Corn Planting Date and Relative Maturity

After the unseasonably cool and wet summer and fall of 2009, farmers were contemplating the idea of moving to a shorter season hybrid for faster drydown. Drydown in corn is affected by many factors including weather patterns, management practices, and hybrid characteristics. There are pros and cons associated with planting shorter season hybrids to aid in drydown. Some of the benefits of harvesting corn that is at or below 15% moisture include less machinery wear, less head damage and less kernel shrinkage due to artificial drying. Being able to harvest corn that is dry in the field earlier can lead to not having to wait later in the fall to harvest the crop, when weather can be challenging. It can also lead to less risk of mycotoxin development, ear drop due to insect damage, wildlife damage, and lower drying costs. A main risk of planting shorter season hybrids is lower yield potential. A demonstration was developed to help weigh some of these pros and cons.

Study Guidelines

Testing was conducted at the Monsanto Water Utilization Learning Center at Gothenburg, Nebraska to evaluate the drydown and yield of corn hybrids with varying relative maturities and different planting dates. Plots were planted on April 13, April 24, May 15, June 3 and June 18. Five hybrids with different relative maturities (RM) (83, 95, 105, 111 and 114 day) were planted at 34,000 seeds/acre. The demonstration was not replicated. Each treatment was 129 feet long by 2, 30-inch rows wide. The season could be characterized by a cool start, with wetter than normal conditions, followed by faster than normal unit accumulation.

Results and Discussions

Yield and Drying Costs for Harvest on October 29. For the first three planting dates, the 114 day hybrid was the highest yielding and with no dockage for moisture (Figures 1-3). For the June 3 planting date, the 114 day hybrid was the highest yielding although grain moisture was above 15% and thus a drying cost would have to be accounted for (Figure 4). The June 18 planting date indicated that the 105 RM hybrid not only out yielded all other hybrids, but was also below 15% moisture indicating that the shorter season hybrid would be appropriate in a late planting situation (Figure 5).

Figure 1. Grain moisture (%) as a function of day of year (left) and corn yield and profit after cost of drying (right) for 5 hybrids planted on 4/13/2010. Profit based on $5/bushel corn and $0.05/bushel drying cost and harvest moisteries if harvested on 9/27/2010.

* The 83 day corn yield was drastically lowered by raccoon damage as it was the first corn in the area to reach milk stage.
Corn Planting Date and Relative Maturity

Figure 2. Grain moisture (%) as a function of day of year (left) and corn yield and profit after cost of drying (right) for 5 hybrids planted on 4/24/2010. Profit based on $5/bushel corn and $0.05/bushel drying cost and harvest moistures if harvested on 9/27/2010.

Figure 3. Grain moisture (%) as a function of day of year (left) and corn yield and profit after cost of drying (right) for 5 hybrids planted on 5/15/2010. Profit based on $5/bushel corn and $0.05/bushel drying cost and harvest moistures if harvested on 9/27/2010.

Figure 4. Grain moisture (%) as a function of day of year (left) and corn yield and profit after cost of drying (right) for 5 hybrids planted on 6/3/2010. Profit based on $5/bushel corn and $0.05/bushel drying cost and harvest moistures if harvested on 9/27/2010.
Corn Planting Date and Relative Maturity

Figure 5. Grain moisture (%) as a function of day of year (left) and corn yield and profit after cost of drying (right) for 5 hybrids planted on 6/18/2010. Profit based on $5/bushel corn and $0.05/bushel drying cost and harvest moisture if harvested on 9/27/2010.

Development. Figure 6 illustrates the how different planting dates affected the corn maturity and development by August 16. The first 4 planting dates show the 114 day hybrid. The June 18 planting date is represented by the 111 day hybrid since the 114 day hybrid was not planted that late.

Profit Minus Drying Costs. Economics of drying costs did not prove to be a factor during the 2010 season due to the weather and the late planting date. To illustrate the effect of drydown on profitability, the profit per acre earned after subtracting drying costs, if the plots were harvested on September 27, were added to Figures 1-5. Additionally, Figure 7 shows the effect of planting date and drydown on profitability of the 111 day hybrid in this demonstration.

Conclusions

- Regardless of these results, yearly variation in temperature and precipitation can alter dry down characteristics of hybrids.
- At the Monsanto Water Utilization Learning Center at Gothenburg, Nebraska, corn planted before June 1 should be a longer season hybrid to help maximize yield potential.
- At the Monsanto Water Utilization Learning Center at Gothenburg, Nebraska, corn planted after June 1 should be a shorter season hybrid, not only for yield potential, but also for harvest moisture.

Sources:


The information discussed in this report is from a single site, non-replicated, one-year demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. Technology Development by Monsanto and Design® is a registered trademark of Monsanto Technology LLC. ©2011 Monsanto Company. 01.31.2011.EJP