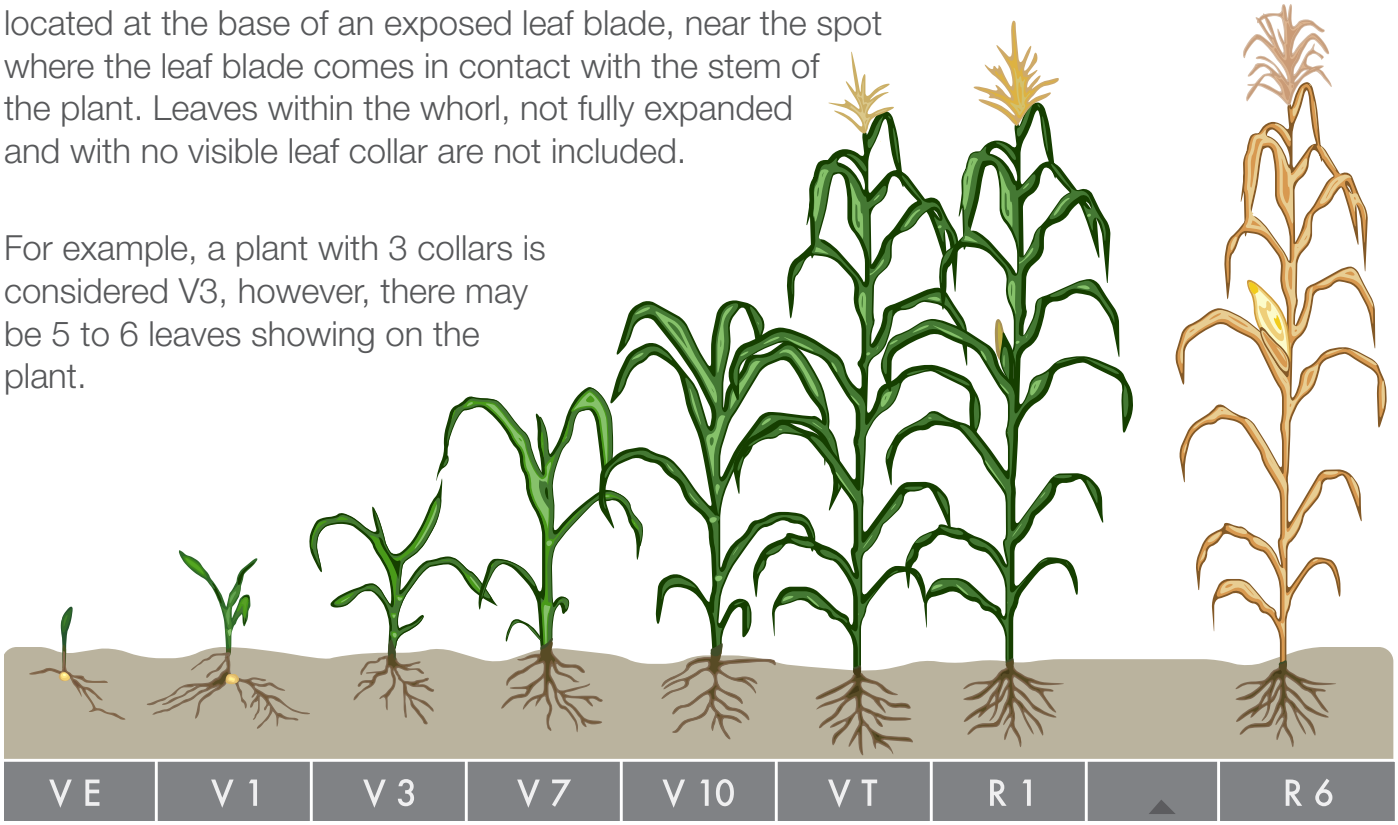
Corn Growth Stages

Determining Vegetative Stages In Corn:

Vegetative stages are identified by the number of collars present on the plant. The leaf collar is the light-colored collar-like "band" located at the base of an exposed leaf blade, near the spot where the leaf blade comes in contact with the stem of the plant. Leaves within the whorl, not fully expanded and with no visible leaf collar are not included.

