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Late Corn Planting Options

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Abstract
Corn planting began a couple of weeks ago and according to the May 5 USDA-NASS Crop Progress and Condition report only 36 percent of the corn crop is planted; 15 percent behind the 5-year average. The greatest progress has been in central and west central Iowa at 56 percent and 57 percent, respectively. Since May 5 there has been limited opportunity for planting to occur. Current weather forecasts for May 8 to 14 indicate two inches of rain and 20 to 30 lower than normal GDD accumulation across Iowa, which may cause additional planting delays.

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Corn planting began a couple of weeks ago and according to the May 5 USDA-NASS Crop Progress and Condition report only 36 percent of the corn crop is planted; 15 percent behind the 5-year average. The greatest progress has been in central and west central Iowa at 56 percent and 57 percent, respectively. Since May 5 there has been limited opportunity for planting to occur. Current weather forecasts for May 8 to 14 indicate two inches of rain and 20 to 30 lower than normal GDD accumulation across Iowa, which may cause additional planting delays.

As planting is delayed it is imperative to understand the effect of planting delays and corn relative maturity on yield potential. At the state level historical USDA-NASS data indicates that if 50 percent of the corn is planted before May 15 the chances for high yield potential still exists (Figure 1). **In only five of 40 years the 50 percent corn planting point has not occurred before May 15.** In each of those five years, the statewide corn yield was below trend line.

