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Farm Update

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September 2, 2023

Corn Grain Drydown

Corn harvest will begin soon for many farms. It is interesting to think about the factors that increase or decrease the pace of in-field moisture drydown.

Because drying is first and foremost related to temperature, corn that matures in late August will dry more rapidly than corn that finishes in mid-September. In fact, research at Purdue revealed corn that matured in late August lost moisture at an average of 0.8% averaged over the entire drydown period compared to mid-to-late September corn that dried an average of 0.4% over the entire drydown period. Of course, day-to-day drying can range from more than a point a day on warm, sunny, windy days to no drying at all on cool, rainy, cloudy days.

There are always questions about faster drydown if the crop occurs a major stress such as end of season drought, or disease. The answer is yes, if a plant encounters a severe stress event late in grain fill, this can result in premature death, but drydown essentially occurs the same way. Corn consumed with southern rust or zapped by a killing freeze event will still dry down and black layer just like corn that matured normally, but of course kernel weight and size will likely be reduced. Black layer is a term that indicates physiological maturing has occurred and no additional weight can be added. It is identified by removing a kernel and scratching off the

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tissue that connects to the cob. If the kernel tip is found to be black, or dark in color, black layer has occurred.

In almost every county demonstration plot we harvest, the earlier 112-114 day corn will be one or two moisture points drier than the 115-118 day corn, so relative maturity of corn is certainly a factor of “when” corn dries down. Research has found the following physical factors determine “how” corn dries down. Water must pass through the kernel pericarp, the outer most layer of a corn kernel. Thinner and more permeable pericaps have been associated with faster drying rates. Ironically, despite being attached to the cob, no water passes from the kernel back into the cob. At black layer, the connective tissue functions cease. The rest of drydown determined by the husk. Husk leaf number and thickness influences drydown. An excessive number of husk leaves, or very thick husk leaves slow drydown. Husk leaf drying and tightness affects drydown. Husk leaves that remain green or tightly wrapped around the kernels well into the half-milk line stage will slow drydown.

Evaluating the kernel milk line is an easy way to determine how soon corn may reach black layer. A kernel dries down from the outside in toward the cob. The milk line can be found by breaking an ear in half and evaluating the ear tip half. Look at the face of the break, exposing the cob and multiple rows of kernels. Looking at the side of the kernels you’ll see two colors, dark yellow on the outside of the kernel, white or light yellow closer to the cob. Where the two colors meet is called the milk line. The line eventually progresses to the cob leaving the bright yellow kernels. Black layer occurs very soon after the milk line is less than 50%.

Many people adopted different nitrogen strategies and sources this year in reaction to the cost of anhydrous ammonia. The end-of-season corn stalk nitrate test is a tool to use in adjusting

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your program for next year. Visual symptoms of leaf yellowing cannot always be used to determine if the corn is deficient in nitrogen.

Plant samples should be collected within a three-week period, beginning at black layer formation. Sampling corn before the black layer formation may result in unreliable readings. Select 15 stalks per sample from the field in a manner similar to taking a soil sample. Avoid stalks affected by insects or diseases and stalks with small ears or no ears at all. Cut an 8-inch sample of stalk beginning 6 inches above the ground. Place the samples in a paper sack and deliver to Water's Agricultural Labs.

Beef Quality Care Certification Opportunity

A hands-on Beef Quality Care Assurance Training will be held at Kentuckiana Livestock Market on September 12 from 6-9 p.m. with registration and meal starting at 5:15 p.m. Pre-register by September 8 by calling the Extension Office at 270-685-8480 or emailing chardy@uky.edu.

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