CropWatch No. 96-17, July 26, 1996

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Brown Jasa, Lisa, "CropWatch No. 96-17, July 26, 1996" (1996). Crop Watch. 120.
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Check wheat seed for black point, scab

Black point and scab are two important seedborne diseases that affect the quality of seed wheat. To a limited extent both have been reported in seed from the 1996 crop. *Alternaria alternata* and *Bipolaris sorokiniana* (*Helminthosporium sativium*) are the primary pathogens of black point. In addition to lowering milling quality, black pointed kernels may have lower germination when used as seed wheat. Diseased kernels are discolored dark brown to black, usually around the embryo end. Invasion of the embryo reduces germination. Severe infection discolors and shrivels the whole seed. Seeds with black point can be differentiated from seeds infected with scab or common bunt. They do not appear chalky with a pink coloration as do scabby kernels, nor are they covered with black spores or emit a foul odor as typical of common bunt.

Black pointed seed should not be used as seed wheat this fall. If it is used it should be cleaned and treated with a fungicide.

Wheat scab is caused by several species of *Fusarium* fungi. Infection of the young, developing grain results in shrunken kernels that have a dull, chalky, tombstone-like appearance. A tuft of whitish pink mycelial growth may be seen on the seed. Scab infested grain should not be saved for seed wheat. Any seed from scab areas should be cleaned, germination tested and treated with a fungicide before planting.

Other diseases often associated with poor quality wheat seed are common bunt and loose smut. Seeds infested with loose smut show no visible signs of infection. They are normal in shape and color because the causal fungus is inside the seed rather than on the surface of the seed coat. This makes it difficult to detect in a seed lot. Loose smut is easily detected in the field by the presence of the smutted heads. Common bunt, on the other hand, is difficult to detect in the field but is easily detected in seed lots because of its black powdery appearance and objectionable odor. These smut diseases can be effectively controlled by planting smut-free seed or by seed treatment.

**John E. Watkins**
Extension Plant Pathologist

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**Are late nitrogen applications beneficial?**

Under slight nitrogen deficiency, an economic return should be expected as long as the nitrogen is applied by early silk and definitely before the silks turn brown. Research shows yield can decrease in fields with little nitrogen deficiency when nitrogen is applied after the silks have turned brown.

On fields with severe nitrogen deficiency, the yield increase will be greater if nitrogen can be applied before the silks turn brown. However, under severe nitrogen deficiency, applying nitrogen after the silks turn brown may not provide a yield increase, but should prevent the yield from continuing to decrease.

When there is apparently no nitrogen deficiency, i.e. corn dark green and no deficiency showing in the lower leaves, a late nitrogen application will probably not provide an economic return.

**Ken D. Frank**
Extension Agronomist
**Insect news**

Grasshopper numbers are higher than normal in northeast Nebraska and producers are urged to check their fields and plan appropriate treatments, reports Keith Jarvi, Extension Technologist in Entomology for the Northeast District. Egg hatch was later than usual this year so grasshoppers are still fairly small.

The corn rootworm insecticide suggestions listed on the UNL Entomology Homepage on the World Wide Web have been updated, reports Bob Wright, Extension Entomologist in the South Central District. The information is under the heading “Insecticide Treatment Tables for Field Crop Pests” and the URL is http://ianrwww.unl.edu/ianr/entomol/entdept.htm.

**Lower temps expected**

The long lead outlook for August calls for a tendency toward below normal temperatures over extreme southeast and south central Nebraska, according to Al Dtucher, State Climatologist for the Department of Agricultural Meteorology. The area of below normal temperatures expands to cover th eastern two-thirds of Nebraska during the August to October outlook. Areas outside of this region have an equal chance of below normal to above normal temperatures.

There are no trends for precipitation indicated for the August or August-October period across the entire state.

**Crop update**

The Nebraska Agricultural Statistics Service reported this week that irrigated corn rated 81% good to excellent and dryland corn rated 60% good to excellent.

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**Evapotranspiration and precipitation data**

Actual and average evapotranspiration and precipitation for the period from July 16-23.

