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No moisture four feet down

Eastern Nebraska in early drought stage

Abnormally dry conditions continue to plague the state, resulting in virtually no fall recharge moisture as of Nov. 15. Most of the state has now gone eight consecutive weeks without substantial precipitation. On an area-weighted basis, the state has averaged 0.18 inches of moisture since October 1. This is about 8% of normal.

The Sandhills and northeast Nebraska have received the most precipitation since then, averaging 0.30 inches; however, the Panhandle, east-central, southwest, southcentral, and southeast districts have averaged between 0.08 and 0.16 inches of precipitation during the same period.

Soil moisture probes located at nearly half of the High Plains Climate Center Automated Weather Data Network (AWDN) stations show that there is virtually no water in the top 48 inches of soil. Of the 17 probes, only three probes in extreme western Nebraska indicate more than one inch of available moisture. (Note: All of these probes are located under grass.)

What we can gather from the soil probe data is that moisture recharge is 3 to 5 inches less than it was at this time last year. The major concern at this time is that the fall recharge period is nearly over and we will need to have an exceptionally wet spring to make up for this fall moisture deficit. According to our calculations, the March-April period will need to average almost 200% of normal to compensate for the lack of moisture this fall.

If the current long-lead forecast models issued by the Climate Prediction Center (CPC) are correct, the outlook is less than promising. The CPC has indicated that the tendency across the central United States will be toward the dry side, especially from February through May. If this forecast becomes reality, Nebraska producers will be facing the driest situation since the late 1980s.

(Continued on page 221)

Planting GMOs this spring?
Get the latest information

"Ordering Seed for Year 2000: GMO or No?," a Nov. 29 University of Nebraska videoconference, will feature experts to help sort the facts, said Roger Selley, farm management specialist at the NU's South Central Research and Extension Center here.

Videoconference topics will cover marketing experiences to date with GMOs and non-GMOs; adjustments the grain trade is expected to make for the coming year; seed supply outlook; handling and storage of GMO and non-GMO grain; legal issues; market accessibility; and contracting.

Presenters include agronomist Don Lee, legal specialist David Aiken

(Continued on page 220)
GMO videoconference (Continued from page 219)

and Selley; all from NU; Jerry Lauber, president of the Nebraska Seed Trade Association; and Rod Johnson, member services director of the Nebraska Feed Grain Association.

The 2-3:30 p.m. CST program will be downlinked at many Cooperative Extension offices statewide. Questions may be called in for use on the program by calling (800)755-7765 during the designated time in the second half of the program.

The videoconference is sponsored by Cooperative Extension in NU’s Institute of Agriculture and Natural Resources.

Videoconference downlink sites include:
- Albion, Boone County extension office;
- Beatrice, Gage County extension office;
- Auburn, Nemaha County 4-H Building at the fairgrounds;
- Concord, NU Haskell Agricultural Laboratory;
- Curtis, NU College of Technical Agriculture;
- Fairbury, Jefferson County Extension office;
- Falls City, USDA Service Center;
- Fremont, Dodge County Extension office;
- Geneva, Geneva Library;
- Holdrege, Phelps County Extension office;
- Kearney, Buffalo County Extension office;
- Lexington, Dawson County Extension office;
- Neligh, Antelope County extension office;
- North Platte, NU West Central Research and Extension Center;
- Norfolk, Lifelong Learning Center, Northeast Community College;
- Sidney, Cheyenne County Extension office;
- Syracuse, Otoe County extension office;
- West Point, Cuming County Extension office;
- York, York County extension office.

GMO seed has been planted in the U.S. since 1996 and in 1999 accounted for about one-third of the U.S. corn crop and more than half of the soybean crop. Examples are Bt corn, which carries a natural gene to resist corn borer; and Roundup Ready soybeans, which withstand being sprayed with the non-selective herbicide to kill weeds.
Dry fall weather favorable for root and crown rot of winter wheat

Recent wheat disease surveys in south central and southeast Nebraska have shown the winter wheat crop to generally be healthy but in need of moisture. Leaf disease activity such as rust, tan spot and Septoria leaf blotch has been minimal because of dry conditions all fall. Wheat stands range from good to fair to spotty, again due to dry conditions, not disease. Crown and roots are generally healthy, but if a lack of moisture persists that picture will likely change.

