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Green stems in soybeans complicate harvest

Most Nebraska soybean acres are at R7 (50% of leaves yellowing) or beyond. Many fields that are fully mature and nearly harvestable have a high percentage of greenseamed plants remaining in the field. With normal soybean development, once physiological maturity is reached, the plants should continue the maturation process and stems should dry down.

Green stem is an abnormal scenario which can significantly affect some producers. This results in plugged combines and difficulties at harvest. If you own a newer combine with reverse on the intake, this problem is not nearly as frustrating as for those with an older model.

Does frost cause green stem? No. Frost will result in defoliation and initially stems may be green, but the normal maturation process should continue. Plants with true green stem will have the condition after all the pods have fully matured and dried down. Frost may occur before all leaves have dropped and pods have changed color, but the stems should dry down normally after this event.

Several things can cause green stem soybeans at harvest. If plants are scattered throughout the field probably the most plausible cause is viral infection. Plant viruses are notorious for altering physiological events, such as the normal maturation process of the plant. Several viruses can cause green stem including bean pod mottle virus, tobacco streak virus, and tobacco ringspot virus also called bud blight. While all of these viruses are found in Nebraska, bean pod mottle virus is the most widely distributed. In most cases, I suspect scattered plants with green stem in a field result from an infection with this virus. There is a high incidence of bean pod mottle virus in many fields.

(Continued on page 200)
Paul Hay, Extension Educator in Gage County: Harvest is slowly resuming following the rains. Corn stalk rot does not appear to be a great concern with averages below 25% (most in the low teens) for all but one variety in the Southeast Nebraska Corn Growers dryland and irrigated trials. Lots of reports that the last bit of grain in bins had weevils. Don’t forget to clean and treat bins before harvest. (See the Aug. 31 CropWatch for details on grain bin preparations.)

Forms available

A variety of commonly used Farm Service Agency (FSA), Natural Resources Conservation Service (NRCS), and Rural Development (RD) forms are readily accessible online 24 hours a day. Just visit their site at: http://forms.sc.egov.usda.gov/FormSearch.asp The site includes instructions for completing the forms and submitting them to your local office.

It’s your turn:
Tell us what you think

Dear Readers,

On pages 203-204 of this week’s Crop Watch is a readership survey, designed to help us learn more about how you use information in the newsletter and how we might improve the newsletter. Please take a few moments to consider the depth and range of stories in this year’s issues (more than 250 stories so far) and complete this survey and return it postage paid. We have fine-tuned the questions and the format to make it easier and quicker to complete in hopes that you may be able to work it into your hectic fall schedules.

Responding to the survey will provide even more direct benefits to some of our readers. Several of the contributing authors have donated prizes to be used in a drawing of survey respondents. Readers interested in entering the drawing should include their name and address, which will be separated from the survey and entered in the drawing before responses are analyzed. The prizes, which are listed on the cover, will be drawn from those names submitted from both the print and web versions of the newsletter before Oct. 15.

Take this opportunity to tell us about how you use Crop Watch and how we might improve it.

Lisa Brown Jasa
Crop Watch Editor

NU corn insect control reports

We have online reports summarizing 2001 corn insect control studies for corn rootworm, wireworms, and first generation European corn borer. The reports, from research based at the NU South Central Research and Extension Center, are located at: http://screc.unl.edu/Entomology/

Data from past year’s trials are also available at this site.

Bob Wright
Extension Entomologist
South Central REC

CropWatch

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Cooler, wetter fall and warmer winter forecast

Much of Nebraska is likely to have a cooler than normal fall followed by a warmer than normal winter, if forecasts hold true. During the six-month period of fall (September to November) and winter (December through February), much of the state is also likely to see above normal precipitation.

Details of these forecasts are shown in the four figures for different sub-climate regions in Nebraska. These forecasts are departures from long-term (30 years from 1970-1999) seasonal average values of temperature and precipitation, which are given in Table 1.

Figure 1 shows the temperature departures for fall 2001 in these regions. Negative departures in the figure call for 10% (3°-6°F) below average seasonal temperatures, or a cool to cold fall in most of Nebraska. Colder temperatures of 15-20% (8°-12°F) below seasonal averages are predicted for Region 2 (north central) and Region 7 (south central). Near average temperatures are foreseen only in Regions 4, 5, and 8. (Note: because forecasts were produced based on regions, the figure doesn’t show smooth transitions from one region to the next.)

In contrast to the below-average fall temperatures, winter temperatures, shown in Figure 2, are predicted to be 3°-5°F above average, except for Regions 1, 4, and 7, where average seasonal temperatures are predicted.

