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Dry conditions stress state's wheat crop

Crown and root rot found in southeast

Nebraska's winter wheat is beginning to show signs of stress from lack of precipitation, wind erosion in some areas, and now the first signs of disease.

While it may be too early to accurately assess plant status in western Nebraska, a recent survey of fields in eastern Nebraska found most of the wheat plant’s roots growing in the top 3 inches of a powdery dry soil. Examination of individual plants revealed early stages of crown and root rot. The crowns and subcoronal internodes were slightly discolored due to infection by crown and root rot fungi. At this stage the degree of discoloration is only slight, however, the situation is serious enough that growers should periodically check their fields until the wheat breaks dormancy and begins new growth.

Focus on wheat

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Crown and root rot of winter wheat is an interrelated disease complex caused by the interaction of infection of crowns and roots by fungi and dry, open fall and winter weather. The weather pattern this fall and winter certainly fits the scenario. Dry conditions in the fall predispose the plants to infection. If these conditions continue through the winter, infection of the crowns and roots continues. If crowns are severely diseased by late March, those plants either fail to green up or die shortly after greenup.

To diagnose crown and root rot, remove suspect seedlings from the field, wash soil from the roots.

(Continued on page 4)
Field Crop Scout Training

Two Field Crop Scout Training sessions have been scheduled for May 8 and May 22 from 8:30 a.m. to 4:45 pm at the Research and Education Building at the Agricultural Research and Development Center near Ithaca. These one-day workshops will cover how to recognize insect, weed, disease, and soil fertility problems in Nebraska field crops. Topics will include crop growth and development, sampling methods and biological control organisms.

Presenters will include UNL Extension specialists and educators. The $20 registration fee includes lunch and reference materials. To register contact Barb Ogg, Extension Educator in Lancaster County, at (402) 441-7180 or Keith Glewen, Extension Educator in Saunders County, at (402) 624-8030.

Crop consultants invited to regional entomology meeting

Crop consultants will be able to meet with entomologists from throughout the Midwest during a special program Tuesday, March 26, at the Red Lion Hotel in Omaha. The program is being held in conjunction with the annual meeting of the North Central Branch Entomological Society of America March 24-27. The special session is to encourage interaction among commercial consultants and entomological teachers, researchers and extension workers.

Highlights of Tuesday’s program include symposia on the “Interface Between Crop Consultants and Entomology”, “Understanding Yield Losses from Insects”, “Management of the European Corn Borer”, and “Information Delivery Technology.” In addition, the Tuesday program will feature many other papers of interest to crop consultants.

Consultants can attend the Tuesday meeting free. For more information about attending other sections of the meeting, contact Dr. Gary Hein, NCB/ESA Program Chair, University of Nebraska, Panhandle Research and Extension Center, 4502 Ave I, Scottsbluff, NE 69361 or telephone (308) 632-1369.

Dave Keith
Publicity Chair, NCB/ESA

Pesticide maps chart potential problems

A color-coded map and guide indicating land vulnerability to groundwater contamination by pesticides is available for eight Nebraska counties. The guide provides an assessment of the risk of groundwater contamination with commonly used pesticides and suggests management practices to minimize the risk.

The information was prepared by IANR faculty working with the Nebraska Department of Agriculture with funding from EPA. Maps and guides are free and available from the Extension offices for these counties: Box Butte, Buffalo, Dawson, Hall, Hamilton, Kearney, Merrick, and Phelps.

Alex Martin
Extension Weed Science

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Lisa Brown Jasa, Editor

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Watch for early season pests in wheat, alfalfa

Insect problems can develop when wheat and alfalfa break dormancy and begin growing in the spring. It is important to monitor the regrowth of these crops to identify developing insect problems. Kansas has reported finding army cutworms in alfalfa fields and brown wheat mites in wheat fields.