Crown and root rot is a chronic disease complex whose severity has direct implications on winter survival of stands in Nebraska. This disease is an interrelated disease complex caused by the interaction of infection of roots and crowns by certain soilborne fungi and harsh winter conditions. A healthy root system is critical to wheat’s ability to tiller and produce large heads. Healthy roots are needed to support growth; and when diseased, they fail to deliver the appropriate balance of nutrients, water, and growth factors during the early stage of growth and development. This results in the failure of tiller buds to activate or causes the formation of small leaves and heads on the main stem and on tillers already initiated. Crown and root diseases cause a reduction in the number and size of heads and/or a loss of stands.

Prolonged moisture stress coupled with relatively high soil temperature in the fall enhance early disease development on the roots. The detrimental effects of a loose seedbed caused by dry fall conditions, soil moisture deficiency, lack of an insulating show cover, ice and sustained low temperatures become apparent in the spring when affected wheat fields fail to green up uniformly. These factors predispose the plants to infection by the root and crown rotting fungi.

Some producers have already disked their winter wheat because they were not satisfied with the fall stand. Others are waiting to make that decision, hoping for rain or a wet snow yet this fall. Unless the stand is obviously in bad shape, patience is the best approach for now. The decision to leave or disk the wheat doesn’t have to be made now, it can be made next spring after seeing the condition of the stand after it breaks dormancy in March.

Remember that the crowns and roots are still relatively healthy, and that a good rain or wet snow in the next two or three weeks could make a big difference in the winter survival of the crop. Wheat has a remarkable ability to tolerate harsh growing conditions and still produce a decent crop, so be patient and give the crop a chance to see if some moisture won’t change the picture.

John E. Watkins
Extension Plant Pathologist

Drought (Continued from page 219)

A new drought monitoring index that has been developed by the National Drought Mitigation Center, the Climate Prediction Center, and the U.S. Department of Agriculture now places the eastern two-thirds of Nebraska in the initial stages of a drought. If significant moisture does occur within the next four to six weeks, we will quickly move out of this initial drought stage. Otherwise, we would expect movement into the second drought stage, which typically has the potential to reduce agricultural yields.

The governor’s Climatic Assessment Response Committee was to meet today (Nov. 19) to discuss current climate conditions and their potential impact on Nebraska producers. Items that will be addressed include the extreme fire danger, possible need for an emergency hay bank, initiating plans for the release of roadside haying acreage earlier next year, identifying communities that may not have adequate well water supplies if this trend continues, and requesting that soil moisture monitoring be expanded to all AWDN stations.

Al Dutcher
State Climatologist
Agricultural Meteorology

Winter Crop Watch
We will be publishing a special winter edition of Crop Watch in late January to further address issues related to climate conditions, seed concerns and other factors affecting crop production in 2000. If you have any suggestions, please contact Lisa Jasa, editor, at (402) 472-7981 or Email at ljasa1@unl.edu
Irrigation may be warranted in alfalfa

Extremely dry conditions in much of Nebraska and surrounding regions could cause problems for alfalfa stand survival over winter. Dry soils allow cold temperatures to penetrate more rapidly and more deeply than soils with moisture near the surface. If this happens, alfalfa crowns and roots may not adapt to the temperature change fast enough to prevent ice crystals from forming inside cells. These ice crystals rupture cell membranes, effectively killing those cells. And if enough cells are killed by rapid freezing of roots and crowns, plants will die.

Even more likely is simple desiccation or drying out of alfalfa roots and crowns. Without snow cover, cold and dry winter winds cause soils, and eventually plants in those soils, to lose moisture. When soils are nearly bone dry to begin with, heavy pressure is placed on alfalfa roots and crowns to release moisture into the soil and then to the air. Part of alfalfa’s winterizing process reduces this moisture release as well as conditions plants to be able to withstand some desiccation. But, as the moisture gradient becomes too great, alfalfa will lose too much moisture and cells will begin to die. Again, as with ice crystal formation, when enough individual cells die, the entire plant will die.