For example, a plant with 3 collars is considered V3, however, there may be 5 to 6 leaves showing on the plant.



Kernel fill during reproductive stages:

Source: University of Illinois, 1999.

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VE 4 to 5 days after planting under ideal conditions, but up to 2 weeks or longer under cool or dry conditions.

V1-V5 At V1, round-tipped leaf on first collar appears, nodal roots elongate. By V2, plant is 2 to 4 in tall and relies on energy in seed. V3 begins 2 to 4 weeks after VE, and plant switches from kernel reserves to photosynthesis and nodal roots begin to take over. Around V4, broadleaf weeds should be controlled to avoid loss. By V5, number of potential leaf and ear shoots are determined. Plant is 8-12 in tall and growing point remains below soil surface.

V6-V8 Beginning 4 to 6 weeks after VE, growing point grows above soil surface making plant more susceptible to hail, frost or wind damage. The nodal root system is dominant. At V7, rapid growth phase and stem elongation begin. Number of kernel rows is determined and potential kernels per row begins and continues through V15-16. By V8, plant reaches 24 in. tall.

V9-V11 Around 6 to 8 weeks after VE, corn begins steady and rapid period of growth and dry matter accumulation. At V9, tassel is developing rapidly, but not yet visible. New leaves appear every 2 to 3 days and ear shoots are developing. By V12 plant is about 4 feet tall or more. Nutrients and water are in high demand to meet the growth needs.

V12-Vnth All leaves are full size and roughly half are exposed to sunlight. Brace roots are developing and potential number of kernels per ear and size of the ear are still being determined. Insect and hail injury can reduce the number of kernels that develop. The plant is about 2 weeks away from silking at V15. The tassel is near full size, but not visible. Moisture and nutrient deficiencies at this time can reduce the number of potential kernels per row resulting in shorter ears and lower yield potential.

VT Beginning around 9 to 10 weeks after emergence, corn enters a critical period where successful pollination is required to convert potential kernels into viable, developing kernels. The plant has reached full size. Tassels are fully visible and silks will emerge in 2 to 3 days. Pollen shed begins and continues for 1 to 2 weeks. Hail can be very damaging at this stage.

R1 Silking One of the most critical stages in determining yield potential: silks are visible and pollination begins at the base and proceeds toward the tip. K uptake complete, N and P uptake occurring rapidly. The average silking date is the first indicator of crop progress. Physiological maturity can be estimated by adding 60 (+ 5) days to the silking date.

R2 Blister About 12 days after silking, silks darken and dry out. Kernels are white and form a small blister containing clear fluid. each kernel develops an embryo. Kernels contain 85% moisture.Stress (especially drought) at this stage can reduce yield potential by causing kernel abortion.

R3 Milk About 20 days after silking, kernels are yellow and clear fluid turns milky white as starch accumulates. Kernels contain 80% moisture. The effects of stress are not as severe after this stage, but can still result in shallow kernels, stalk cannibalization, or lodging.

R4 Dough About 26 days after silking, the starchy liquid inside the kernels has a dough-like consistency. Kernels contain about 70% moisture, begin to dent at the top, and have accumulated close to 50% of their maximum dry weight. Stress can produce unfilled or shallow kernels and “chaffy” ears.

R5 Dent About 38 days after silking, nearly all kernels are dented and contain about 55% moisture. Cob has distinct color - white, pink or red. Silage harvest begins sometime during this stage, depending on desired whole plant moisture.

R6 Black Layer About 60 days after silking, physiological maturity is reached and kernels have attained maximum dry weight at 30 to 35% moisture Total yield determined, frost has no impact on yield.