(Continued on page 200)

| Table 1. Seasonal average temperature and total precipitation for different regions in Nebraska. |
|-------------------------------------------------|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Region                                          | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     |
| Fall temperature (Max/Min)                      | 63/33 | 63/37 | 63/38 | 64/37 | 64/40 | 64/37 | 67/39 | 66/41 |
| Fall precipitation                              | 3.0   | 4.9   | 5.7   | 4.9   | 6.8   | 3.1   | 5.2   | 7.4   |
| Winter temperature (Max/Min)                    | 39/13 | 34/12 | 33/12 | 37/13 | 35/14 | 42/16 | 40/15 | 37/15 |
| Winter precipitation                            | 1.4   | 1.9   | 1.9   | 1.7   | 2.2   | 1.3   | 1.7   | 2.4   |
Fall-winter forecast
(Continued from page 199)

Figures 3 and 4 show the precipitation forecasts for fall and winter. According to the forecasts, we anticipate 10-15% above average precipitation in most of Nebraska this fall, except for Region 5. Larger departures of up to 25% of the seasonal average precipitation are expected in north central and northeast Nebraska. Average fall precipitation is predicted for Region 5 (east central). Winter precipitation also is predicted to be above normal for most regions in the state. Departures are 10-15% of the seasonal average values. Near seasonal average precipitation is expected in central and southern Nebraska in Regions 4, 5, and 7.

Finally, the reliability of the forecasts -- the chance or probability for the forecasts to occur in reality -- is 74% for fall and 69% for winter. Although a forecast can never be 100% sure, it offers a much higher probability, e.g., 74% and 69% in this case, then a blind guess with a 50% chance. In other words, correctly using climate forecasts and predictions will improve your chance to make a successful production plan.

Q. Steve Hu
Assistant Professor and Agricultural Climatologist

Green stems (Continued from page 197)

fields this year. (This is related to populations of the bean leaf beetle, the main vector for this disease.)

Recommendations

Don’t worry about green stem unless you are considering holding over seed. Remember that licensing restrictions prohibit genetically modified seed from being held over so producers should make sure they follow the agreement.

If you are considering holding seed and are observing a lot of green stem this fall, you may want to have plants tested to potentially learn the cause of the problem. The viruses that affect soybean are not held over in the soil, but in some cases they can be held in the seed. For example, seed transmission for tobacco streak virus has been reported to be as high as 30%. Bean pod mottle virus, the most common soybean virus in Nebraska, has been shown to be seed transmitted at a very low percentage of 0.1% or less. Some researches have shown no transmission of bean pod mottle virus with seed.

Loren Giesler
Extension Plant Pathologist

Crop update

According to the Nebraska Agricultural Statistics Sept. 23 report:

Corn condition rated 5% very poor, 8% poor, 24% fair, 43% good and 20% excellent. Irrigated corn was 70% good to excellent while dryland corn was 41% good to excellent. The crop was mature on 69% of the acreage, compared to 91% last year (drought conditions) and 63% average.

Soybean condition rated 7% very poor, 13% poor, 33% fair, 39% good, and 8% excellent. Plants were turning color at the same rate as the five-year average -- 94%.
Rains may lead to increased molds in corn

The recent rains and milder temperatures are favorable for the development of ear and grain molds in corn. Ears sampled in central Nebraska last week had several grain mold fungi associated with the kernels and cobs, including *Fusarium*, *Aspergillus* (glaucus group), *Penicillium*, *Alternaria*, *Cladosporium*, and *Bipolaris*. One sample received at the NU Plant and Pest Diagnostic Clinic had *Nigrospora* ear rot. The environmental conditions have been favorable for the production and dispersal of spores of most of the grain mold fungi found in the Northern Great Plains. Many of the ear and grain mold fungi are the same pathogens that cause stalk rot. Stalk quality has been deteriorating rapidly over the last few weeks indicating that these species are very active at present.

Grain mold development may become an issue where grain was stored on the ground and not covered before the rain began. In some areas four to five days of continuous rainy conditions have occurred. Grain mold development also may become a problem where grain is harvested early to avoid harvest complications from stalk rot induced lodging. When harvested at higher than ideal moisture, grain should be dried to less than 16% moisture within 48 hours, if possible.

Not only are these molds a concern for grading, but the potential also exists for mycotoxin contamination of the grain. Some molds produce compounds, called mycotoxins, that can be toxic to farm animals, wildlife, or humans; however, the presence of mold does not indicate contamination of the grain with mycotoxins. Only certain strains of certain species produce these potentially harmful compounds. Grain molds occur in Nebraska every year to varying degrees. The fungi that cause grain molds are found throughout Nebraska; however, they are not usually considered a major constraint to production or marketing of Nebraska corn.

The most striking external symptom of grain mold is the presence of the mold itself. The degree of growth on and between the kernels and the appearance of the mold (e.g., color & density) varies with the mold species and the environmental conditions in the field and in storage. Temperature and relative humidity are the two most important environmental factors regulating mold growth. Most grain mold pathogens become associated with the kernel in the field but can grow within the colonized kernel and even spread to adjacent kernels during storage if grain moisture and relative humidity are not adequately controlled. It is imperative to dry down the grain as soon as possible.