Growers able to irrigate, even at this late date in the year, may be wise to do so. Normally we discourage fall irrigation to avoid stimulating plants to produce top growth instead of accumulating root reserves. However, the days are so short here in November that alfalfa plants will not grow much no matter how much moisture they receive or how warm temperatures get. An inch or two of irrigation water will insulate alfalfa plants from rapid temperature changes and protect plants from drying out. While this irrigation may prove eventually to be unnecessary if we receive sufficient natural moisture before soil freeze-up and/or have good snow cover all winter, it may be cheap insurance to protect alfalfa stands in case nature fails us.

Selected counties may qualify for FSA pasture loss program

The Nebraska Farm Services Agency office is now gathering data needed for counties to apply for national livestock assistance funds. The recent emergency ag funding approved by Congress provided $200 million for a livestock assistance program.

Avoid fall tillage

Once crops are harvested, producers should stay out of fields for the rest of this fall. Tillage dries soil further, destroying soil structure and facilitating soil and water erosion.

Producers who shred their stalks should skip that step this fall. Tilling stalks now will cut them loose and allow them to blow away. Standing residue, still attached, is one of the most effective ways to protect soil from the erosive forces of wind.

Implications of dry conditions on fertilizer, lagoons

Anhydrous ammonia nitrogen application also is a typical fall task, once soil temperatures are below 50°F. When soils are drier than normal, anhydrous ammonia will spread out more in the soil. If the application is too shallow there may be more nitrogen loss than normal. Check to make sure the anhydrous ammonia isn’t leaking from the surface. If that happens, the applicator needs to go deeper if soil hardness will allow it. In most cases six inches should be deep enough.

Also, this is a good time to empty livestock lagoons. Take advantage of the moisture-holding capacity of the soils while they are dry, but leave some room for fall and winter rains.
Private, confidential, do-at-home checklists

Extension program helps you assess water contamination risk

Are you looking for a simple and effective way to protect water resources on your farm, including your drinking water supply? A newly developed program, Farm*A*Syst can help you address pollution risks. While it is important to protect all water resources, it is especially important to protect the groundwater that supplies your drinking water.

Farm*A*Syst is a voluntary and confidential risk assessment program. Step-by-step checklists help you evaluate risks to water quality, and additional information helps you identify what you can do to reduce the risks identified. As a Farm*A*Syst user, you keep the assessment information for your personal records and decide what to do with the results.

Six of the Farm*A*Syst units help you assess the pollution potential of structures and activities that are found on most farms, including the drinking water well, pesticide storage and handling, fertilizer storage and handling, petroleum product storage, hazardous materials and waste management, and household wastewater treatment. Five Farm*A*Syst units are appropriate for farms with livestock. They include livestock manure storage, livestock yards management, land application of livestock manure, silage storage, and milking center effluent treatment. Three Farm*A*Syst units focus on field practices that may contribute to the risk of groundwater contamination. They include irrigation wellhead protection, crop pest management, and crop nutrient management. In addition, a site evaluation helps you assess how soil and geologic features affect water pollution, and an overall evaluation unit combines the results of the individual units allowing you to compare potential contamination sources to see where improvements are needed most. You select the units appropriate for your farm.

At this time, Farm*A*Syst program materials are free to interested farm families who are willing to complete and return two program evaluations in exchange for their materials. Program materials also will be given to interested agribusiness representatives. For more information about the program, call the University of Nebraska Farm*A*Syst office at (402) 472-4574 or visit the University of Nebraska Farm*A*Syst web page at http://www.ianr.unl.edu/ianr/bse/ext/fas/.

Sharon Skipton
Extension Educator, Farm*A*Syst

No-till performs well in dryland plots

Research plots were established in 1981 on the University of Nebraska Rogers Memorial Farm (10 miles east of Lincoln) to evaluate six tillage systems in a soybean/grain sorghum rotation.

