may offer opportunities; consider potential yields and costs

Planting spring wheat may be more of a production option for Nebraska wheat producers this year due to improved varieties which have become available. Studies conducted in Washington state by Frank Young, a USDA Agricultural Research Service scientist, indicate incorporating spring wheat into a crop rotation also can provide some control of jointed goatgrass. In Nebraska, planting spring wheat into a winter wheat rotation could interrupt the life cycle of fall-emerged jointed goatgrass.

Growers in eastern Nebraska will need to plant as soon as possible (by March 15) to gain full yield potential from their crop. Wheat producers west of North Platte can plant until April 1 to receive full yield.

Planting date, fertilization practices, seed bed preparation, and seeding rate are cumulatively more important for successful production that variety selection. For those who tilled last fall in anticipation of planting spring wheat now, be sure you have a firm seed bed by using a packing implement operation if necessary. For those who plan to plant into standing stubble, appropriate no-till equipment is essential. Spring wheat seed can tolerate relatively cold soil temperatures before emergence, but it is not as tolerant of heat as it matures. Early planting is essential.

Nitrogen and phosphorus fertilizer rates should be based on soil test results and expected yield. Seeding rates should be relatively higher than for winter wheat. Dryland planting should be at about 90 lbs./acre; irrigated fields can be planted at 120 lbs/acre. Under irrigated conditions, one can only expect yields of 50 to 60 bushels per acre on an average year. Dryland yields of 25 bushels per acre would be typical. The economic analysis of these yield levels should be considered before planting.

Yields are dependent upon heat during the fill period in late June. Given moderate temperatures, spring wheats tend to yield higher. Varieties yielding well in Saunders County trials in 1996 include South Dakota State University releases Oxen and Russ at 39 and 38 bushels per acre respectively. In the five-year average for Dixon and Saunders counties, Sharp and Butte 86 both yielded at the top of the trials.

In the Panhandle, 2375 (a Pioneer release given to North Dakota State University), Sharp, Kulm, and Butte 86 did well in the 1995 results and in the four-year average of all varieties. In the Panhandle Spring Wheat Variety tests four-year average, Sharp yielded 42 and 36 bushels per acre respectively in irrigated and dryland trials; Butte 86 yielded 36 and 31 bushels in the same tests.

Drew Lyon, Dryland Cropping Specialist at the Panhandle Research and Extension Center in Scottsbluff, favors Sharp and Kulm because they are the shortest season cultivars, and yielded near the top in the 1994 tests. Kulm, developed by North Dakota State University and the USDA ARS, was released in 1994 and is available from Nebraska certified seed producers this year. Refer to the *Nebraska Certified Seed Book: 1997 Spring Planted Crops* for more information.

For a copy of the five-year averages, or to learn more about cultivars (varieties) available this spring, contact the University of Nebraska Cooperative Extension.

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Begin alfalfa weed control before spring green-up

Warm weather spurs the development of winter annual weeds in alfalfa. Downy brome, pennycress and other mustards can be effectively controlled if herbicide treatments are applied now. Often a weed problem isn't recognized until the alfalfa greens up and it's too late for most herbicides. Scout alfalfa fields now and plan control programs accordingly.

If alfalfa has been established one year or longer, Lexone, Sencor and Sinbar can be used. These herbicides control both winter annual grasses and broadleaf weeds including pennycress and downy brome. Alfalfa injury may occur on soils containing less than 1% organic matter. If dormancy has broken, Sencor can be impregnated on dry fertilizer and applied before there is 3 inches of new alfalfa growth. Foliage should be dry.

Pursuit can be used on seedling alfalfa after the second trifoliate stage at a rate of 3 to 6 ounces. After the alfalfa has been established for one year or longer, Pursuit may be applied at any time. All Pursuit applications should be made 30 days before harvest.

Kerb and Karmex also are labeled for use on established alfalfa. Kerb

(Continued on page 6)

Evaluate stands, winterkill in your wheat

The 1996-97 winter was relatively mild in the wheat production areas of Nebraska, and the winter wheat crop has likely fared well to this point. A lot of wheat was planted late due to unusually heavy September rains and was small going into the winter. Strong winds in December moved some soil, which damaged some wheat. In addition, there were one or two rapid temperature swings in December, but most wheat was hardened by that time, so minimal plant damage is expected from these events. Snow cover was limited during the winter, so surface soil may be on the dry side. Winter wheat growers concerned with the possibility of winterkill in their crop can begin to assess their situations after greenup.