Some producers will be deciding whether to let the grain dry in the field and risk stalk rot-induced lodging or harvest at higher moisture and dry the grain postharvest. In Nebraska no fungicides are labeled for postharvest application to corn for the management of molds or mycotoxins.

For more information and photos see NebGuide GOO-1408 Grain Molds and Mycotoxins in Corn (http://www.ianr.unl.edu/pubs/plantdisease/g1408.htm).

Jim Stack, Extension Plant Pathologist, South Central REC

Avoiding harvest losses

Proper combine adjustment and operation gets more beans in the bin and reduces damage. Harvest losses often approach 10% of the yield according to several university studies.

Read the combine owner's manual to become a combine operator not just a driver. Be prepared to change settings during the day or even on-the-go when passing through the field. Following are a few reminders:

- Operate the reel about 25% faster than the ground speed. The reel should rotate at about 10 to 11 revolutions per minute per mile an hour of ground speed for a standard 42-inch reel (ie: 30 rpm for 3 mph).
- Operate the reel in the right position compared to the sickle. When plants are standing, the reel should be 6 to 9 inches ahead of the sickle, about 12 inches above the ground. If soybean plants are lodged, operate the reel about 9 to 12 inches ahead of the sickle and about 1 inch above the ground, to pick up the plants before the sickle cuts them off.
- Adjust the auger so it is as low as possible in the header tray (virtually no clearance when the head is flexed up) to reduce feeding problems. Set the stripper to just touch the auger and minimize any gaps.
- Adjust the concave and cylinder/rotor speed for best threshing. With green stems, high moisture content beans or other tough threshing conditions, close down the concave slightly (first choice) or speed up the cylinder/rotor slightly (second choice). To minimize damage open up the concave and/or slow down the cylinder/rotor throughout the day as the soybeans dry and become easier to thresh. Reset them as dew develops near nightfall or in the morning.

For more details on adjusting combines, visit the Crop Watch website at http://cropwatch.unl.edu/archives/2000/crop00-21.htm#sb_combine

Paul Jasa, Extension Engineer

Estimating losses

Use the following guidelines to estimate late season storm or harvest loss (equivalents for one bushel/acre loss):

- 4 soybeans/sq ft
- 20 grain sorghum seeds/sq ft
- 2 corn kernels/sq ft
**Soil moisture levels expected to be good by spring**

Timely rains during the past two weeks have substantially increased soil moisture reserves at most monitoring sites across the state. Soil moisture readings are now approaching levels seen at the end of April, just prior to the heavy May rains. As long as normal precipitation falls prior to ground freeze, we would anticipate that soil moisture levels will be more than sufficient to alleviate concerns about inadequate moisture reserves next spring. Certainly soil moisture recharge is off to a better start this fall than has been seen for several years.

Drought conditions have been eliminated across eastern Nebraska, with only the extreme southwestern corner still classified as under moderate drought conditions. The real problem in this region has been the lack of adequate inflows into the reservoir systems to overcome the precipitous drop in lake levels the last two years.

Most reservoirs in southwestern Nebraska are running an average of 4 feet higher than at this point last year. Unfortunately, these systems are still 20-30 feet below capacity. Normal to above normal snowfall this winter will be needed to bring these systems back to normal.

Much of the Panhandle and western Sandhills have been designated as abnormally dry. A couple of timely precipitation events in the 0.50- to 0.75-inch range over the next few weeks will eliminate these short-term problems. The abnormally dry designation does not mean this area is experiencing a drought, but that it needs to be watched. Our primary concern for this region is ensuring that enough surface moisture is present to provide a sound foundation for spring wheat germination.

We have noticed a distinct change in the atmospheric pattern since early August. Very intense lows have been moving into the northern Rockies every two to three weeks. With each successive low, minimum temperatures have dropped an average of 10-15°F per event. If this continues, expectations are that a hard freeze would occur before mid October.

These systems have been much stronger than we would expect for this time of year. In fact, they resemble patterns typically not seen until late fall or early winter. Rainfall has been generous, so a continuation of this trend would bode well for additional soil moisture recharge; however, it also may result in harvesting delays if we don't receive adequate surface drying between events.