**Army cutworms** are foliage-feeding cutworms that feed in alfalfa and wheat fields. In alfalfa they feed right at the soil surface. If enough cutworms are present, they will keep the fresh growth clipped back so green-up is severely delayed. If populations are large enough they can keep the new growth clipped back long enough to threaten the 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. The threshold for newly established alfalfa is two or more army cutworms per square foot. In wheat the cutworms feed on the foliage, and the threshold is four to five cutworms per square foot. It is important to properly identify these pests since some cutworms will be less damaging than army cutworms (e.g., dingy cutworm) and others may be more damaging than army cutworms (e.g., pale western cutworm). Because of the very wet spring last year, pale western cutworms are not expected to be a serious threat this year.

The potential for damage from **brown wheat mites** is increased this year because of the dry conditions. Brown wheat mites are dark mites about the size of a newspaper print period. Brown wheat mite feeding may cause wheat plants to discolor, especially near the leaf tips. Their damage is often associated with drought symptoms. Rains that reduce the drought stress on plants also reduce or eliminate the mite populations. If plants are showing severe stress, threshold numbers for brown wheat mite may reach 30-50 per plant. However, removing the mites may not solve the main cause for the stress — drought.

Gary Hein
Extension Entomologist
Panhandle Research and Extension Center

**CropWatch** expands coverage; offers column for subscriber input

*CropWatch* has some changes in store for our readers this year, including increased coverage and the opportunity for increased reader interaction. Subscribers are invited to submit their production or pest questions or scouting reports to an electronic listserv. For those subscribers with a computer and modem access, the listserv provides a quick means for allowing Extension educators, crop consultants, producers and specialists to interact. Crop and pest reports or specific questions posted to the server may be used in a brief column in the newsletter to keep all our readers updated. To subscribe to the listserv, send a message to: LISTSERV@UNLVM.UNL.EDU and in the message field enter: subscribe cropwach Firstname Lastname. To send information to list members, address e-mail to: CROPWACH@UNLVM.UNL.EDU. (Note: We were limited to eight letters so there's no "T" in "Cropwach").

This year's newsletter will feature other changes, including more photos. If you haven't resubscribed, don't miss another issue. Subscribers from 1995 who have not resubscribed will receive this issue free, but only this issue. To resubscribe now, see page 7.
Assess damage carefully

Winterkill may be spotty in fields

Winter wheat growers concerned with the possibility of winterkill in their crop can begin to assess their situations after greenup.

Causes

Winter wheat plants die when low temperatures kill the crowns. Leaves may be killed, but as long as the crowns are not killed, recovery in the spring is likely. Crowns of adapted varieties can harden enough to withstand temperatures down to -9°F to -11°F 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 goes down to -30°F 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.

Crown and root rot (Continued from page 1)

and crown, and examine them for dark brown lesions and nonfunctional roots with few or no new roots initiating from the crown. Split the crowns at the stem base with a sharp knife or a razor blade to detect rot. Diseased crowns are brown to dark brown; healthy crowns are white. Plants with severely damaged crowns fail to develop new crown roots and usually decline in health shortly after greenup. Those with moderate crown and root damage may survive but tiller sparsely and yield less than plants with healthy roots and crowns.

Unfortunately, the damage from crown and root rot is irreversible, leaving the grower with the difficult decision of what to do with a spotty stand. The wheat plant has a remarkable ability to recover from injury, so sometimes, but not always, patience is a better alternative than action, and replanting or planting to a row crop may still be a possibility.

Extension publications related to this are EC94-132, Freeze Injury to Nebraska Wheat; G92-1097, Root and Crown Rot-Winterkill Complex of Winter Wheat, and EC95-1873, Cultural Practices That Influence Wheat Diseases.

John E. Watkins
Extension Plant Pathologist

Identifying winterkill

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 temperatures.
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 plan your alternatives.

Drew J. Lyon, Extension Dryland Cropping Systems Specialist
Fertilizer options for winter wheat

Have you been worrying about whether your wheat fertilizer has enough synergistic punch? Well, maybe it’s time to get back to a few agronomic basics to address that question.

Nitrogen and phosphorus are the two primary nutrients required for profitable fertilizer management in winter wheat. The probability of a yield increase from any other nutrient is low, but in recent years information in the popular farm press and in advertisements has discussed the possible need for potassium (K), sulfur (S), zinc (Zn), or even chloride (Cl). Some advertisements claim benefits of specific nutrient ratio mixes because of synergistic effects. What’s a farmer to believe?

