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Early Season Soybean Replant Decisions

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Abstract
Early planted soybean often needs visual assessments for stand quality. Nearly every year some soybean are replanted in Iowa. The decision to replant an area or entire field is necessitated due to saturated soils, ponding, hail, frost and disease incidence. This article provides a step-by-step process to use while making soybean replanting decisions.

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Early Season Soybean Replant Decisions

By Mark Licht, Department of Agronomy

Early planted soybean often needs visual assessments for stand quality. Nearly every year some soybean are replanted in Iowa. The decision to replant an area or entire field is necessitated due to saturated soils, ponding, hail, frost and disease incidence. This article provides a step-by-step process to use while making soybean replanting decisions.

Step 1: Stand assessment

Initial visual assessment of soybean is critical following frost, hail or herbicide drift events. This assessment is useful in determining the extent of the area affected, but is often a poor time to make a replanting decision. After severe weather or herbicide exposure, crop injury often looks worse than it really is and sometimes emotions can influence a replanting decision.

Conduct a thorough ‘regrowth’ stand assessment three to seven days following injury events. Examine the main stem for growth from the apical meristem. If the apical meristem is dead or broken off, look for new growth from the axillary buds on the remaining stem nodes (juncture of the leaf petiole and main stem).
Step 2: Stand counts

When estimating a stand count in soybean, make sure to accurately assess the remaining viable stand. An average stand count for the entire field or injured area should be determined. The number of locations needed to determine an average plant stand depends on the methodology used. For example, when using 1/1,000th of an acre or a hoop method, it is generally acceptable to stop at 6-10 random locations to accurately obtain an average. When estimating the number of plants per foot on row lengths less than six feet, consider using 15 to 20 locations to get an accurate average number of plants per foot.

While doing stand counts consider the uniformity of the soybean distribution within the row or area. Because of branching soybean can adequately compensate for one-foot gaps from early vegetative injury but the later injury occurs the less branching will occur. Plant gaps greater than a foot should be of concern in 30-inch row fields because that could negatively impact yield if there are less than 75,000 plants per acre.

Step 3: Yield potential

After an accurate assessment of the remaining stand is complete, determine what the yield potential of the remaining stand is for the population and
planting date. If replanting is being considered, use available charts to assess the yield potential of a late-planted soybean crop with expected plant populations. Generally, replanting should be considered if uniform stands are less than 75,000 plants per acre when planted mid-May or earlier or less than 50,000 to 60,000 plants per acre when planted late May into June. Remember, crop production is a biological system that relies heavily on the weather during the growing season. Because of this, determining actual yield potential at various planting dates and plant populations can be extremely variable.

**Step 4: Additional Factors**

The final decision on whether to replant should also include the costs incurred from a replanted or existing stand. Some factors to consider include costs of replanting (i.e., seed, labor and fuel) and crop insurance. Other management decisions may be made to ensure yield potential of either replanted or existing stands.

**Pesticides.** Depending on the timing and type of product applied, herbicide residual could prevent soybean replanting. However, an existing stand will likely require additional post-emergence herbicide application(s) due to the delayed or lack of canopy closure. Read herbicide labels to determine any possible replant considerations from herbicide applications already made.

Injured soybean has a higher risk of disease infection due to slowed growth and bruising. Depending on the type and severity of injury, there may be increased risk potential for late-season lodging, *Phomopsis* seed decay and brown spot or other foliar diseases. Disease prevalence is highly dependent on stage of growth at the time of injury and weather conditions during the remainder of the growing season. However, keeping an existing, reduced stand would lower the risk of white mold occurrence.

Replanted soybean does not generally benefit from insecticidal and fungicidal seed treatments due to warmer soils that provide quick emergence and growth. However, fungicidal seed treatments may still be beneficial because some pathogens prefer warmer and drier soil conditions for infection. Fungicide seed treatments should be used in field areas that are prone to seedling diseases. Replanting later in the season may reduce the risk of sudden death syndrome and could also reduce the risk of white mold because of delayed canopy closure.

**Maturity selection, seeding rates and row spacing.** Many of the cultural recommendations that are made for late-planted soybean can be followed for replanting of soybean. Selecting seed for replanting is largely based on the seed available. Seed quality should be considered in addition to yield stability, herbicide traits, soybean cyst nematode resistance and other variety characteristics that are normally considered. If possible select varieties that have bushy foliage characteristics and 0.5 to 1.0 maturity groups lower than normal due to later date of planting.

Soybean planted in late May and June should be planted at a seeding rate of 135,000 to 160,000 seeds per acre (or 10 to 15 percent higher than normal practices) with a row spacing of 15 inches or less. A higher seeding rate combined with narrower row spacing accelerates the time to canopy close. If a 15-inch planter or drill is not available, a 30- or 20-inch planter can be used by double planting parallel, perpendicular or at an angle to the first pass using a half seeding rate for each pass.

**Step 5: Making the Decision**

After gathering information about the injured crop and potentially replanting soybean, make your replant decision based on the best economic outcome of the two choices. Simply put, will the costs and yield potential of the existing stand have greater revenue than replanting?
Resources

Tables for Determining Plant Populations - [pdf]
Tables for Assessing Soybean Yield Potential in Iowa - [pdf]

Soybean Replant Decisions (PM 1851)

Soybean Field Guide (CSI-0010)

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