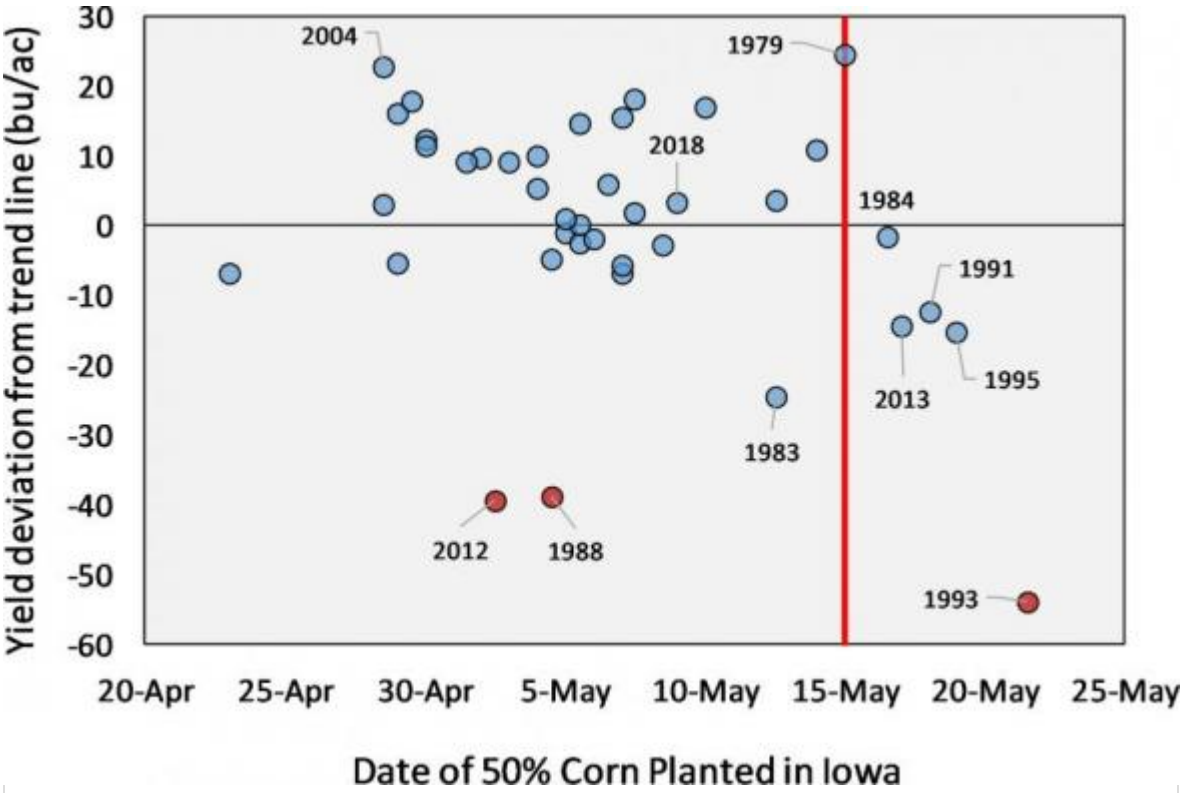

Figure. 1. Corn yield deviation from trend line for the 50% corn planting date. May 15 represents a critical point for corn planting where yield potential begins to drop. Data is derived from USDA-NASS QuickStats.

High yield potential is still possible as planting is delayed into mid-May (Figure 2). **The greatest yield potential is still realized by planting well adapted full season hybrids up until June 1.** Corn relative maturity is based on the number of accumulated GDD from planting to maturity. When corn is planted later than May 1, hybrids mature in approximately 6.8 fewer GDDs per day delay beyond May 1 (Nielsen et al., 2002). For example, a typical 105-day hybrid planted on May 1 would mature in 2600 accumulated GDDs but if it were planted on May 30 it would only require 2396 accumulated GDDs. Recent experimental data from Iowa indicate that changing hybrid relative maturity before June 1 does not offer any benefits (Baum et al., 2019). This coupled with a strong positive correlation between corn relative maturity and yield (ie. longer corn relative maturity hybrids have greater yield potential) further supports not changing hybrid relative maturities with delayed planting until after June 1.