Winter wheat plants die when low temperatures kill the crowns. Leaves may be killed, but as long as the crowns are not killed, recovery is likely. Crowns of adapted varieties can harden enough to withstand temperatures down to -9oF to 11oF for a short time. However, a few hours at these temperatures at the crown depth can kill wheat. As little as 3 to 4 inches of snow cover can provide sufficient insulation to prevent killing temperatures in the crown zone, even during periods when air temperatures go down to -30oF or lower. If the crown has been exposed by wind erosion, it is much more susceptible to winterkill than if it is deep in the furrow.

Winter wheat plants must complete the hardening process prior to experiencing extreme cold and must not lose their hardened state too soon in the spring. The degree of winter-hardening changes with time, fluctuating temperatures, day length and many other factors. Plants with several tillers, such as those seeded early, harden less and are more vulnerable to winterkill.

Outright freezing is not the only cause of winter wheat death in winter. Plants may die from heaving, smothering under ice, or dessication when exposed to cold, dry winds while water in the soil is frozen. Much so-called winterkill involves soil and plant-inhabiting fungi that attack and weaken plants and limit their ability to recover in the spring. When leaf tissue loss from freezing or abrasion is severe, wind erosion can become a problem.

Until wheat plants begin active growth in spring, it is difficult to assess plant status. The following method can help you determine whether winter wheat plants at a particular site are still alive and likely to resume growth.

1) Remove the top 3 inches of soil containing the plant crowns from the field.

2) Thaw the samples and warm to room temperature.

3) Remove soil from the roots and wash with cool water to remove attached soil.

4) Cut off fall growth to within 1 inch above the crown and roots below the crown.

5) Rinse the crowns with cool water to add moisture.

6) Place 10 wet crowns in a labeled plastic bag, inflate the bag and tie shut.

7) Place the bags in a lighted room, but not in direct sunlight.

8) Check the crowns in two days, rinse with cool water and reinflate the bag.

9) After four days the crowns should show about 2 inches of new growth.

10) Plants that are not growing after six days should be considered dead when estimating survival.

11) Some plants may grow poorly and develop molds. Molds live on dead or injured plants.

Remember, winterkill can be a very localized event, so select sample areas carefully and don't try to extrapolate results too widely. If winterkill is a problem, visit with the appropriate agencies before destroying your wheat crop and carefully plant your alternatives.

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Extension Dryland Cropping Systems Specialist
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Alfalfa weed control *(Continued from page 5)*

controls downy brome and other grasses; Karmex controls mostly broadleaf weeds. Karmex has performed well in western Nebraska, but the heavier soils in eastern Nebraska usually result in reduced weed control.

Butyrac or Butoxone (2,4-DB) is "so-so" on pennycress and other mustards in the spring but can be used in both established alfalfa and new seedings where plants have at least two trifoliate leaves. Do not use these herbicides if temperatures may drop to 40 F within three days after application.

Buctril can be used for broadleaf weed control in new seedings of alfalfa after plants have at least four trifoliate leaves. It should be used when the temperature is below 70 F. Buctril provides only fair control of pennycress and mustards that have overwintered.

Treflan TR-10 is registered for the control of annual grasses including downy brome and cheat in established alfalfa. Because Treflan does not control established weeds, it needs to be applied in late summer to control downy brome. Spring treatments will not control established downy brome.

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Herbicide update: new products, new labels

The Environmental Protection Agency has approved a new crop of herbicides for use in this year's production season. Many herbicides being developed inhibit amino acid synthesis, particularly (ALS) inhibitors. Scepter, Pursuit, Classic, Accent and Broadstrike are examples of herbicides which inhibit amino acid synthesis.

Most herbicide development continues to be with prepack herbicides for soybeans. Many of these are combinations of individual herbicides which have proven performance and little crop injury potential. Environmental concerns continue to play a role in herbicide development and use. Many of the newly labeled compounds are used in small amounts, reducing risk to the environment.

Labeled herbicides

Authority from FMC is a 75DF formulation of sulfentrazone for selective pre-emergence weed control in soybeans. Authority offers increased black nightshade and pigweed control.

Authority Broadleaf from FMC combines 46.9% sulfentrazone (Authority) and 9.4% chlorimuron (Classic) for pre-emergence broadleaf control in soybeans.

Basis Gold from DuPont combines .1875 oz of rimsulfuron, .1875 oz of nicosulfuron (Accent), and 11.5 oz atrazine per pound for postemergence weed control in corn. Basis Gold offers a wider window of application than Basis. Treatments may be applied from three weeks after planting until the corn becomes 12" tall.

