

# AGRONOMY PROFILE

## Corn Growth Stages Part 1: Vegetative Stages

**OVERVIEW.** Understanding the plant growth process opens up opportunities to maximize yield potential. At each stage, corn has specific nutrient, environmental and management needs. Knowing developmental goals and stages can help you identify problems more quickly and proactively manage challenges in the field. This piece will explore some basics about the vegetative stages of corn growth.

### WHAT YOU SHOULD KNOW.<sup>1</sup>

- **VE (emergence):** The radicle (root) emerges first, then the coleoptile (shoot). Growth remains below the surface for 3-4 weeks, where the seed is protected.
- **V1 (first leaf) - V2 (second leaf):** This stage occurs about one week after emergence. Fertilizer is helpful to the developing roots, but only small quantities are needed, right at the roots.
- **V3 - V5:** By V5, the plant is about 8 inches tall, but the growing point is still below the soil, so cold soil temperatures could adversely affect growth. Weeds begin to compete with the growing corn.
- **V6 - V9:** Roots now extend about 18 inches deep into the soil and the plant is absorbing lots of nutrients. Symptoms of deficiencies may appear, and fertilization is key. Ear shoots are forming.
- **V10 - 13:** The corn begins to grow rapidly and has a high demand for moisture and nutrients. Phosphorous and potassium are important at this stage.
- **V14 - 18+:** At V15, the plant is about 2 weeks away from silking, and the number of potential kernels is determined. Brace roots are developing to draw nutrients from the upper layers of soil and support the plant. Environmental stressors—moisture, hail and more—can greatly reduce grain yield.
- **VT (tasseling):** VT occurs 2-3 days before silking. The last branch of the tassel is visible, but silks have not appeared from ear shoots. Damage to the pollen source will greatly reduce grain formation.

<sup>1</sup> Ransom, J. 2013. "Corn Growth and Management Quick Guide." NDSU Extension Service.



Understanding the needs of corn throughout its vegetative growth stages helps maximize yield potential.

### 30 SECOND SUMMARY

- Every stage of corn growth represents an opportunity to maximize yield potential.
- Understanding vegetative growth stages helps you plan for and monitor the nutrient needs of growing corn.
- Injury in the vegetative stage can directly impact grain formation.

