

# MAKING CORN REPLANT DECISIONS

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## Corn Replant



- Walk the field thoroughly before making a replant decision.
- Make note of gaps between plants while counting plant population.
- Using the table, consider the calendar date to determine yield cost of leaving a stand versus replanting. Always include replanting costs as part of the calculation.
- Destroying the old stand first is always the best practice.
- Avoid trying to replant portions of the field unless these areas are well defined.

Making the corn replant decision can be complicated. Consider the following guidelines when making a replant decision:

1. Know what the existing stand is. Avoid the “one-and-done” approach. Take a minimum of 5 stand counts per field to determine if enough plants remain. Check stands in areas that differ in soil type and/or topography. It is possible that not all parts of the field will need to be replanted. Check the roots of smaller plants. Injury to the primary root system or damage to the endosperm may be the reason for the delay in emergence or slowed seedling growth. Such injury may not allow for complete recovery.
2. Check the stand for uniformity. Allow for additional yield loss when making replant decisions if gaps of 1 or more feet are commonly found between plants. Iowa State

University research shows that recurring gaps of 16 to 33 inches may cut yields by 2%, and several gaps of 4 to 6 feet can reduce the final yield as much as 5%, compared to a uniform stand, even when the final stand count appears adequate.

3. Consider the calendar date. Table 1 shows yield potential as a % of optimum for various planting dates and populations. Compare the existing stand (original planting date) to the yield potential for replanted stand at a later planting date. Keep in mind the possibility of ending up with another reduced stand. Typically, a 5% increase in yield over the existing stand is needed to cover costs associated with replanting.
4. Allow for existing insect pressures. A second application of corn insecticide could be necessary if the field is planted in an area where 1st-year corn rootworm feeding is a problem, or where wireworms and/or white grubs are the reason for the replant decision. Read the label before making a 2nd insecticide application. Most soil insecticides are restricted to one application per growing season.
5. If frost or freeze injury is the source of corn stand concerns, we suggest waiting for 3 to 5 (or more) days of “decent” growing weather to objectively evaluate the stand. If there are additional acres of corn (or even soybeans) that need to be planted, it might be prudent to finish those acres before returning to the replant question. The corn stand almost always looks better if you turn your back on it for a few days.

Population (Plants/Acre)	Planting Date				
	April 20-May 5	May 5-May 15	May 15-May 25	May 25-June 5	June 5-June 15
	Percent Maximum Yield				
45,000	97	93	85	68	52
40,000	99	95	86	69	53
35,000	100	96	87	70	54
30,000	99	95	86	69	53
25,000	95	91	83	67	51
20,000	89	85	77	63	48
15,000	81	78	71	57	44
10,000	71	68	62	50	38

Table 1. Relative yield potential of corn by planting date and population. Note: Values are based on some earlier Iowa

research and modeling; 100% yield potential is estimated to occur with 35,000 plant population and early planting. This table is from the ISU Corn Field Guide (CSI 001 publication) on page 12.

Using information in this table, note that potential yield associated with the original planting date, and with the actual population, will give a fair estimate of the actual yield of the problem field. The table summarizes planting date and plant population (final stand) relationships. For example, if the original planting date was April 30, a population of 35,000 plants/acre is expected to provide maximum yield, based on this table. If the population is only 20,000 plants/acre, yield potential is still 89% of maximum. Compare the estimated yield potential of the existing stand with the anticipated yield for the replant stand, plus replant costs, herbicides, etc. to determine if replanting is likely to be profitable.

Consider destroying the old stand if replanting is necessary. Planting into well-established corn plants is like planting into an existing stand of weeds. The older, well established corn plants will successfully compete for light, water, and nutrients. Yield of the new stand that is planted into an existing stand of corn will likely be disappointing. If areas to be replanted are somewhat small and scattered, inter-planting may be the only option to increase harvest stand but there also may be less yield loss associated with these small areas than you might guess.

Don't panic if a field is over-planted. If you accidentally plant a field at a higher-than-desired population, first determine the actual stand. Research suggests that the impact of plant stands up to 36,000 plants per acre on a silt loam-type soil is minimal. Plan to watch at harvest-time for standability issues.

The best way to correct an unacceptably high plant population is to destroy the old stand and start over. Attempts at thinning a stand to an acceptable level generally do not turn out well. If destroying the old stand and starting over is the option, consider using a herbicide-resistant hybrid (having a different trait than the original crop) for the replant crop. The original crop can then be destroyed chemically, eliminating the need for tillage, and thereby preserving soil moisture.

Image: Variability in Corn Size Because of Uneven Emergence (Source: GROWMARK, Inc.)