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Assessing Corn Stands for Replanting

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Assessing Corn Stands for Replanting

Abstract

As of May 10, eighty-one percent of Iowa's corn was planted and 24 percent was emerged, according to USDA-NASS. Some planting undoubtedly occurred since May 10. Good to excellent crop emergence reports come from across the state by ISU Extension Agronomists. There are a few reports though of less-than-desirable corn emergence due to crusting, poor seed bed, herbicide damage, etc. As the crop emerges, this is a great time for producers to assess their corn stands. What went well? What didn't? What action should be taken?

Keywords

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Assessing Corn Stands for Replanting

By Roger Elmore and Lori Abendroth, Department of the Agronomy

As of May 10, eighty-one percent of Iowa's corn was planted and 24 percent was emerged, according to [USDA-NASS](#). Some planting undoubtedly occurred since May 10. Good to excellent crop emergence reports come from across the state by [ISU Extension Agronomists](#). There are a few reports though of less-than-desirable corn emergence due to crusting, poor seed bed, herbicide damage, etc. As the crop emerges, this is a great time for producers to assess their corn stands. What went well? What didn't? What action should be taken?

Two situations may cause producers to consider replanting

- Corn emerged non-uniformly resulting in different plant developmental stages within a row. Replanting a field like this will not be a benefit as long as plant populations are reasonable. Although the smaller plants compete with their larger neighbors for resources, only extreme conditions warrant replanting. If half the plants are two leaves behind the rest of the plants within a row, yields can be reduced by 5-10 percent. Estimate yield loss in fields exhibiting non-uniform development using a tool on uneven emergence posted at the [agronomy extension website](#).

- Corn populations are significantly lower than desired. Replanting may benefit the producer in this case. Consider several things and make comparisons when determining if a specific field fits this category:

a) Estimate stands. Measure the existing plant population in several random areas in the field. Use the [Replant Checklist†](#) for steps to evaluate an existing stand in a problem field.

b) Estimate yields. The most important factor in deciding whether or not to replant is to calculate expected yield with the current stand versus what you could potentially have if you replanted. Table 1 provides some guidelines for this decision. Data contained here show relative yield potential for numerous planting dates and plant populations based on recent yield data, planting date trends, and modern ranges in plant populations.

Table 1. Relative yield potential of corn by planting date and population					
	Planting Date				
	April 20– May 5	May 5– 15	May 15–25	May 25– June 5	June 5–15
Population (Plants/Acre)	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

Note: Values based on preliminary Iowa research and modeling; 100% yield potential is estimated to occur with 35,000 plant population and early planting. From: Iowa State University Extension, Corn Field Guide, CSI 001. 2009. In Press.

Example

A producer has a field that may need to be replanted and could be done next Monday, May 18. The field was originally planted April 26 but has a final stand of 24,000 plants per acre. Is there a yield advantage to replanting?

The yield potential associated with the existing stand is 95 percent since the planting date is between April 20 and May 5 and the population is close to 25,000 plants per acre. If the field is replanted at 35,000 plants per acre, yield potential is approximately 87 percent. In this example, the producer increases yield potential by leaving the original stand and not replanting. Realize also, extra costs not only will occur from replanting upfront but also potentially post-harvest due to higher grain moisture content.

Replanting is not an easy decision. Numerous factors determine a field's yield potential. Consider data like that presented in Table 1 as a tool in approximating what may result based on our best available research data. Realize that actual yield losses may be greater or less than what is shown.

† When using the 'Replant Checklist' make sure to use Table 1 in this newsletter for determining yield potential rather than Table 2 shown in the 'Replant Checklist' webpage article. The latter was based on older research data.

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