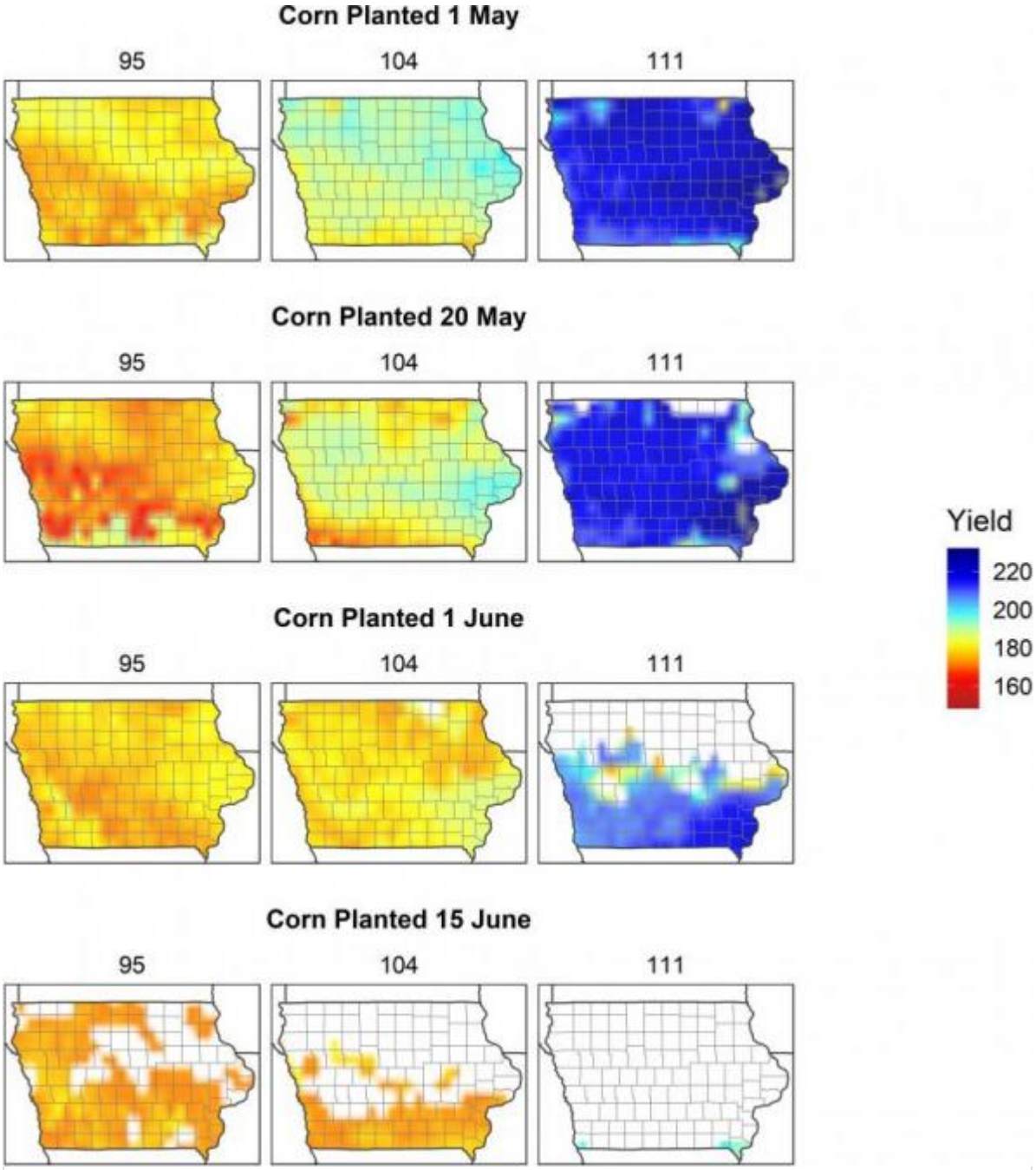

Figure. 2. Simulated corn grain yield for 95, 104 and 111 CRM for three planting dates using the APSIM model. Data are average values across 35 years. White areas represent areas where the crop failed to mature before a killing fall frost.

Delayed planting will result in later crop maturity and increased risk of fall frost damage if early fall frost occurs (Figure 3). It is possible for warmer than normal temperatures to speed corn development and reduce fall frost risk. Ideally, warmer temperature would be desired during vegetative growth and late reproductive growth to minimize effect on grain yield. Regardless, fall frost risk increases dramatically when corn is planted in June. For this reason, if the decision is made to plant corn in June, a switch to an earlier relative maturity is recommended. However, it is still important to select a hybrid based on yield potential, disease resistance and overall stress tolerance.

