IN THE FIELD

Landlord/Tenant Cash Lease Workshop
December 6, 2012
11:00 a.m. - 3:00 p.m.
Community Center
Bloomfield, Nebraska
No Cost - Meal Provided

Nebraska Hay & Forage Hotline
1-800-422-6692

Consideration of Dryland Corn Seeding Rate After a Season of Severe Drought

Nebraska, like many parts of the western Corn Belt, is experiencing one of the most severe droughts in decades. Soil moisture storage throughout the rooting depth was largely depleted by the end of the growing season, particularly in dryland fields. Soil water recharge during the coming winter and spring will be critical to setting plant population for next year's corn in dryland systems. This is because yield response to plant population in dryland fields could be muted if soil water storage is low at the start of the growing season and rainfall during the growing season cannot meet crop water demand.

Using the Hybrid-Maize model, we simulated dryland corn yield responses to different plant populations at two locations: North Platte (representing west central Nebraska) and Mead (representing southeast Nebraska). Each simulation scenario was a combination of two factors:

- plant population of 20,000, 25,000 or 30,000 per acre, and
- soil moisture, of silt loam soil, at planting of 100% (about 3.1 inches water/foot), 75% (about 2.6 inches water/foot), or 50% (about 2.2 inches water/foot) of field capacity (F.C.) throughout a 5-foot rooting depth.

For both locations, simulations were run over 31 years (1982 to 2012) of weather data, using May 1 as the sowing date. A hybrid maturity of 2500 GDD (CRM of about 103 days) was used for North Platte while a maturity of 2700 GDD (CRM of about 113 days) was used for Mead. Simulation results presented below are means of 31 years of simulations at each site.

In North Platte (Figure 1, upper graph), dryland corn yield does not respond to increasing population from 20k to 30k per acre if soil moisture in the 5-foot rooting zone is poor (i.e., 50% F.C., or 2.2 inches/foot) at time of planting and the growing season has average rainfall (i.e., 10.4 inches). This is because low water availability throughout the growing season limits yield response to greater plant numbers. If soil water is 75% F.C. (i.e., 2.6 inches/foot) or higher by the time of planting, there is a moderate response in dryland yields to increased plant population for a season with average rainfall.

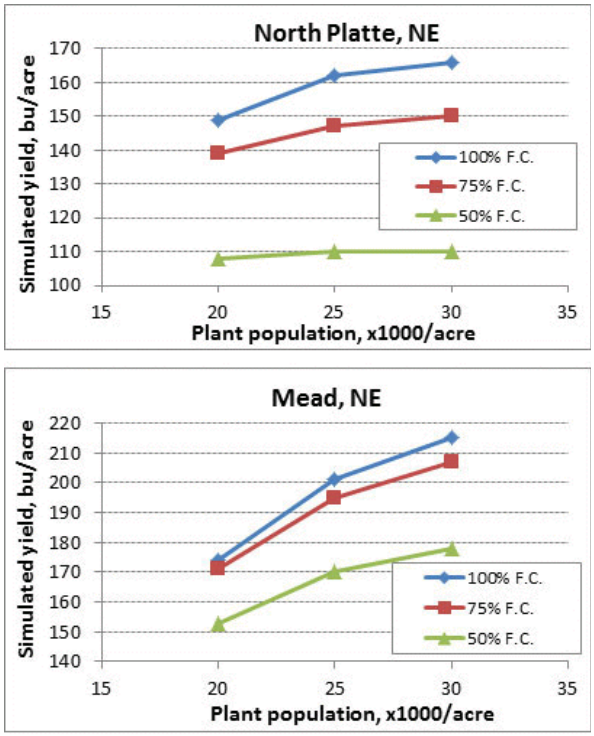

Figure 1. Hybrid-Maize model simulations of dryland corn yield response to three plant populations (20, 25 and 30 thousand per acre) at North Platte (upper) and Mead (lower), Nebraska in a silt loam soil with three soil moisture contents at planting (100%, 75% and 50% of field capacity, or equivalent to absolute water content of 3.1, 2.6 and 2.2 inches per foot). Each data point represents a mean of 31 years using actual weather data from 1982-2012.

At Mead in southeast Nebraska, response of dryland corn yield to plant population (Figure 1, lower graph) is strongly positive even when soil moisture at planting is as low as 50% F.C. (i.e., 2.2 inches/foot) for a year with average rainfall during the growing season (i.e., 14.8 inches). And the response is even steeper if soil moisture at planting further improves. In this area, typical growing season rainfall can significantly compensate for low soil water storage at start of the growing season, and as a result, the impact of a drought year to the next season is less than in lower-rainfall areas, such as west central Nebraska.

Summary: Dryland corn growers in areas with conditions similar to west central Nebraska should consider taking into account the amount of stored soil moisture at planting when determining seeding rates. This may well be the situation in 2013 if the current low soil water storage exists at planting time. The amount of precipitation during the coming winter and spring will be important for recharging soil moisture and thus in making decisions about 2013 seeding rates in dryland fields of west central Nebraska.

For Mead, our simulations suggest that dryland corn yields are not very sensitive to soil moisture status at planting. Note that these conclusions are based on crop model simulations and thus must be used to guide management decisions, along with past experience and any differences in soil properties compared to those specified in this study. Real-time soil moisture at various locations across the state can be checked at http://www.hprcc.unl.edu/awdn/soilm/.

Source: Cropwatch (October 12, 2012)

Nebraska's Corn Crop at 1.3 Billion bu, Down 15% from Last Year

Based on October 1 conditions, Nebraska's corn crop is forecast at 1.30 billion bushels, down 2% from last month and down 15% from last year, according to USDA's National Agricultural Statistics Service, Nebraska Field Office. Yield is forecast at 142 bushels per acre, down 3 bushels from last month and 18 bushels below last year. Harvested acreage was increased by 50,000 acres to 9.15 million, but is still 5% below a year ago.

Nationally, corn production is forecast at 10.7 billion bushels, down slightly from the September forecast and down 13% from 2011. This represents the lowest production in the United States since 2006. Based on conditions as of October 1, yields are expected to average 122.0 bushels per acre, down 0.8 bushel from the September forecast and 25.2 bushels below the 2011 average. If realized, this will be the lowest average yield since 1995. Area harvested for grain is forecast at 87.7 million acres, up less than 1% from the September forecast and up 4% from 2011.

Soybean production is forecast at 203 million bushels, up 1% from September but down 22% from last year. Yield is forecast at 41 bushels per acre, up 1 bushel from last month and the lowest since 2003. Area for harvest was decreased 50,000 acres to 4.95 million, up 2% from 2011.

Nationally, soybean production is forecast at 2.86 billion bushels, up 9% from September but down 8% from last year. Based on October 1 conditions, yields are expected to average 37.8 bushels per acre, up 2.5 bushels from last month but down 4.1 bushels from last year. Compared with last month, yield forecasts are higher or unchanged across all states. Area for harvest in the United States is forecast at 75.7 million acres, up 1% from September and up 3% from last year.

Sunflower production is down 58% due to reduced acreage and yield from a year ago making this the lowest total since 2002.

Alfalfa hay production is forecast to be 30% lower and all other hay production is expected to be down 29% from a year ago.

Acreage updates to planted and harvested acres from levels published in the September Crop Production Report were made based on a review of administrative data.

Source: In Part from Cropwatch (October 11, 2012)