Spring fertilization means nitrogen fertilization. It’s too late to add any 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. Take adequate soil tests this summer to determine phosphorus needs for wheat planted this fall. The majority of winter wheat is grown on fine textured soils and there is little evidence of yield increases from sulfur on these soils. If irrigated wheat is grown on sandy soils and the irrigation water contains less than 6 ppm S you may need 10-15 lb of sulfur depending on how much was applied last fall.

So, how much nitrogen do you need to apply this spring? Tough question. 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 shows recommended nitrogen rates for 50 bu/a wheat assuming nitrogen prices of $0.15 and $0.20 and wheat at $3 and $4 a bushel. The table can still be used with current prices since nitrogen at $0.25 and wheat at $5/bu is the same price ratio as $4 wheat and $0.20 N.

Because of the lack of moisture and snow cover since last fall in many areas, and several days of strong winds, producers should decide whether they have a viable stand before deciding how to fertilize. With the near record price for wheat, however, many less than desirable stands may produce a profit this year if weeds can be controlled. The lack of moisture this winter has limited the loss of nitrogen from leaching or denitrification. Nitrogen applied last summer or fall is still there. Using the table above 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.

Nitrogen sources

Nitrogen solutions. It’s also important to determine yield stands before determining weed control and nitrogen fertilization strategies. (See Weed Control on page 6). If nitrogen solution-herbicide combinations are used, they need to be applied early for many broadleaf weed problems. Applying nitrogen early (late March) allows for distribution into the root zone with spring precipitation, however this 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 five years at North Platte has documented wheat crop damage and yield loss from herbicide-liquid fertilizer combinations. The problem is that the degree of damage or result on yield depressions cannot be accurately predicted. Don’t quit using nitrogen fertilizer solutions, but do use caution.

Grain yield losses have ranged from 2-7 bu/A and occurred about 40% of the time, especially for applications prior to jointing (Zadok stage 29). 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), 4) 28-

(Continued on page 8)
Forecast for weeds in wheat high; herbicide options low

The potential for weeds in winter wheat this spring is good. Rainfall was not timely during the month before planting last fall and winter annual weeds did not germinate in time to be killed by tillage in many areas. Rain after planting was sufficient to germinate the weeds and these weeds will be a problem this spring. Weed densities will be high enough to cause grain yield losses if weed control is not timely.

In addition, rainfall and snow amounts have been below average, favoring weed development over healthy wheat stands. Some wheat only had one or two leaves going into winter because of late planting or delayed emergence. In addition early planted wheat may not be as vigorous because it used too much water last fall. Considerable wind erosion has occurred, further damaging the wheat. Some winter killing has occurred, allowing for the emergence of summer annual weeds in these areas. Populations will be high because surviving wheat will not be as competitive. Fields planted with disk drills have had more damage than those planted with hoe drills. The winter also has been hard on winter annual weeds as winter kill has been observed on field pennycress, downy brome, and jointed goatgrass in ridges made by hoe drills. Wind erosion has been worse where excessive tillage occurred last summer. Some growers had to till their fields as many as seven times to control some weeds.

Common purslane was especially troublesome.

No herbicides are available for controlling downy brome, jointed goatgrass, and rye. If high infestations of these weeds exist then wheat should be destroyed and planted to another crop. One should not allow jointed goatgrass or rye to produce seed as it will take three to five years to control these weeds because of the potential of dormant seed. Some fields have more than 100 plants per m² of jointed goatgrass present now. Eighteen plants/m² have reduced winter wheat yields 21%.

Producers must decide soon whether to keep wheat that has been damaged by weather or has high weed densities. No herbicides are available to remove winter annual grass weeds from wheat. Broadleaf weeds can be controlled with herbicides before the weeds become too large. The first weed threats are winter annual broadleaf weeds. Blue mustard generally needs to be sprayed in early March for best control.

Producers should carefully consider what cropping options are available in case the wheat will need to be destroyed later. Price of wheat is not excellent, but we are not guaranteed more rain to replenish stored soil water that was used for a replant crop. If there is a chance that the wheat will be destroyed, don’t use herbicides that will carryover and damage the replanted crop. If sunflower is to be planted in these fields then Ally, Amber, Finesse, or Tordon should not be used. Consult the label for further information. A thin wheat crop left for harvest should be treated with herbicides that provide preemergence weed control.