<table>
<thead>
<tr>
<th></th>
<th>Accum. ET</th>
<th>Avg ET</th>
<th>Diff</th>
<th>Precip 7/16-7/23</th>
<th>Avg 7/16-7/23</th>
<th>Diff</th>
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<tr>
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<td>2.45</td>
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<td>-0.51</td>
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<tr>
<td>Holdrege</td>
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<td>Mead</td>
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<td>0.55</td>
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**CropWatch**

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*CropWatch* is published from March to December by the University of Nebraska Institute of Agriculture and Natural Resources Communications and Information Technology, Box 830918, 108 Agricultural Communications Bldg., UNL., Lincoln, NE 68583-0918. To order a subscription or to change your address, write to the above address or call (402) 472-7981.

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Lisa Brown Jasa, Editor

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AgrAbility offers opportunities, aid

Farming and ranching are more than occupations; they're a way of life.

For the 2,400 Nebraska ag producers who are physically disabled by accidents on or off the farm, health problems or the effects of aging each year, there are few things harder than having to give up the lifestyle they love because of difficulty performing everyday working tasks.

But thanks to a multi-agency project involving UNL Cooperative Extension, these individuals have valuable support and a chance to continue the work they love.

The Nebraska AgrAbility Project, organized in 1995 as part of a national USDA program, provides personal assistance, support and education for people who have been affected by a disability within a farm and ranch environment.

The Nebraska AgrAbility Project is a joint effort of UNL Cooperative Extension, the Nebraska Easter Seal Society, the Nebraska Assistive Technology Project and the Nebraska Department of Health.

"Representatives from the four founding agencies saw a serious need in Nebraska for a farm-based disability resource program," said Becki Koehler, director of the Nebraska AgrAbility Project. Nebraska AgrAbility coordinators received grant funding from the U.S. Department of Agriculture in April 1995 and began taking referrals in June 1995. Nebraska is one of 17 AgrAbility programs in 19 states.

"The basic premise is to help people in these situations find solutions, which could include anything from mechanical modifications to equipment and the farmstead to personal support and education," Koehler said.

Finding modification options for commercially made farm equipment is usually a challenge, Koehler said, because most modifications are made by a handful of specialized companies.

"You can buy commercially made optional hand controls for a car, but not for a tractor," Koehler said. "To my knowledge, there are only two companies in the world — one in Canada and one in Indiana — that make accessibility lifts for large farm implements. It's a very specialized market and you need to know where to look."

Nebraska AgrAbility is currently working with a farmer who had a lower extremity amputation, Koehler said. Because he is unable to operate standard shifting and braking foot controls on all-terrain vehicles, AgrAbility is helping him find modifications to make a four-wheel drive all-terrain vehicle entirely hand-controlled.

Another producer who recently suffered a spinal cord injury was told by state professionals that his only option for driving was a van with an accessibility lift. Koehler said the farmer was thrilled to learn that AgrAbility could help him find similar modification options for a pickup truck.

Some solutions may be as simple as teaching people a different way to accomplish daily tasks, she said. AgrAbility deals with disabilities such as physical injury caused by accidents and illnesses such as arthritis, heart disease and vision loss, she said. Koehler said they also work closely with the families of individuals with disabilities, providing valuable information and support.

Koehler said requests came slowly at first, but contacts are coming "fast and furious" now that the project has gained some exposure. It has served 38 consumers and their families directly and has responded to "a multitude" of requests for information and advice from professionals and other interested community members, Koehler said.

Upon receiving a referral, Koehler and her staff try to learn as much as possible about the individual and arrange an on-site visit to talk to them and survey their work environment. By doing this, AgrAbility staff members can develop a better idea of what the individual needs and develop a plan from that information.

The major benefit of being part of the national AgrAbility program, Koehler said, is that Nebraska representatives can contact national staff members for advice on how to handle unfamiliar disability situations.

One of the most encouraging developments in the growth of the project is a change in the type of referrals and information requests that the office receives, Koehler said.

