Agronomy Profile



Corn Maturity

Overview

It's difficult to schedule irrigation, herbicide application and harvest if you don't know when your corn will reach maturity. Identifying milkline and blacklayer will help gauge the stage of corn growth and help you estimate physiological maturity.

What you should know

- Corn matures approximately 55-60 days after tasseling. There are many stages in the maturation process. Knowing when tasseling occurs can help estimate when corn will mature, so be sure to record the date.
- The progression of the milkline and blacklayer development are important to irrigation scheduling and application of pre-harvest herbicides. Yield could be reduced if you terminate irrigation or apply a harvest aid too early.
- It takes approximately 20 days for the milkline to progress from kernel tip to base. For example, if milkline is halfway down the kernels, it will take another 10 days to reach physiological maturity, so the field needs continued irrigation and a delay in harvest aid application for 10 more days.
- Blacklayer forms when the hard starch layer reaches the kernel base, signifying physiological maturity. The blacklayer cuts off water and dry matter transfer into the kernel. At this stage, kernels have a moisture content of about 28–35%.

Table 1. Relationship Between Kernel Growth Stage and Development

		Percent of Maximum Yield		Moisture Content		
Stage	Calendar Days to Maturity (Average)	Growing Degree Units (GDUs to Maturity)	Grain	Whole Plant	Grain	Whole Plant
Silk (R1)	50-55	1,100-1,200	0	50-55	-	80-85
Blister (R2)	40-45	875-975	0-10	55-60	85-95	80-85
Late Milk-dough (R4)	30-35	650-750	30-50	65-75	60-80	75-80
Early Dent (R5)	20-25	425-525	60-75	75-85	50-55	70-75
Fully Dented (5.50-5.75)	10-15	200-300	90-95	100	35-40	65-70
Physiological Maturity (R6)*	0	0	100	95-100	25-35	55-65

*Blacklayer formation and/or milk disappearance from kernels under development. Premature frost or extended cold temperatures may cause blacklayer formation at earlier stages and wetter moistures.

For more information, contact:



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Action steps

- 1. **Observe the milkline:** Break an ear of corn in half and look at the cross section of the top half. The layer between hard starch and dough layers is the milkline.
- 2. **Look for blacklayer:** To find blacklayer, shell kernels from an ear and gently scrape away the seed coat to expose it.



- Monitor stages of corn development to estimate maturity and properly determine timing for herbicide application, irrigation and harvest.
- Recognizing milkline and blacklayer allows you to make adjustments in case of early frost or excessive moisture.

NOTES: