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Northern Plains Potato Growers Association Field Day – Aug. 24

The Northern Plains Potato Growers Association field day will start at 7 a.m. on Thursday, Aug. 24, at Hoverson Farms near Larimore with breakfast, followed by research presentations.

The farm is on the south side of the intersection of U.S. Highway 2 and North Dakota Highway 18 (about 25 miles west of Grand Forks).

The tour then will proceed to the Forest River Colony near Inkster, N.D., where lunch will be served at noon. A field tour of the irrigated research trials will follow lunch. The tour will conclude with an evening barbeque near Hoople.

Potato production topics to be covered will be breeding, plant pathology, agronomy, weed science, nutrition and entomology.

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Oakes Irrigation Research Site Field Day

A field day will be held at the NDSU Oakes Irrigation Research Site – Robert Titus Research Farm on Thursday, Sept. 7. Refreshments will be available at 8:30 a.m. The tour will run from 9 a.m. to noon, with lunch following.

The site’s research into white mold, area Dicamba issues, potatoes and drones are this year’s main topics.

White mold has been a continuing issue in many of the major crops grown in North Dakota, most notably soybeans and sunflowers, but also in dry beans, and, to some extent, in potatoes. Michael Wunsch, plant pathologist at the Carrington Research Extension Center, has been doing extensive research in ways to more effectively control the disease in soybeans, dry beans and sunflowers.

Much of his work has been done at the Oakes research site. He will discuss his studies, providing producers, consultants and the agriculture industry with insights into how to manage white mold and prevent it from robbing yields and profits.

Dicamba drift is a hot topic this year, the first year of its use on Dicamba-tolerant soybeans. Greg Endres, area Extension cropping systems specialist at the Carrington REC, will discuss the latest information on this important topic.

This year, the research site has a large number of potato trials, including variety trials from the
NDSU potato breeding program headed by Asunta (Suzie) Thompson. Team Potato representatives will talk about their work at the Oakes site and around the state. Paulo Flores, Extension precision agriculture specialist, will talk about the latest technology on aerial drone use and do a demonstration, weather permitting.

The approximately 40-acre Oakes Irrigation Research Site, which is 4.5 miles south of Oakes on North Dakota Highway 1, is a substation of the NDSU Carrington Research Extension Center.

Topics that will be covered and the presenters are:

9 a.m.  Welcome and how the Oakes Irrigation Research Site complements the NDSU Research Extension Center system  
        Blaine Schatz, director, Carrington REC

9:15 a.m.  Overview of the Oakes site’s projects, variable-rate irrigation and equipment updates  
        Kelly Cooper, research scientist at the Oakes site

9:45 a.m.  White mold studies  
        Wunsch

10:15 a.m.  Discussion of potato trials at Oakes  
        Team Potato

11 a.m.  Corn yields related to water stress and Dicamba issues on beans  
        Endres

11:30 a.m.  Drone technology update and demonstration  
        Flores

Tour participants also will have the opportunity to review the site’s irrigated corn hybrid and soybean performance tests.

For more information, contact the Carrington Research Extension Center at 701-652-2951 or visit its website at www.ag.ndsu.edu/CarringtonREC.

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Estimating the Yield of Irrigated Crops

This may be a dry year for most of the state, and some parts are experiencing severe drought, but for irrigators, the weather has been almost ideal for producing good yields. With relatively low crop prices, estimating potential yields can be very helpful.

Corn Yield

Several techniques are available for estimating corn grain yield prior to harvest. This version was developed by the Agricultural Engineering Department at the University of Illinois and is the one most commonly used.

A numerical constant for kernel weight is figured into the equation to calculate grain yield. Because weight per kernel will vary, depending on hybrid and environment, the yield equation should be used only to estimate relative grain yield. For example, yield will be overestimated in a year with poor grain fill conditions, while it will be underestimated in a year with good grain fill conditions.

Step 1.  Count the number of harvestable ears per 1/1,000th acre (Table 1) from several representative locations in the field.
        Don’t pick the best or worst areas.
        Pick every fifth ear in the sample row.

Step 2.  Count the number of kernel rows per ear.
        Calculate the average of all the ears.

Table 1. Length of row that represents 1/1000th acre.

An accurate estimate of plant population per acre can be obtained by counting the number of plants in a length of row equal to 1/1000 of an acre. Make at least three counts in separate sections of the field; calculate the average of these samples, then multiply this number by one thousand (1,000).