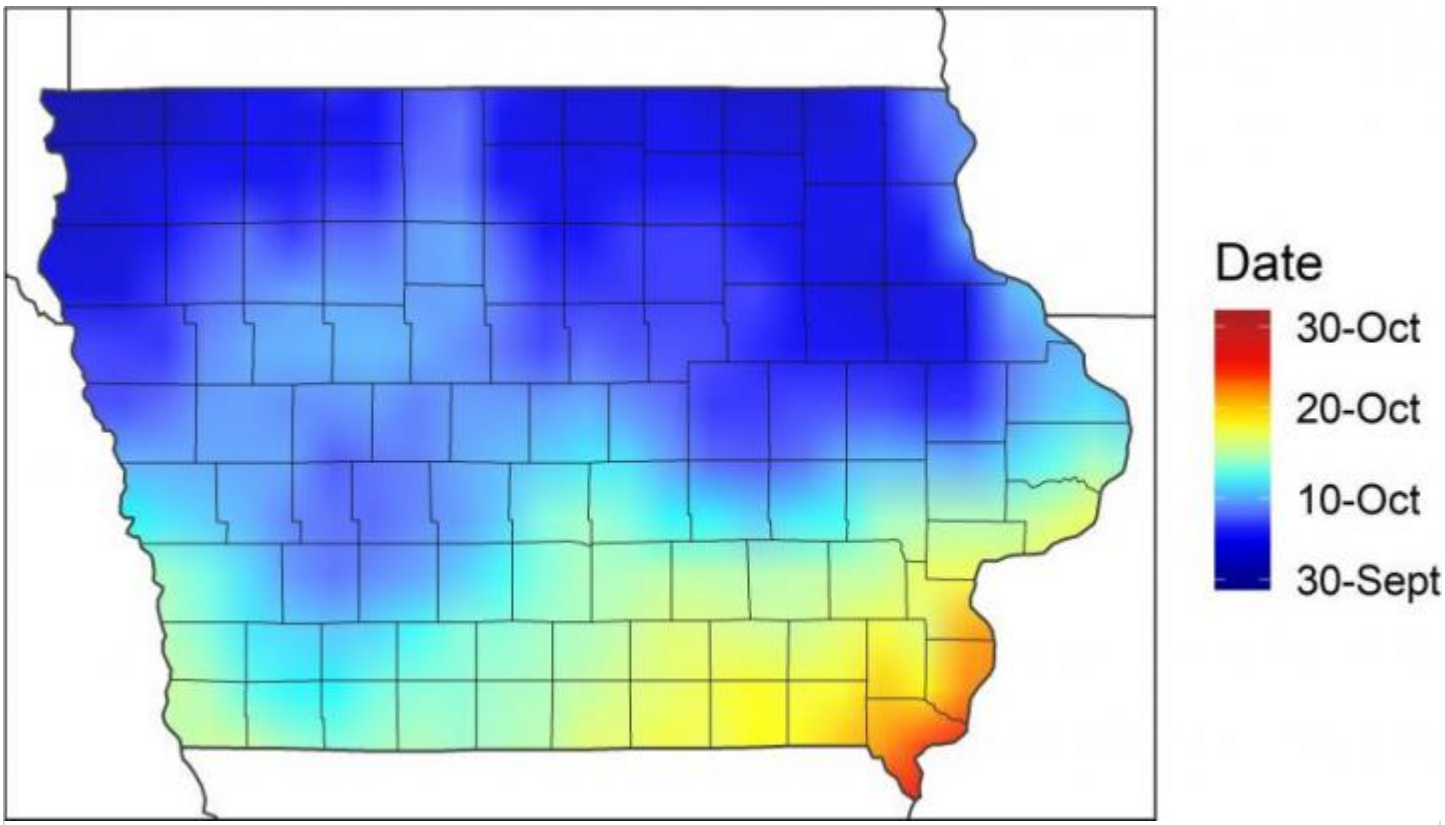

Figure 3. Average first frost date between the years of 1980 through 2015.

An additional consideration for late planted corn is the increased risk associated with delayed planting and crop maturity often relates to potential for higher grain moisture at the time of harvest. When harvest maturity is delayed there are shorter days and lower air temperatures that, in combination, reduce the rate of grain drying following crop maturity. This can be remedied by relying on artificial grain drying with added cost or through planting an earlier corn relative maturity with greater dry down ability

If planting is delayed past June 1, the decision must be made to:

1. plant corn using a lower CRM then well adapted for the area;
2. switch to planting soybean; or
3. consider Delayed and Prevented Planting crop insurance provisions.

Planting corn after June 1 will likely result in lost yield potential of 50 bu/ac or more. Switching to soybean has its considerations too. If nitrogen and herbicide applications have been made these are factors that have the potential to negatively affect soybean germination, emergence and nodulation. Many herbicides do not allow planting soybean the year of application. For delayed and preventative planting the late coverage decreases each day from June 1 to June 25. In prevented planting situation, crop insurance language states the “cause of loss must be insurable and common to the area.”

Bottom line, if planting is delayed past June 1; make a realistic determination of remaining corn yield potential, possible soybean yield potential, and feasibility of delayed and preventative planting. Talk with crop advisors, Extension field agronomists and insurance providers to gather information to make the best decision given the situation.

Category: Crop Production

Crop:

Corn

Tags: late planting expected yields hybrid maturity maturity selection

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