Canopy XL from Dupont combines 46.9% sulfentrazone and 9.4% chlorimuron (Classic) for pre-emergence broadleaf control in soybeans.

Conclude from BASF contains 2.67 lbs. of betazon (Basagran), 1.33 lbs. of acifluorfen (Blazer) and 1.5 lbs of sethoxydim (Poast) per gallon for postemergence grass and broadleaf control in soybeans.

Contain from American Cyanamid contains 1 lb. of imazapyr (Arsenal) per gallon for nonselective control of grass and broadleaves on industrial sites.

Command 3ME from FMC is an encapsulated 3 lb. per gallon formulation of clomazone for preplant incorporated control of grass and broadleaf weeds in soybean. The encapsulated formulation reduces the vapor drift potential.

Cover from DuPont is a 75DF formulation of sulfentrazone for selective postemergence weed control in soybeans. Cover offers increased black nightshade and pigweed control.

Detail from American Cyanamid contains 3.6 lbs. of dimethenamid (Frontier) and .5 lb of imazaquin (Scepter) per gallon for pre, ppi, and early postemergence grass and broadleaf control in soybeans.

Dual II Magnum contains 7.65 lbs. per gallon of the active isomer of metolachlor (Dual) from Novartis for pre-plant and pre-emergence annual grass and selective broadleaf control in corn, sorghum, and soybean.

FulTime from Zeneca is a combination of 2.4 lbs. of encapsulated acetochlor (Topnotch) and 1.6 lbs. of atrazine per gallon for selective preemergence weed control in corn.

Hornet (previously called Broadstrike Plus) from Dow Elanco contains .23 lbs. Of flumetsulam (Broadstrike), 0.62 lbs. of clopyralid

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Herbicides soon to be labeled

Action is currently under development from Novartis for postemergence broadleaf weed control in corn and soybeans.

Axiom contains a 4:1 ratio of FOE 5043 + metribuzin and is being developed by Bayer for selective preemergence weed control in corn and soybeans.

Balance from Rhone Poulenc is under development for selective pre-plant and preemergent control of grass and broadleaf weeds in corn.

Expert is currently under development from Novartis for postemergence broadleaf weed control in soybeans.

First Rate from Dow Elanco is under development for pre, ppi, and postemergence broadleaf weed control in soybeans.

Lightning from American Cyanamid contains a 3:1 ratio of imazethapyr (Pursuit) and imazapyr (Arsenal) and is under development for postemergence grass and broadleaf control in IMI corn.

Raptor from American Cyanamid is under development for selective postemergence weed control in soybeans.

Stature from American Cyanamid is being developed as a combination of Frontier and Pursuit for preemergence weed control in corn.

Tophand from Monsanto is being developed as a combination of Harness and Battalion for selective preemergence weed control in corn.

Twister is under development by Zeneca and combines fomesafen, (Reflex) fluazifop, (Fusilade), and fenoxaprop (Option) for postemergence weed control in soybeans.

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New herbicides *(Continued from page 7)*

(Stinger) per gallon for selective preemergence broadleaf weed control in corn.

Liberty (glufosinate) from AgrEvo has been registered for use with resistant varieties (Liberty Link). Liberty has postemergence contact activity for control of annual grasses and broadleaves. Liberty Link seed corn is available.

Matador is a 0.8 lb formulation of quizalofop (Assure II) from FMC for postemergence grass control in soybeans.

Matrix from DuPont is a 25% formulation of rimsulfuron for pre and postemergence selective broadleaf and grass control in potato.

Moxy from Riverside is a 2 lb. per gallon formulation of bromoxynil (Buctril) for postemergence broadleaf control in corn.

Moxy + Atrazine from Riverside combines 1 lb of bromoxynil (Buctril) and 2 lbs. of atrazine per gallon for postemergence grass and broadleaf control in corn.

Optill from Novartis combines 5 lbs of dimethenamid (Frontier) with 1 lb of dicamba (Banvel) per gallon for pre and ppi control of grass and broadleaf weeds in corn.

Peak a 57% dry flowable formulation of prosulfuron from Novartis has been labeled in the past for postemergence broadleaf control in small grains and proso millet. It is currently registered for pre and postemergence broadleaf control in sorghum.

Plateau from American Cyanamid is a 2 lb. per gallon formulation of imazethapyr (Pursuit) for pre and postemergence control of selective grass and broadleaf weeds in non-crop areas.

Prestige from American Cyanamid is a 1.0 lb. per gallon formulation of sethoxydim and dash (Poast Plus) for postemergence grass control in soybeans.

