THE
EARFULL
April 6, 2026

RENK • SEED

Corn Planting Depth Is the Detail

Two inches. That is the number worth remembering before a single row unit hits the ground this spring. Not 1.5, not 2.5 as a default—two inches of seed-to-soil contact in firm, moist ground sets up everything that follows. At that depth, the seed sits where soil moisture is consistent enough for uniform germination and temperature swings are buffered enough to keep imbibition steady. Move half an inch shallower and you are in the zone that dries out first after a warm afternoon. Move deeper without reason and you slow emergence, giving seedling diseases more time. The goal: get every kernel into a consistent moisture band so germination happens at roughly the same time across the field. Uniform emergence is one of the highest-value things you control at planting, and depth is the biggest lever.

If you are going to err, err deep. Shallow planting—anything under about 1.5 inches—is where real trouble starts. Corn develops its permanent nodal roots from the crown, which forms roughly three-quarters of an inch below the soil surface regardless of seeding depth. The mesocotyl elongates upward until the coleoptile senses light, then stops. When the seed is only an inch down, the crown ends up close to the surface and nodal roots try to anchor in soil that bakes out on a sunny day. That is the setup for rootless corn syndrome—"floppy corn"—where hot, dry weather between V1 and V5 kills young roots before they establish. Seeds near the surface also sit closer to pre-emerge herbicide concentrations in the top half-inch, raising the odds of early-season injury, and they are in the part of the profile that dries fastest, making germination spotty if rain does not follow the planter. University trials consistently show that planting at one inch versus two results in less uniform stands and lower yields—in some cases the gap has been 14 percent or more.

Two inches is the target, but not a universal constant. A heavy silt loam still holding spring moisture might plant well at 1.75 inches, while a well-drained sandy loam across the road might need 2.5 inches to find consistent moisture. Early-planted fields tend to have moisture near the surface; by mid-May on lighter soil that moisture line drops and you need to follow it. Soil type, tillage, residue cover, and slope aspect all shift where the moisture band sits.

Here is what catches people: the monitor says 2 inches, the depth wheels are set, and the first check looked good. But by mid-afternoon the field has changed, or you have moved farms, or the outer-wing row units are bouncing over residue and running a quarter-inch shallow. Knolls run shallower than valleys. Headlands compact differently. The fix: stop the planter, walk back, dig five or six seeds, and measure with a ruler, a pocket knife, or the width of your thumb. Check every field, again when conditions change, once more on the knolls. Five minutes—the cheapest agronomic check available.

The consequences do not always show at emergence—they show later. If the crown formed close to the surface in May, the nodal roots are shallower than they should be all season. By late July, when the plant is filling grain and burning stalk carbohydrates, a weaker root system means less water uptake, less anchorage, and more lodging risk when a storm rolls through. You can trace a September lodging problem back to a depth decision made four months earlier. Pull a few seeds, confirm you are in moisture, and make sure every row unit is putting kernels where they belong.

Beans Are Pickier Than You Think—Here Is Why Depth Still Matters

Soybeans have a tighter depth window than most people give them credit for. Under most upper Midwest spring conditions, the target is 1 to 1.5 inches, and the overriding rule is to plant into moisture. A soybean seed needs roughly half its weight in water before germination starts. If the seed is at the right depth on paper but sitting in dry soil, nothing happens until it rains—and by then you have lost days and stand evenness.

Why Beans Cannot Handle Deep the Way Corn Can

Corn pushes a coleoptile upward on a mesocotyl that can elongate from three inches or more. Soybeans do not work that way. They pull their cotyledons up through the soil on a hypocotyl arch with a smaller energy reserve and less mechanical power. Past about two inches in a heavy or crusted soil, there is a real chance the seedling runs out of stored carbohydrates before reaching daylight. The cotyledons are large relative to the stem and dragging them through dense or sealed ground takes energy a shallowly planted seed would never spend. Corn has a margin for error; soybeans do not, especially in fine-textured soils that crust after rain.

Most Fields Are Off Target—and Usually Too Deep

Depth surveys across Midwest fields consistently show that a surprising number of soybean acres are planted outside the recommended window. The most common miss is too deep, not too shallow—particularly on drill-planted acres. When our DSMs walk the soybean fields, they routinely find beans at 1.75 to 2.5 inches, especially in tilled ground where fluffy seedbeds makes it hard to gauge true depth from the cab.

Planters generally hold depth better than drills or air seeders—individual parallel-link arms with down-pressure follow contour more closely. Drills flex across their width with less unit-by-unit control, so seeds at the center can be at one depth while seeds on the wings are at another. Even on a planter, outer-wing row units often run lighter and shallower than center units in uneven terrain or heavy residue. That wing-to-center variation can be half an inch—enough to put center-row beans in moisture and wing-row beans in dry soil. Dig behind the wings, not just the center.

Cooler, wetter, heavier soils early in the season call for the shallow end—closer to 1 inch—because the seed does not need to go deep for moisture and faster emergence reduces disease exposure. Later planting, sandier ground or drier conditions push depth to 1.5 inches; in a genuinely dry spring you might go to 2 inches to chase moisture, understanding the extra risk. Seed size matters too—larger seed carries more energy for deeper emergence but bigger cotyledons are harder to pull through a crusted surface. Factor the variety's emergence score and the soil type into the decision, not just the calendar.

Dig seed every few fields, check actual depth against the monitor, and confirm the seed is in at least half an inch of moisture. Check behind the wings, not just the center. Adjust before you plant another 40 acres at the wrong setting. Soybean stands are hard to fix after the fact—you cannot profitably re-plant a thin spot and you cannot add roots to a plant that exhausted itself emerging from too deep. Take the five minutes. It pays.

Sources

1. Purdue University Extension, Pest & Crop Newsletter—"How Deep Should Corn Be Planted?" and "Rootless or Floppy Corn Syndrome." https://extension.entm.purdue.edu/newsletters/pestandcrop/

2. Michigan State University Extension—"Soybean Planting Depth Matters." https://www.canr.msu.edu/news/soybean_planting_depth_matters

3. Iowa State University Extension, Integrated Crop Management—"Soybean Seed Depth in Dry Conditions." https://crops.extension.iastate.edu/post/soybean-seed-depth-dry-conditions