DIVISION OF AGRICULTURE
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Arkansas Corn and Grain Sorghum News

Jason Kelley – Wheat and Feed Grains Extension Agronomist **July 22, 2019**

When Can Corn Irrigation Be Terminated?

As we get to late July, many Arkansas corn growers are making decisions about irrigation termination. Corn that was planted in March in south Arkansas is nearing black layer or at black layer now, while corn further north that was planted in March is a little further behind, but will likely be reaching black layer over the next 10-14 days or so. However a bulk of our corn acres were planted in April and May this year and will still may need multiple irrigations to reach maturity if rainfall is not received.

When deciding when to terminate irrigation, the goal should be to maintain soil moisture until maturity. Cutting off irrigation too soon can have consequences as kernels are still adding weight until full maturity.

The easiest way to determine how close to corn is to irrigation termination is to look at the starch line development on kernels from the middle of representative ears as there will be some differences from the top to the bottom of the ear. Always look at multiple ears in different areas of the field to confirm growth stage. The starch line begins at the top of the kernel (signified by a dent) and slowly progresses down the kernel over a 21-24 day period. Once the starch line has moved half way down the kernel, you are approximately 10-12 days to maturity with normal July temperatures. If the starch line has moved down the kernel 50% or more and you have good soil moisture, irrigation on furrow irrigated fields could be terminated. At 50% starch line movement and good soil moisture, the plant should have enough moisture to reach maturity without running out of water. For pivot irrigated fields, the starch line needs to be 75% or greater down the kernel before irrigation is terminated since less water is likely applied during each irrigation.

Figure 1, below illustrates a kernel with a starch line that has progressed 75% down the kernel and with good moisture, irrigation could be terminated on this field (furrow or pivot). If in doubt that the plant will have adequate soil moisture to reach maturity, it is advisable to irrigate once more. Keep in mind that there may be differences in maturity from the top to the bottom of the field this year due to the uneven emergence and early growth that was seen in many fields.

Once kernels have reached maturity, a black layer should be visible at the bottom of the kernel (Figure 2 and 3) by scraping the tip off of the bottom of the kernel. The black layer formation will occur over a few days and will begin as a tan/gray color and slowly increase in size and become black in color. At true black layer no further moisture enters the kernel and grain moisture is approximately 30-35%.

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Figure 1. Starch line has moved approximately 75% down the kernel and corn is approximately 7 days from maturity. With adequate soil moisture, furrow or pivot irrigation could be terminated on this field.

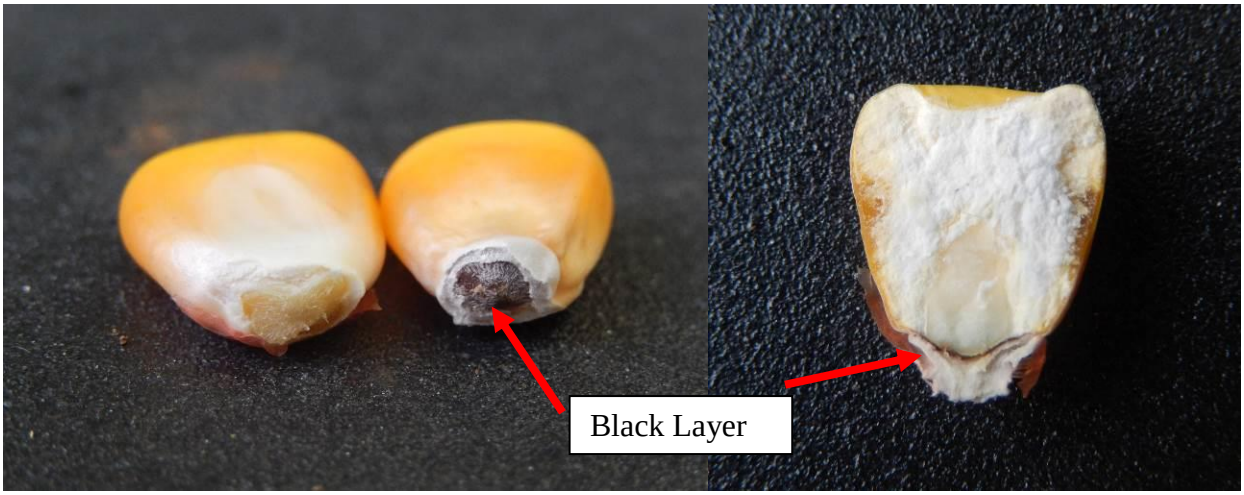

Figure 2. R6 stage corn on right. A fully developed black layer is clearly visible on the right two kernels.

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Figure 3. Kernels with full black layer on left, varying level of black layer in the middle, and no black layer on right.

Contact Information:

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