Fertilizer-herbicide combinations are likely to cause more damage to stressed wheat plants than to healthy ones. Chances of getting injury with the fertilizer-herbicide combinations increase when temperatures drop below freezing a couple of days before or after freezing. Probably avoid Banvel + 2,4-D applied with fertilizer solutions because of the potential for injury this year.

Another control problem may arise when the wheat-growth stage doesn’t match the herbicide when weeds need to be sprayed. Spraying must be delayed in those fields that were planted late or wheat emergence was delayed because of lack of rainfall. In most years 2,4-D can be sprayed any time in the spring because wheat will have four or five tillers. However, this year some wheat had only two or three leaves by March 1. Applications of 2,4-D must be delayed until the wheat has four to five tillers to reduce the risk of damage. If weeds need to be sprayed before wheat reaches this stage, switch to a herbicide such as Amber that can be used on small wheat.

Information on herbicide selection can be found in EC 96-130, Nebraska Herbicide Guide, WeedSoft, a UNL computer software program which works in conjunction with NebraskaHERB, or NebGuide G88-863, Annual Broadleaf Control in Winter Wheat. Particular attention should be paid to the recropping interval for non labeled crops.

Gail A. Wicks, Extension Weed Specialist Panhandle Research and Extension Center
Use emergency tillage to cut wind erosion

With another late winter in western Nebraska, soil in many wheat fields has become smooth, dry, and finely granulated and is very susceptible to wind erosion. In some cases, emergency tillage may be needed to help control soil erosion:

Emergency tillage can provide a rough, ridged, cloddy surface that is resistant to wind erosion. Surface roughness reduces wind velocity at the soil surface and helps trap windblown soil particles. Where possible, use emergency tillage before soil blowing starts. Soil erodes more rapidly from abrasion by wind blown soil particles than from wind that contains no soil particles. If erosion is anticipated because high winds are forecast, start emergency tillage on areas in the field most vulnerable to erosion before the wind reaches a critical speed. If soil blowing has already started, begin emergency tillage on the upwind edge of the eroding area. Tillage in a direction perpendicular to the expected wind direction will be most effective (Figure 1).

Field speed for emergency tillage will depend on the implement, soil conditions, and tillage depth. In general, slow speeds will produce more clods, while faster speeds will provide more ridging. Speeds of 3 mph to 4 mph usually create the most effective surface. For best results, vary the face angle of the tillage tool, depth of operation, and field speed to produce the maximum overall roughness.

If wind erosion is occurring, it is better to control the damage early by using emergency tillage, rather than risk losing the entire crop. Use narrow chisel points spaced 4 to 6 feet apart and run them 4 to 6 inches deep. Some farmers will use a 3-foot spacing between chisel points because it is easy to remove two of three gangs and obtain the 3-foot spacing. This strategy, however, does not allow the farmer to come back and chisel between previous ridges if further erosion occurs. Tillage direction should be perpendicular or at an angle to the wheat row to minimize plant injury.

Data from a five-year study at two sites in Kansas suggests this type of emergency tillage has minimal effect on potential yield, but can reduce the damage to growing wheat and reduce soil loss in moderate erosion situations. The Kansas study found emergency tillage caused the most damage to wheat yields when the wheat had just emerged. The least yield reduction was found when the tillage was done in fields with plants already tillered. Emergency tillage is not effective if clods cannot be brought to the surface, and is not possible after the soil is frozen more than 2 inches deep.

Maintaining residue cover, especially standing residue cover, and using crop strips are effective ways to reduce the need for emergency tillage to control erosion. A productive soil is a farmer’s most important asset; don’t let yours be gone with the wind.

Drew J. Lyon
Extension Dryland Cropping Systems Specialist

John A. Smith
Extension Machinery Systems Engineer

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**Coming next!**

- No-till planting tips
- Newly labeled pesticides
- Combination herbicides
- Growing turfgrass seed as a crop

If you didn’t resubscribe for 1996, this is your last free issue.