The data from these plots and the experiences gained in the management required to make no-till and reduced tillage systems successful have provided valuable support for Extension programs. These dryland production plots have been maintained ever since and are showing that with proper management, no-till can be more profitable than other tillage systems.

The 1998 and 1999 yields for each of the tillage systems are given in the table (full plot harvest with a combine and weigh wagon; corrected for moisture). No-till had a distinct yield advantage for soybeans and a slight yield advantage for grain sorghum. Both crops were grown in 30-inch rows using an early preplant herbicide application and no burndown at planting.

Paul Jasa
Extension Engineer

<table>
<thead>
<tr>
<th>Tillage System</th>
<th>Soybeans Bu/A</th>
<th>Grain sorghum Bu/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall plow, disk, disk</td>
<td>49.9</td>
<td>52.1</td>
</tr>
<tr>
<td>Fall chisel, disk</td>
<td>52.3</td>
<td>54.6</td>
</tr>
<tr>
<td>Disk, disk</td>
<td>53.3</td>
<td>53.7</td>
</tr>
<tr>
<td>Disk</td>
<td>55.2</td>
<td>52.4</td>
</tr>
<tr>
<td>No-till with cultivation</td>
<td>56.6</td>
<td>55.1</td>
</tr>
<tr>
<td>No-till without cultivation</td>
<td>56.8</td>
<td>56.6</td>
</tr>
</tbody>
</table>
Winterizing your irrigation system

While most people uncouple and drain their irrigation pipes before winter, they should perform several other maintenance services to help ensure that their irrigation equipment is ready for next season. Several suggestions from the North Dakota State University Water Spouts newsletter follow. The need for some of these services will vary, depending on your irrigation system.

Drain water from pipes, valves, tanks, centrifugal pumps, and similar equipment to prevent damage from freezing. Underground pipelines should be pumped, drained, or blown out. Check center pivot span drain valves and drain the sand trap and end gun booster pump. Unusual amounts of sand, scale, or other debris collected in the sand trap may indicate a problem with the well.

Check all gearboxes on center pivots and linear moves for moisture accumulation and drain if necessary. The grease or oil should be at the proper level to reduce moisture condensation. Tires should be inflated to the proper pressure.

Park center pivot systems pointing in either a northwest or southeast direction to reduce the potential from wind damage, especially during freezing drizzle. Parking part circle systems next to a windbreak will reduce the potential from wind damage but may increase drifting snow around the gearboxes and drive motors.

Flush chemical injector pumps and the associated equipment with water, then drain them and store them in a clean dry place. All chemigation and fertigation equipment should be safety inspected.

Pipes should be stored on racks to permit drainage. If possible, gaskets should be removed and stored in clean water in a place that will not freeze or in a weak antifreeze solution. This prevents them from cracking and drying out. Do not store gaskets on a nail, hook, or wire.

Now is the best time to chlorinate any wells with iron bacteria problems. The bacteria will proliferate in a well that is not being used. Chlorine will kill the bacteria so that they will not plug the well screen.

For oil-lubricated turbine pumps, open the oiler and let oil drip into the line shaft bearings. Rotate the shaft to distribute the oil, allowing the cold oil to adhere to the cold bearings to provide winter protection. On belt-driven pumps, remove the belts and store them in a dry place or reduce the tension on belts that cannot be removed easily.

Check and service the flow meter and pressure gauge.

Internal combustion engines should be serviced and winterized for storage. Change the oil and filter, flush and refill the cooling system with the proper antifreeze solution, seal all openings with weatherproof tape (air inlet, exhaust, crankcase breather, etc.), loosen belts, and remove the battery. Add a fuel stabilizer to gasoline engines or drain the entire fuel system. Do not drain diesel engines but replace the fuel filter and leave all lines full of fuel. The vaporizer-regulator on natural gas or propane engines should be drained of both fuel and water. About two ounces of oil could be poured into the spark plug holes to coat and protect cylinder walls on spark ignition engines.

Check all openings on electric motors and control boxes to make sure that they are properly screened to keep rodents out. Often rodents chew on wires when looking for food or bedding during the winter. Inspect wires and cables for damage to schedule repairs before next season. Control boxes should be latched shut to keep moisture and rodents out and switches locked in the “OFF” position.