Roundup Ultra from Monsanto is a 4 lb. per gallon formulation of glyphosate and a surfactant for postemergence weed control for grass and broadleaf weeds.

Skirmish is 25% DF formulation of chlorimuron (Classic) from FMC for postemergence broadleaf weed control in soybeans.

Status from American Cyanamid is a 2 lb. per gallon formulation of acifluorfen (Blazer) for postemergence broadleaf control in soybeans.

Steel from American Cyanamid is a pre-pack of 1.5 lbs. of imazaquin (Scepter), .2 lb of imazethapyr (Pursuit) and 2.7 lbs. of pendimethalin (Prowl) per gallon for preemergence control of grass and broadleaf weeds in soybeans from American Cyanamid.

Stellar from Valent is a pre-pack 0.7 lb. flumiclorac (Resource) and 2.4 lbs. of lactofen (Cobra) per gallon for postemergence broadleaf weed control in soybeans.

Touchdown from Zeneca is a 6 lb. gallon formulation of sulphosate (trimethylsulfonium sale of glyphosate) for non-selective, non-residual postemergence control of grass and broadleaf weeds. Registered as a burndown treatment for no-till corn and soybeans and as a spot treatment.

Upbeet from DuPont is a formulation containing 50% triflusulfuron methyl for selective postemergence control of broadleaf weeds in sugarbeets.

Zorial from Novartis received labeling for selective weed control in alfalfa.

Label changes

Novartis recently revised the Exceed label for the 1997 growing season. If a field's composite soil pH is above 7.8, do not rotate to soybeans the year after applying Exceed. If the composite soil pH is less than 7.8, rotation to normal soybeans is allowed.

On a Crofton soil with pH less than 7.8: if 1 oz. of Exceed was used, only STS soybeans can be planted; if 0.80 oz. were applied, normal soybeans can be planted.

In all cases following Exceed, 10 months must elapse before planting soybeans.

Alex Martin, Ext. Weeds Specialist
John McNamara
Extension Assistant, Weed Science
(402) 472-1544

Crop Watch

Don't miss an issue!

We're sending a free copy of this newsletter to former subscribers. If you haven't subscribed for 1997, use the form on page 10 so you don't miss an issue. If you accidentally receive two issues this week, don't worry. Our computer may not recognize slight changes in ad-dresses from one year to the next, but it will send one copy to the 1997 subscription address in the future.

Last year, respondents to our readership survey reported saving thousands of dollars by incorporating *Crop Watch* scouting, herbicide and insecticide suggestions into their management system.

Long-term forecast: summer temps below normal

With the beginning of the 1997 production season rapidly approaching, Nebraska's producers may be interested to know that long range forecasts indicate below normal temperatures for much of the mid to late crop production season.

An expansive area of below normal temperatures are forecasted to develop over the central plains during June-August. This area expands to include the entire Corn Belt this fall.

If this forecast proves correct, it will mark a continuation of below normal growing season temperatures that have plagued most of the Corn Belt since 1992. With the excessive snowfall over the northern High Plains and upper Midwest, snow melt will provide ample moisture for evaporative cooling during the spring and early summer. It is probable that areas surrounding this region will experience some of this cooling until the excess moisture evaporates or is purged through the Missouri and Mississippi river basins.

Crop Watch readers are encouraged to keep updated on changing long-term forecasts by visiting the Climate Prediction Center (CPC) web site to obtain the latest 30-day and multi-season outlooks for temperature and precipitation. New outlooks are available by the third Friday of each month. For 1997, updated outlooks will be available March 21, April 18, May 16, June 20, July 18, August 15, September 19, October 17, November 21, and December 19.

CPC's home-page address is **http://nic.fb4.gov**. To obtain the latest outlooks, click on predictions. A new screen will appear with several options including monthly climate outlook and multi-season outlook. Click on either option to obtain the latest outlook maps. Each map has an option at the bottom of the map to continue to the next seasonal outlook or return to the main menu.

There is only one 30-day outlook and 13 multi-seasonal outlooks. For example, on March 21 the current 2.5 week lead time 90- day outlook will be for April - June. The multi-season 1.5 month lead time outlook will be for May-July. Readers can bypass the CPC homepage and go directly to the 30-day outlook or 2.5-week lead time 90-day outlook by using the following addresses:

Current 30-day outlook: http://nic.fb4.noaa.gov/predictions/monthly_climate/current_outlook

Current 2.5-week lead time 90-day outlook: http://nic.fb4.noaa.gov/predictions/multi_season/13_seasonal_outlooks/2_week_outlook

Once you load the screen, just add it to your bookmarks. You will not need to add each multi-season screen to your bookmark, since you can view successive outlooks by going to the bottom of the map to access the next outlook.