Don’t miss a single issue of CropWatch. Each year producers report saving money by using the recommendations and the latest information in CropWatch. The cost for 26 issues is $30.

To order, send a check for $30 made out to the University of Nebraska to CropWatch, Box 830918, University of Nebraska, Lincoln, NE 68583-0918.
Assess soil moisture, need for inputs and risks

With a relatively dry soil profile and little precipitation in the short-term forecast for much of Nebraska, producers need to assess their crop’s need for water and the options available to lessen any potential risks.

Dry soil and few spring rains will increase the risk of crop failure while adequate spring rains will markedly reduce the risk of crop failure.

If soils are dry and there isn’t good precipitation by planting, some adjustments in production inputs may help compensate for potentially low yields and profits at harvest. Following are some changes to consider:

Weed control. Consider crop rotation; banded herbicide applications; low-cost but effective herbicides; and substituting mechanical weed control for chemical weed control.

Fertilizer. Conduct soil tests and apply only those nutrients needed in greater supply based on test results; buy least-cost fertilizer based on cost per pound of nutrient; apply fertilizer so it is not lost to volatilization, leaching, or denitrification; use a starter when appropriate.

Crop. Buy high quality seed; rotate crops to reduce inputs and manage pests; select best hybrid/variety for drought conditions; adjust plant population to optimize use of available soil water.

Soil management. Reduce tillage; use no-till if possible; minimize wheel traffic and compaction; eliminate row crop cultivation if weed pressure is slight.

Alice Jones
Extension Soil and Water Conservation Specialist

Fertilizer (Continued from page 5)

0-0 + 12-0-0-26 (ATS), 5) ally + 2,4-D + N + S. The nitrogen rate used was 40 lb/acre nitrogen. Injury may be greater or less depending on your nitrogen rate. More developed wheat and wheat under stress was damaged more than vigorously growing wheat.

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

Ammonium Nitrate. Ammonium nitrate is still an excellent nitrogen source for topdressing wheat, but is only available in limited supplies.

Urease Inhibitor. A new product on the market (Agrofins) is a urease inhibitor which can be applied to urea or mixed with UAN solution. It reduces the chance of volatilizing 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.

Gary W. Hergert, Extension Soils Specialist West Central Research and Extension Center

Check yields on spring grain variety tests

Spring wheat and oats are cool season crops that suffer yield reductions when weather turns hot. Planting early, usually in late March or the first week in April, often will provide for a higher yield potential. (See yield results on page 9.) Many times, oats are planted earlier than that without frost injury.

Spring wheat does not yield as well as winter wheat in Nebraska. Even when planted early, the yields will be quite disappointing most years. Usually spring wheat is planted to fill in for a winter wheat crop lost because of weather. Spring wheat should be planted with a good grain drill at a rate of 60 pounds per acre. Placing the seed firmly into moist soil is important for good germination. Weed concerns are similar to winter wheat. Even with early planting, spring wheat will not be ready for harvest until mid to late July. The varieties that have been most successful in Nebraska are those developed in Minnesota, North Dakota and South Dakota.

Oats need to be planted in the same kind of seedbed as that needed for spring wheat. The normal planting rate for oats is 32 to 35 pounds per acre. Even with early planting, the crop will not be mature until after mid July. Varieties available are from North Dakota, South Dakota, Wisconsin, Illinois, and Indiana. The following tables show the yield results from the 1995 yield tests of oat and spring wheat at Nebraska four locations.

Lenis Nelson, Extension Crop Variety and Seed Production Specialist
# Oat variety test — 1995

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<th>Dixon yield bu/a</th>
<th>Saunders yield bu/a</th>
<th>Pan Irr yield bu/a</th>
<th>Pan Dry yield bu/a</th>
<th>Plant height inches</th>
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<td>39</td>
<td>42</td>
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<tr>
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<td>50</td>
<td>49</td>
<td>51</td>
<td>36</td>
<td>32</td>
</tr>
<tr>
<td>Russell</td>
<td>40</td>
<td>43</td>
<td>29</td>
<td>37</td>
<td>49</td>
<td>36</td>
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</tr>
<tr>
<td>Average all entries</td>
<td>61</td>
<td>46</td>
<td>64</td>
<td>73</td>
<td>61</td>
<td>36</td>
<td>32</td>
</tr>
<tr>
<td>Dif. req. for sig. 5%</td>
<td>14</td>
<td>12</td>
<td>4</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25%</td>
<td>8</td>
<td>7</td>
<td>2</td>
<td>6</td>
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</tbody>
</table>

Locations are Dixon County, Saunders County, Panhandle Irrigated and Panhandle Dryland.