"When we first started out, it was mostly individuals or their immediate family members calling us for information," Koehler said. "Now, however, we're getting calls from health service providers, physical and occupational therapists and vocational rehabilitation centers across the state regarding patients for information about the kinds of situations that we specialize in."

Because resources for people with disabilities are often scarce in rural areas, Koehler said cooperation between the few agencies and organizations that can provide support is crucial.

In addition to providing physical support for program participants, the AgrAbility project also aims to help its participants emotionally, Koehler added. A peer advisor program has been established to allow farmers with

(Continued on page 124)
Field research addresses effects of climate, tillage, rotations on dryland corn

Crop rotations have been a part of Nebraska agriculture for decades. Currently continuous corn and corn-soybean rotations predominate the landscape.

Tillage systems have evolved from the moldboard plow to disking to no-till and ridge till. On-farm, these systems vary from year to year to accommodate changing farm programs, weather, and management inputs.

Since the mid 1970s experimental plots have been maintained east of Lincoln to determine the long-term effect of continuous rotation and continuous tillage on dryland corn production. Cropping inputs were identical each year.

From 1986 through 1995, tillage plots were split and planted to continuous corn or to corn in rotation with soybeans. Variation in yield can be assigned to year-to-year climatic differences (primarily precipitation), rotation, and tillage.

Climate is the first source of yield variability considered, and that found to have the most impact. During the 10-year period, average production for the lowest and highest yielding years differed by 136 bu/ac for continuous corn and 101 bu/ac for corn after soybeans. Lowest yields were obtained in 1991 and 1995 when precipitation was much below normal. Highest yields were in 1992 when precipitation was adequate and timely.

Crop rotation is the second source of variability considered. Average production for continuous corn was 24 bu/ac less than for corn rotated with soybeans during the 10-year study. During high yielding years, this difference was only 6 bu/ac, but during dry years the difference was 41 bu/ac.

Tillage was the third variable affecting yield, and was shown to have the least effect. When averaged across crop rotations for the 10 years of the study, subsoil = 106 bu/ac, chisel = 105 bu/ac, disk = 104 bu/ac, no till = 101 bu/ac, and ridge till = 110 bu/ac. With continuous corn, the maximum yield difference was between no till (87 bu/ac) and ridge till (99 bu/ac); with corn after soybeans the maximum yield difference was between chisel and no till (115 bu/ac) and ridge till (121 bu/ac). Among low yields tillage systems varied by 22 bu/ac with continuous corn and by 9 bu/ac for corn after soybeans.

Among high yields tillage systems varied by 14 bu/ac for continuous corn and by 10 bu/ac for corn after soybeans.

Table 1. Difference between highest average and lowest average yielding years.

<table>
<thead>
<tr>
<th>Source</th>
<th>High</th>
<th>Low</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
<td>118</td>
<td>72</td>
<td>94</td>
</tr>
<tr>
<td>Rotation</td>
<td>24</td>
<td>75</td>
<td>94</td>
</tr>
<tr>
<td>Tillage system</td>
<td>9</td>
<td>87</td>
<td>94</td>
</tr>
</tbody>
</table>

The trend for the amount of variability associated with corn production is shown in Table 1. Climate can not be controlled but poses the greatest influence on production. Under good weather conditions, continuous corn and corn rotated with soybeans yield similarly while under dry conditions, corn rotated with soybeans outperforms continuous corn. However, in general, corn rotated with soybeans can be expected to yield more than continuous corn in the long run. The least amount of variability in production is due to tillage system.

Other factors such as erosion control, economics, and time management also should be considered when selecting a tillage system and crop rotation.

Alice J. Jones
Extension Soil and Water Conservation Specialist

AgrAbility (Continued from page 123)

disabilities to talk and learn from each other.

Koehler said the most gratifying part of being involved with the project is being able to open people’s eyes to options.

“We see a number of newly injured people who say ‘I can’t go on working,’ and it really is fun to be able to show them what can be done,” Koehler said.

For more information, call the Nebraska AgrAbility Project office toll-free at 800-471-6425, or contact UNL Extension engineer Bobby Grisso at (402) 472-6714.

Jason Grotelueschen
Editorial Assistant, CropWatch