

AGF-0101

# Corn Growing Degree Days: A Method of Maturity Rating for Hybrids

Table 1. A Timeline for Corn Growth and Development

Growth Stage*		Approximate GDDs	Cumulative GDDs**	Description
-	Planting	0	0	Seed is planted.
VE	Emergence	100	100	Coleoptile emerges through the soil surface; seminal roots are established.
V3	Three-leaf collar	246	346	The growing point is below the soil surface; nodal roots are forming.
V6	Six-leaf collar	246	592	The growing point is at or above the soil surface; primary ear shoot initiated; nodal roots dominant now; tassel initiated; the number of kernel rows around the ear are determined V6–V8.
V9	Nine-leaf collar	246	838	Rapid growth is underway; brace roots may be present at the soil surface.
V12	Twelve-leaf collar	182	1020	Lower three to four leaves may not be present due to stalk expansion and leaf decomposition.
V15	Fifteen-leaf collar	150	1170	Kernel number per row determined.
V19	Nineteen-leaf collar	50	1370	Tassels can be visible, increasing in size, but not fully extended yet.
VT	Tasseling	50	1420	The last tassel branch is visible; pollen may be shed on the main branch of the tassel before all branches are fully extended.
R1	Silking	-	1420	One or more silks extending outside husk leaves; silks may be visible before the tassel is completely extended. A single plant can release ½ million or more pollen grains per day; silks are receptive to pollen for about 10 days.
R2	Blister	266	1686	Occurs about 10–14 days after R1; stress conditions, including drought, can cause kernels to abort at R2–R3.
R3	Milk	144	1830	Occurs about 18–22 days after R1, “roasting ear” stage; kernel color changes from white/clear to orange/yellow.
R4	Dough	151	1981	Occurs about 24–28 days after R1; less risk of kernel abortion from stress.
R5	Dent	343	2324	Occurs about 35–42 days after R1; stress can reduce kernel weight but not kernel # per ear.
	Dent – ½ milk line	-	-	Occurs about 10 days after R5; 90% of total kernel dry matter accumulated.
R6	“Black Layer”	326	2650	Occurs about 55–65 days after R1; physiological maturity—kernels have achieved their maximum dry weight and are safe from frost; kernel moisture averages 30% but can range from 25–40% grain moisture.

\*Based on the leaf collar method, following Abendroth et al. (2011). *Corn Growth and Development*. PMR 1009 Iowa State Univ. Extension, Ames, IA.  
[store.extension.iastate.edu/product/Corn-Growth-and-Development](https://store.extension.iastate.edu/product/Corn-Growth-and-Development)

\*\*Approximate growing degree days (GDDs) between growth stages and cumulative GDDs adapted from Abendroth et al. (2011) and Nielsen, RL. (2021). *Grain Fill Stages in Corn*. Agronomy Dept., Purdue Univ. [agry.purdue.edu/ext/corn/news/timeless/GrainFill.html](https://agry.purdue.edu/ext/corn/news/timeless/GrainFill.html)