**Clinic identifies variety of diseases**

Not surprisingly for this season, there has been an increase in the number of plant samples submitted for disease diagnosis. The following diseases were diagnosed by the UNL Plant and Pest Diagnostics Clinic Aug 13 - Sept 21:

**Alfalfa** -- rust (Colfax County), spring black stem (Keith County), summer black stem (Colfax County);

**Corn** -- charcoal rot (Lancaster County), fusarium stalk rot (Dodge and Lancaster counties), Goss's bacterial wilt (Chase, Cuming and York counties), gray leaf spot (Furnas and Nance counties), Northern corn leaf spot (Nance County);

**Soybean** -- anthracnose (Phelps County), bacterial pustule (Lancaster County), bean pod mottle virus (Johnson County), brown stem rot (Dodge and Holt counties), cercospora leaf spot (Clay County), charcoal rot (Burt, Clay and Dodge counties), fusarium (Buffalo, Clay and Hall counties), Phytophthora (Hall County), Pod and Stem Blight (Dodge and Phelps counties), Pythium (Buffalo and Clay counties), Rhizoctonia (Buffalo, Clay, Greeley, Hall and Lancaster counties).

Jennifer Chaky, Coordinator
Plant and Pest Diagnostic Clinic

**Control weeds in alfalfa**

Late summer plantings of alfalfa tend to have fewer weeds than spring plantings; however, this year weeds are a problem in some fields. Select a control option, based on the type of weed and how dense it is in your alfalfa.

Doing nothing is best when weeds are annuals like foxtail, crabgrass, and pigweed that will be killed by frost, as long as the weed stand is thin enough to permit plenty of light to reach new alfalfa seedlings.

Clipping tall weeds is another option. This works best on thick stands of tall broadleaf weeds, but be careful not to cut or smother the seedling alfalfa.

Herbicide options are limited. If herbicides are used, spray this fall because spring treatment usually is not effective. For grassy weeds, especially winter annual grasses like downy brome, cheatgrass, and volunteer wheat, use Poast Plus or Select herbicides before grasses are 4 inches tall. If your weeds are broadleaf weeds like pennycress and mustards, spray Buctril or Butyrac while weeds are small this fall. If both grasses and broadleaves are a problem, Pursuit can be used, but this is more expensive.

By selecting the best method of weed control, you can help your alfalfa be clean and productive for many years.

Bruce Anderson, Extension Forage Specialist

Al Dutcher
State Climatologist
Agricultural Meteorology
2001 Crop Watch Reader Survey

Dear Subscriber,

We value your opinion and would like to know how you use Crop Watch, what information is most valuable to you and how we might improve it. When finished with this survey, just fold, staple or tape it, and return it to us, postage free. Please return your response by Oct. 15 to be entered in the drawing. (Later responses also will be helpful.)

1. What is your occupation?
   - Farmer
   - University Extension/Research
   - Other (specify) _______________________________________
   - Sales/Applicators
   - Farm manager/investor
   - Consultant
   - Fertilizer/Implement

2. Please indicate the number of cropland acres that you manage/influence annually.
   - 1 to 5,000 acres
   - 25,001 to 50,000 acres
   - 5,001 to 10,000 acres
   - 10,001 to 25,000 acres
   - Over 50,000 acres (Please specify ______ acres)

3. Have you changed any pest management or crop production practices as a result of Crop Watch?
   - Yes
   - No
   - If so, in what areas?
   - Pesticide selection
   - Disease scouting
   - Reduced herbicide rates
   - Nonchemical controls
   - Plant population
   - Pesticide timing
   - Soil sampling for fertility
   - Split application of fertilizer
   - Soybean inoculation practices
   - Soybean inoculation practices
   - Planting date
   - Other (Please describe) ____________________________
   - Weed scouting
   - Reduced pesticide rates
   - Reduced fertilizer rate
   - Variety/hybrid selection
   - Other (Please describe) ____________________________
   - Insect scouting
   - Crop rotation
   - Reduced tillage
   - Row spacing
   - Insect scouting
   - Crop rotation
   - Reduced tillage
   - Row spacing

4. What is the estimated value of: 1) the knowledge you gained from the newsletter or 2) anticipated practice changes on a per acre basis?
   - $ __________________/ ________________ acres.

5. Do you anticipate any changes in management/production practices in the future as a result of information in Crop Watch?
   - Yes
   - No
   - If so, in what areas? ____________________________

6. Will the change potentially reduce □ pesticide, □ fertilizer or □ irrigation requirements?

7. What is most valuable about Crop Watch? ____________________________

8. Are there subject matter areas you would Add: ____________________________
    Delete: ____________________________

9. Are you getting information you need on a timely basis? □ Yes □ No

If you would like to be entered in a drawing for one of the prizes, please include your name and address.

Name ____________________________
Address ____________________________

Name ____________________________
Address ____________________________
10. Do you plan to subscribe to *Crop Watch* next year?  □ Yes □ No

Do you also view the Web version? □ Yes □ No Which version do you prefer, and why?

11. Please rank the importance of the following subject areas to you.

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<th>Agronomic information</th>
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12. Do you have or use any of these "new" technologies?

- Yield monitor □ with GPS or □ without GPS
- Spray rate controller □ with GPS or □ without GPS
- Variable rate controller □ with GPS or □ without GPS

Thank you for your response!