How does one interpret these map? The CPC maps areas that statistically indicate a tendency toward a given category. Categories that are shown on their maps include A (above normal), B (below normal), and N (normal). Areas assigned a category indicate that CPC models show a tendency toward that category. One can assign statistical probabilities to these areas. Readers that need to know how to interpret these probabilities can contact me for further explanations.

In addition, readers will see CL is frequently shown on the maps. This means that no trend is indicated by prediction models and there is an equal chance or receiving above normal, normal, or below normal temperatures and/or precipitation. By looking at each successive multi-season outlook, readers will be able to see if CPC is predicting a dominate weather pattern to develop.

For example, if an area of below normal temperatures appears in one period but fails to show up in successive periods, than this should be interpreted as a weak trend. However, if a trend continues through several successive forecast periods, there is a much stronger likelihood of the event occurring. CPC has spent the last 15 years developing these models and claims an accuracy level between 55-65%, depending on the global weather patterns driving the model forecast output.

Production decisions shouldn't be based entirely on these forecasts. They should be viewed as another management tool and are available to alert producers that a particular climate pattern is showing a tendency to develop.

Al Dutcher
State Climatologist
Agricultural Meteorology
(402) 472-5206

Coming soon!

- Bt corn update
- No-till planting tips
- Corn, sorghum, and soybean planting issues
- Gray leaf spot, High Plains virus, sorghum ergot

Don't plant problems

Avoid spreading soybean disease

Soybean germination tests at the Nebraska Crop Improvement laboratory indicate that germination rates are relatively high this year, due to last year's good crop and excellent moisture at harvest. Unfortunately germination tests do not account for the potential for spreading disease by using farm-saved seed which includes disease inoculum.

It's estimated that almost half of the state's soybean producers use farm-saved seed rather than certified seed. If producers had sclerotinia stem rot, soybean cyst nematode, or soybean mosaic in the field from which they saved their seed, they should avoid using that seed.

Sclerotinia stem rot (*Sclerotinia sclerotiorum*) produces a white cottony growth (mycelium) on blossoms, stems, and pods. Sclerotia, the hard black overwintering structures, develop later in the mycelial mat. They also develop inside the stem and are harvested right along with the seed. Sclerotia vary in size, but many are approximately the same size as the soybean seed and can be planted with the seed next spring.

The Soybean Compendium states that "Seed contaminated with sclerotia is the most likely means of introducing the pathogen into previously uninfested fields." Once the pathogen is established in the field it is difficult to control.

The gross symptoms of a soybean cyst nematode (*Heterodera glycines*) infection are stunted yellow plants with discolored roots and decreased nodulation. The symptoms are often confused with nutritional deficiencies. The cyst nematodes are attached to the root and are smaller than the nodules. They can be easily dislodged and adhere to small soil balls (peds). The peds are about the same size as soybean seeds and can become mixed with seed during harvest. They provide a source of primary infection next spring.

Thorough cleaning procedures are necessary to remove both problems, however even a thorough cleaning can not insure that all sclerotia and infested soil peds were removed. Not using seed from diseased plants is the surest way to avoid reintroducing disease into your fields or spreading pathogens into fields with no previous history of these (disease) pest problems.

Jane Christensen
Extension Assistant, PlantPathology,
(402) 472-2559
Roger Hammons, Asso. Manager
Nebraska Crop Improvement Assn

Agroforesty opportunities to be discussed

Agroforestry technologies for conservation and production will be discussed during a March 20 USDA satellite broadcast to five Nebraska sites.

The broadcast will cover how agroforestry practices can increase crop production, provide income to rural economies, improve water quality, decrease soil erosion and filter runoff, and reduce flooding.

The 11:30 a.m. to 2 p.m. CST broadcast is aimed at professionals in agriculture and natural resources, but interested landowners are welcome. A natural resource professional will be available at each site to answer questions.

Downlink sites will be at the University of Nebraska Research and Extension Centers at Concord, Clay Center, and Scottsbluff; the McKinley Education Center, 301 W. F St., North Platte; and the Lancaster County Cooperative Extension office, 444 Cherry Creek Rd., Lincoln.

The sites are sponsored by Cooperative Extension, Institute of Agriculture and Natural Resources.

Dennis Adams, Extension Forester
(402) 472-5822

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