* These varieties were entered only in Panhandle. The averages are not comparable to the remaining varieties.

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# Spring wheat variety test — 1995

<table>
<thead>
<tr>
<th>Variety</th>
<th>Average yield bu/a</th>
<th>Dixon yield bu/a</th>
<th>Saunders yield bu/a</th>
<th>Pan Irr yield bu/a</th>
<th>Pan Dry yield bu/a</th>
<th>Bushel weight lb/bu</th>
<th>Plant height in</th>
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</thead>
<tbody>
<tr>
<td>2375</td>
<td>33.75</td>
<td>26</td>
<td>28</td>
<td>46</td>
<td>35</td>
<td>57.5</td>
<td>33</td>
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<tr>
<td>Butte 86</td>
<td>30.5</td>
<td>26</td>
<td>33</td>
<td>34</td>
<td>29</td>
<td>55.9</td>
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<tr>
<td>Kulm</td>
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<td>38</td>
<td>42</td>
<td>34</td>
<td>58.1</td>
<td>38</td>
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<tr>
<td>Russ</td>
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<td>29</td>
<td>41</td>
<td>33</td>
<td>31</td>
<td>55.5</td>
<td>37</td>
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<td>Sharp</td>
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<td>37</td>
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<td>37</td>
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<tr>
<td>Average of all entries</td>
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<td>35</td>
<td>37</td>
<td>32</td>
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<tr>
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<td>5</td>
<td>8</td>
<td>3</td>
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<tr>
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Locations are Dixon County, Saunders County, Panhandle Irrigated and Panhandle Dryland.
Replanting an option until March 15 in the west

A small window of opportunity remains for wheat producers in western Nebraska who want to replant poor stands or increase acreage by planting winter wheat. For producers in eastern Nebraska, the window is probably closed.

Planting winter wheat can be the best option if done soon enough to give the seed time to vernalize, a process necessary for normal development and heading in the spring. The wheat either can be drilled directly into thin or dead spots in existing stands, or planted in new stands. Seed should be planted at normal depth (1 inch). Higher than normal seeding rates (2 - 2 1/2 bu/acre) should be used because less tillering is expected. Starter fertilizer also can be helpful.

Normally, to assure adequate vernalization time, winter wheat should not be planted past Feb. 15 in eastern Nebraska or March 15 in western Nebraska. Generally four to six weeks of temperatures below 40°F at night are required for vernalization. There is considerable risk in planting wheat after these dates. To reduce risk, use wheat varieties with shorter vernalization requirements, such as Siouxland or Centura.

Growers should be able to tell if the wheat has vernalized by May 21. If it has, the wheat will begin to joint and the growing point will be elevated above the crown. If not, the wheat can be grazed or a summer crop can be planted.

Questions concerning replant options arose this spring for several reasons: increased wheat prices; losses due to winterkill, lack of precipitation or high winds; and spotty stands.

Options include interseeding winter or spring wheat, however mixing in spring wheat is generally not recommended because it can cause grading problems at the elevator. Poor stands could be torn up and replanted to spring wheat, but that is much more expensive than interseeding winter wheat.

David Baltensperger
Extension Plant Breeder
Drew Lyon, Extension
Dryland Crops Specialist

Some weeds best controlled in alfalfa now

Warm weather spurs the development of winter annual weeds in alfalfa. Downy brome, pennycress and other mustards can be effectively controlled if herbicides are applied before alfalfa greens up. Often a weed problem isn't recognized until the alfalfa greens up and then 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 seeding 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. All Pursuit applications should be made 30 days prior to harvest.

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

John W. McNamara
Extension Weed Science