

Staging Corn In The Later Reproductive Stages

Once corn reaches the **R3 (milk) stage**, kernels are milky when squeezed and the crop is well into reproductive development. From here, staging focuses less on vegetative appearance and more on kernel development inside the ear. The reproductive stages include:

- **R3 (Milk Stage):** Kernels are yellow on the outside and contain a white, milky fluid inside.
- **R4 (Dough Stage):** Kernel interior thickens to a dough-like consistency. Kernels are plump, but the milk line has not yet formed.
- **R5 (Dent Stage):** Kernels develop a dent at the top, and the milk line becomes visible as starch begins to accumulate from the crown downward.
- **R6 (Physiological Maturity):** Black layer forms at the base of the kernel, indicating maximum dry matter accumulation.

Understanding the R5 Stage in Depth

The **R5 (dent) stage** is one of the most critical to stage accurately because it determines how close the crop is to maturity and can impact harvest planning:

1. **Dent Formation:** At R5, nearly all kernels show a visible dent at the crown. This is caused by rapid starch accumulation in the kernel.
2. **Milk Line Observation:** The milk line is the key indicator at R5. It's the boundary between the solid, starchy portion at the crown and the soft, milky portion at the base of the kernel.
 - To see it clearly, break an ear in half lengthwise.
 - The milk line starts near the top of the kernel and gradually moves downward.
3. **Sub-Staging R5:** Agronomists often divide R5 into sub-stages based on milk line position:
 - **R5.0:** Dent just visible, milk line at crown.
 - **R5.25:** Milk line $\frac{1}{4}$ down kernel.
 - **R5.5:** Milk line halfway down kernel.
 - **R5.75:** Milk line $\frac{3}{4}$ down kernel.
 - **R5.9–R6.0:** Milk line nearly at base, crop approaching black layer.

4. **Moisture Content:** At early R5, kernels are around 50-55% moisture. By late R5, they're closer to 35-40%.
5. **Yield Risk:** Stress (drought, disease, frost, or nutrient deficiency) during R5 can still reduce kernel weight significantly, even though kernel number is set.



Stage R5

Beginning Dent

Milk line starting to appear at top of kernel.

Grain Moisture: ~50-55%.

~400 GDUs remaining to maturity.

Why Accurate R5 Staging Matters

- **Harvest Planning:** Knowing where the milk line is helps estimate grain moisture and predict when fields will reach harvestable levels.
- **Yield Estimates:** Kernel depth and milk line progression allow more precise yield checks.
- **Management Decisions:** Late-season fungicide, insect pressure, or stalk integrity concerns can be better evaluated when you know exactly how far along the crop is.



Stage R5.25

1/4 milk line

Grain Moisture: ~45-50%.

~300 GDUs remaining to maturity.



Stage R5.5

1/2 milk line

Grain Moisture: ~40-45%.

~200 GDUs remaining to maturity.



Stage R5.75

3/4 milk line

Grain Moisture: ~35-40%.

~100 GDUs remaining to maturity.

Progression Through R5

Corn typically requires about **400 GDUs** from the start of dent (R5) to reach maturity (R6). With late-season accumulation averaging **20-25 GDUs/day**, each quarter of the milk line (R5.0 → R5.25 → R5.5 → R5.75 → R6) generally takes **4-5 days** to progress. This means the entire R5 stage lasts roughly **16-20 days**, though weather can speed up or slow development.