All irrigation equipment should be protected from livestock if grazing will take place. Cattle rubbing on equipment can loosen or break wires, lines, control boxes, or other items. Fuel and oil spills should be cleaned up immediately to protect the environment and reduce risk to the livestock.

A small amount of maintenance and repairs now will help ensure your irrigation system is ready for next season. This year’s problems and repair needs are fresh in mind and should be addressed now.

Paul Jasa
Extension Engineer
1999 Crop Watch Reader Survey

Dear Subscriber,

We value your opinion and want to know what you think about Crop Watch. Is it meeting your needs? How can we improve it? Please take a moment and fill out this survey. Then fold, staple or tape it, and return it to us, postage free. Thank you.

1. What is your occupation? ____________________________ (Please categorize below.)
   Farmer____
   Consultant____
   Fert./Imp Dealer____
   Sales/Applicators____
   University Extension/Research____
   Farm manager/investor____
   Other (specify) ____________________________

2. If you are a producer, how many acres do you farm and what crops do you produce?

3. What is most valuable about Crop Watch? ____________________________

4. Are there subject matter areas you would add or delete? If so, what?
   Add: ____________________________ Delete: ____________________________

5. Special topics this year included: 1) _____ marketing the crop; 2) _____ genetically altered crops; and 3) _____ grain storage. With “1” being most helpful and “5” being least helpful, please rate these topics.
   What “special” topics would you suggest for next year? ____________________________

6. Have you changed any pest management or crop production practices as a result of information in Crop Watch?
   Yes_____ No_____ If so, in what areas? (Please check all that apply.)
   Pesticide selection _____ Pesticide timing _____ Weed scouting _____ Insect scouting _____
   Disease scouting _____ Soil sampling for fertility _____ Reduced pesticide rates _____
   Crop rotation _____ Reduced herbicide rates _____ Split application of fertilizer _____
   Reduced tillage _____ Nonchemical controls _____ Other (Please describe) ____________________________

7. Can you assign a dollar value per acre of any savings that might have occurred because of these changes?
   $ __________/acre per __________ (how many?) acres. For what changes?

8. Do you anticipate making any changes in management/production practices in the future as a result of information in Crop Watch?
   Yes_____ No_____ If so, on how many acres ____________and in what areas?

9. Will the change potentially reduce pesticide, fertilizer or irrigation requirements? ____________________________

10. What kinds of information do you need to change or adopt practices, as may be described in the newsletter?

11. Are you getting the information you need on a timely basis? _____ If not, please give specific examples.

12. Do you plan to subscribe to Crop Watch next year? _____ Yes _____ No _____ Printed _____ Web

1999 — OVER —
13. With "1" being most important and "11" being least important, please rank the following subject matter areas in the order of their importance for you.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Agronomic information</th>
<th>Insect control</th>
<th>Disease control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pesticide updates</td>
<td>Meeting/training notices</td>
<td>Weed control</td>
</tr>
<tr>
<td></td>
<td>Fertility</td>
<td>Variety trials</td>
<td>Weather data</td>
</tr>
<tr>
<td></td>
<td>Tillage issues</td>
<td>Field reports</td>
<td></td>
</tr>
</tbody>
</table>

14. Do you have or use any of these "new" technologies?

- [ ] Yield monitor without GPS
- [x] Yield monitor with GPS
- [ ] Spray rate controller without GPS
- [x] Variable rate controller with GPS
- [ ] Fertilizer rate controller without GPS
- [x] Variable rate fertilizer with GPS
- [ ] Disease control
- [ ] Weed control
- [ ] Weather data
- [ ] Field reports

15. Do you have a computer with access to the World Wide Web? [ ] Yes [ ] No
   If yes, would you be apt to use an expanded version of Crop Watch on the Web? [ ] Yes [ ] No

16. Please add any other comments to help us better meet your information needs.

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Be sure to check out ruralroutes.unl.edu on the Web for marketing, financial, production and family information.