



Considerations for the Day of Planting

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- The day of planting requires some decisions on planter adjustments and crop management.

Corn and soybean planting are just around the proverbial corner for Indiana growers. Based on 1983-2001 crop reporting data ([Indiana Ag. Stats. Service](#)), about 20% of Indiana's corn crop is typically planted by 30 April and 50% by 10 May. Last year, we were spoiled by the earliest ever completion of planting; about 98% completion by 10 May.

While recent snowy and rainy conditions will likely limit much planting in early April this year, soil conditions will hopefully improve by the usual late April time period that typifies the start of serious corn planting in Indiana. Regardless of planting date, certain crop management decisions need to be made on the day of planting on a field-by-field basis.

A number of these decisions are related to planter adjustments and operation. Other day-of-planting decisions relate to seeding depth, seeding rate, and hybrid planting order. Factors that impact these decisions include soil moisture & temperature conditions, surface soil conditions, short-term weather forecasts, and variability among your available seed lots for hybrid vigor, seed quality and seed size.

Planter Decisions. For pneumatic planter metering systems (some blow and some suck), you should prepare a **checklist for every seed lot** you have in the shed prior to planting that includes each seed lot's seed weight (seeds per lb), the appropriate air or vacuum pressure, and the appropriate seed disc or drum. The latter two items require that you find the planter operations manual that has been collecting dust since last year. Keep this checklist with you during planting and refer to it when you change hybrids to ensure that you adjust the planter accordingly and avoid variable seed spacing.

Adjustments to the **down pressure of the furrow closing devices** (wheels, fingers, etc.) should be made according to the soil conditions of every field you plant, and may vary day by day during the season. Use only enough down pressure to firmly close the seed furrow. Excessive down pressure can compact the soil above the seed and restrict the emergence of the corn seedlings. Obviously, inadequate down pressure may leave open furrows, especially in no-till systems.

Adjust the **depth and tension of no-till coulters** to match soil conditions. Do not cut deeper with the coulters (in line with the disc opener) than the depth of seeding. Excessively deep coulters can disturb too much soil below where the seed lands, making it difficult for the closing wheels to adequately firm the soil around the seed.

Remember that excessive **down pressure at the parallel linkages** (i.e., heavy-duty no-till springs) can lift the planter frame AND the drive wheels, resulting in uneven operation of the planter transmission and subsequent uneven seed spacing or seeding population. Ensure that the planter units are parallel or level to the ground when the planter is in operation to avoid problems with disc opener depth, press wheel efficiency, and seed to soil contact.

Planting speed should not exceed the manufacturer's recommendations because of the risk of uneven seed spacing. For most planters, the optimum range of speeds is 5 to 6 miles per hour. If you're hell-bent on planting faster than this, at least do yourself a favor and check seeds in the row once in a while for accuracy in spacing and depth.

Remember to faithfully use **graphite lubricant with finger-pickup seed meters** at a rate of 1 tablespoon per bushel of seed. If you discover excessive seed treatment is building up on the fingers or meter backplate, then use more graphite. Remember to faithfully use **talc powder with vacuum seed meters** at a rate of 1 cup per bushel to prevent sticky seed, especially under humid conditions.

Diligently **lubricate the chains and bearings** of the planter every day. This is best done at the end of a planting day when the chains and bearings are warm. Use a multi-purpose spray lubricant on the planter chains, not chain lube or old motor oil, because such lubricant dries better, is less sticky, and is less of a dirt magnet the following day.

Crop Management Decisions. Choose an appropriate **seeding depth** according to the field conditions & weather forecast. The primary goal is to aim for a depth that will ensure placement of seed into uniform soil moisture. Spatial variability for moisture in the seed zone is probably the most common cause of uneven germination and emergence of corn. As a rule of thumb, I recommend seeding depths no less than 1 ½ inches. If necessary, do not hesitate to plant as deeply as 2 or 3 inches if that is what it takes to reach adequate and uniform soil moisture. Check the actual depth of seeding frequently from field to field or day to day. Actual seeding depth can vary from the targeted planter setting as soil conditions change.

Remember that rapid and uniform corn germination and emergence will not occur when soil temperatures are less than 50° F. Seedling establishment will also not occur rapidly and uniformly if soil temperatures remain cold. Cool soils are especially likely when planting early and/or in no-till with heavy surface trash.

For these reasons, improve the odds of successful stand establishment when planting early in the season by **strategically planting the various hybrids** at your disposal. Early in the planting season, plant hybrids with excellent seedling vigor ratings and warm germination ratings. Save the hybrids with merely average seedling vigor ratings and warm germination ratings for later in the season when soils have warmed significantly. If you have access to cold germination ratings for your hybrids, similarly begin planting with the best cold germination seed lots and end with the average lots.

Avoid planting early with seed lots whose **seed size** is excessively or unusually small (e.g., 35 lb 80k bags). Most of the time, seed size is of no consequence in performance of a given seed lot. However, evidence from

research in Wisconsin years ago suggests that such unusually small seed can be at a disadvantage when germination/emergence and early stand establishment conditions are severely limited by cold soils.

Generally, most Indiana corn growers should aim for final **plant populations** at harvest in the range of 26- to 30,000 plants per acre. Under 'normal' planting conditions, this target requires seeding rates between 28- and 33,000 seeds per acre to account for normal rates of germination failure and seedling mortality. Early in the season, consider using seeding rates that are 5 to 10% greater than what you would normally use if you expect greater than normal mortality rates due to cold and 'crappy' conditions with early planting.

The use of **starter fertilizer** is especially helpful when planting early into cold and 'crappy' conditions. Purdue research suggests that starter nitrogen (N) is the primary nutrient of interest where soil phosphorus and potassium levels are adequate for crop growth. Aim for no less than 20 lbs of actual N per acre to maximize the probability and magnitude of a yield response to starter fertilizer. This rate would be equal to 6.5 gallons of 28% UAN per acre or 200 lbs of 10-34-0 per acre applied in a traditional 2 x 2 placement with the planter. Such rates obviously restrict the use of starter placement with the seed because of the risk of fertilizer salt injury to the seed or seedling.

Related Information:

[A Recipe for Crappy Stands of Corn](#) (Purdue Univ.)

[Fertilizer Reckoning for the Mathematically Challenged](#) (Purdue Univ.)

[Tips For Corn Planter Tune-ups](#) (Purdue Univ.)



For other information about corn, take a look at the **Corn Growers Guidebook on the World Wide Web** at <http://www.kingcorn.org>

Past articles by RL (Bob) Nielsen may be found at the CNN Archives at <http://www.kingcorn.org/news/index-cnn.html>.

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