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Be Aware of 2019 Corn Challenges When Planning for 2020

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After corn harvest, every farmer is wise to evaluate the experiences of 2019 and use them to build upon their strategies for the next season. Farmers may be quick to blame nitrogen or planting date or hybrid maturity for their problems in 2019. They may be disappointed with foliar fungicide performance in 2019. However, the weather of 2019 had a massive impact on what we observed in corn fields. Separating the weather effect from everything else is critical to developing strategies for next year.

The 2019 growing season threw many challenges to farmers across Kentucky growing corn. The season began wet and ended dry. The excessive rains early in the season pressured many producers to risk sidewall compaction to get acres planted. The overall planting progress was slow. Compared with 2018 where corn planting was delayed early and caught up to the 5-yr average by mid-May, the 2019 planting season was behind the 5-year average even in June. Other early season management such as burn-down herbicides and nutrient applications were difficult as well. Soil profiles were wet until about mid-July causing corn roots to be shallow. Rainfall stopped shortly after pollination and corn was pulling more water from the soils than rain was replenishing. The shallow roots could not reach water or nutrients when the corn plants needed more of each. As the weather became hotter and drier, the demand for water became even greater. The lack of water caused major problems with kernel development.

Recognize the challenges that 2019 presented but be careful on projecting those observations to 2020. The following are a few examples:

1. Late Applications of Nitrogen

   2019 Observation: Many cornfields were short on nitrogen later in the season. Late applications of nitrogen helped corn yields.

   2020 Outlook: Be ready to make late applications of nitrogen if we experience similar conditions next year. DO NOT plan on blanket applications of late nitrogen.

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2. High Nitrogen Rates

2019 Observation: Very high nitrogen rates helped increase corn yields.

2020 Outlook: DO NOT plan on increasing all nitrogen rates in 2020 based on 2019 weather and crop response.

3. Hybrid Maturity

2019 Observation: Late-maturing hybrids performed worse than early-maturing hybrids.

2020 Outlook: When adequate or near-adequate water is available, corn at 111 days or later usually performs better than earlier-maturing corn. Select the majority of your corn for 111 days and later.

4. Late Planting

2019 Observation: Late-planted corn performed much worse than early-planted corn.

2020 Outlook: Most years, corn planted in late May in west Kentucky and early June in east Kentucky will yield worse than corn planted earlier. Plan to plant earlier as long as weather and soil conditions are favorable.

Many cornfields across Kentucky were showing symptoms of nitrogen deficiency and water stress. The excessive water early in the season likely caused some nitrogen losses and pushed other nitrogen deeper into the soil profile. The shallow roots and dry conditions later prevented the corn plants from reaching that nitrogen. In 2019, late applications of nitrogen helped overcome those challenges for 2019. Our colleagues will provide more details about nitrogen, soils and crop dynamics. Late nitrogen working in 2019 does not mean that late application of nitrogen will work in 2020.

For most years, applying some of the nitrogen near planting and the remainder to young corn is often the best strategy for avoiding risk of nitrogen loss.

Because of the hot, dry weather when corn was in seed fill, corn diseases were low to moderate over most of Kentucky. There were a few pockets around the state where disease pressure was higher, but those were the exceptions. Our colleagues in plant pathology will comment more on this, but corn yield increases from fungicides are rare when disease pressure is low. Next year could be different. We may need fungicides across more fields.

In many cases, corn planted early where seed fill was almost complete by the time water stress occurred suffered very little. Conversely, corn planted later was in the earlier stages of kernel development when water stress began. These later planted cornfields were badly damaged by the dry weather.

Similarly, some farms likely experienced lower yields from later-maturing hybrids. These hybrids were in the earlier stages of kernel development when water stress began. Some earlier hybrids avoided that water stress in the same way that early planted corn avoided the water stress.

Every farmer is wise to take stock of the 2019 growing season, just use caution if you expect 2020 to be a repeat of 2019.

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