<table>
<thead>
<tr>
<th>Row width (inches)</th>
<th>Length of single row to equal 1/1000th of an acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>87 feet, 1 inch</td>
</tr>
<tr>
<td>7</td>
<td>67 feet, 8 inches</td>
</tr>
<tr>
<td>8</td>
<td>65 feet, 4 inches</td>
</tr>
<tr>
<td>10</td>
<td>52 feet, 3 inches</td>
</tr>
<tr>
<td>15</td>
<td>34 feet, 10 inches</td>
</tr>
<tr>
<td>20</td>
<td>26 feet, 2 inches</td>
</tr>
<tr>
<td>22</td>
<td>23 feet, 9 inches</td>
</tr>
<tr>
<td>24</td>
<td>21 feet, 9 inches</td>
</tr>
<tr>
<td>28</td>
<td>18 feet, 8 inches</td>
</tr>
<tr>
<td>30</td>
<td>17 feet, 5 inches</td>
</tr>
<tr>
<td>32</td>
<td>16 feet, 4 inches</td>
</tr>
<tr>
<td>36</td>
<td>14 feet, 6 inches</td>
</tr>
</tbody>
</table>
Step 3. Count the number of kernels per row on each of the same ears, but do not count kernels on the butt or tip that are less than half size. Calculate the average.

Estimated Yield = \frac{\text{Results from Step 1 x Step 2 x Step 3 (above)}}{90}

Soybean Yield
The most accurate estimates of soybean yield are taken within three weeks of maturity. Assume 2.5 beans per pod.

Step 1. Use Table 1 for the number of feet of row needed to make 1/1,000 of an acre.

Step 2. Count the number of plants in 10 different randomly selected sample areas. Calculate the average.

\text{Avg.} = \text{plants per 1/1,000 of an acre}

Step 3. Count the number of pods per plant on 10 randomly selected plants from each sample area. Calculate the average.

\text{Avg.} = \text{number of pods per plant}

Step 4. Calculate the number of pods per acre by multiplying the plant population by the number of pods per plant.

\text{Results from Step 2 x Step 3 x 1,000 = number of pods per acre}

Step 5. Calculate the number of seeds per acre by multiplying pods per acre by 2.5 seeds per pod.

\text{Result from Step 4 x 2.5 = seeds per acre}

Step 6. Calculate the number of pounds per acre by dividing seeds per acre by an estimate of 2,500 seeds per pound.

\text{Result from Step 5 ÷ 2,500 = pounds per acre}

Step 7. Estimate yield by dividing pounds per acre by 60 pounds per bushel.

\text{Result from Step 6 ÷ 60 = estimated yield in bushels per acre}

Example: Soybeans are planted on 15-inch rows (34.9 feet equals 1/1,000 of an acre from Table 1). The average number of plants per 34.9 feet is 122, with an average of 21 pods per plant. The estimated yield is: \((122 \times 21 \times 1,000 \times 2.5) / (2,500 \times 60) = 42.7 \text{ bushels per acre.}

Dry Edible Bean Yields
You can estimate dry bean yields by knowing the number of seeds per pod, pods per plant and plants per 1/1,000th of an acre. At the time of counting seeds and pods, the maturity status of each should be determined. If a seed or pod will not mature, it shouldn’t be counted. Then count the total plants per 1/1,000th acre to complete the data collection.

Yield estimation
Within a representative and uniform plant stand, randomly select five plants each from at least five locations in the field.

Keeping all plant data separate, pull and count the pods from each plant and then count the seeds to determine average seeds per pod for all five replications. These data are combined with the average number of plants per 1/1,000th acre.

### Average number of seeds per pound

<table>
<thead>
<tr>
<th>Variety</th>
<th>Seeds per Pound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidneys</td>
<td>900-1,000</td>
</tr>
<tr>
<td>Pintos</td>
<td>1,400</td>
</tr>
<tr>
<td>Great Northern</td>
<td>1,600-1,800</td>
</tr>
<tr>
<td>Pinks/Small Reds</td>
<td>1,600-2,000</td>
</tr>
<tr>
<td>Navies/Blacks</td>
<td>3,000</td>
</tr>
</tbody>
</table>

Seeds per pound can vary 10 to 20 percent for different varieties within a bean class. If available, use reported estimates for seed number per pound for your variety.

The accuracy of yield estimate can be improved by counting seeds and pods from at least 10 plants per replication.

Calculations

**Step 1.** Average seeds per plant = (average seeds per pod) x (average pods per plant)

**Step 2.** Yield in pounds per acre = (Average seeds per plant) x (plants per 1/1,000th of an acre) x (1,000) divided by seeds per pound for the variety planted

Reprinted and edited from a previous Water Spouts article by Duane R. Berglund, NDSU Extension Agronomist (retired).
North Dakota Water Education Foundation – Summer Water Tours

Clean water is important for the development of North Dakota, and the best way to learn about water projects is to see them in person via a tour.

These tours provide a firsthand look at North Dakota’s critical water issues. Registration is $20 per person and includes tour transportation, meals, refreshments, informational materials and a one-year subscription to North Dakota Water magazine.

Tours offered are:
• Missouri River Expedition – Aug. 16
• Western Area Water Supply Tour – Aug. 30

For more information about each tour and to register, go to www.ndwater.com/programs and click on “Summer Water Tours” on the left-hand menu or send a check to NDWEF, PO Box 2254, Bismarck, ND 58502. Please indicate which tour or tours you want to attend and include the number of people. For more information, give us a call or send an email.

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