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Progress of Corn Planting and Corn Emergence

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Progress of Corn Planting and Corn Emergence

Abstract

As of Sunday, [USDA-NASS reported](#) half of Iowa's corn lay in seed beds, the other half in seed bags. That rate puts us 18 percent ahead of the five-year average. Forty-one percent of our anticipated crop was planted in one week, with only 4.3 days suitable for fieldwork. If we can use that number for days corn was planted, that's 5.9 million acres in 4.3 days or 1.37 million acres per day. Proving we can plant a lot of corn quickly in Iowa when conditions are right. Unfortunately, forecast conditions this week aren't too favorable right now. How should we think about this?

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Progress of Corn Planting and Corn Emergence

Roger Elmore, Department of Agronomy

Two questions about corn

1. Is the corn planting window closing?
2. What about corn that is already planted?

As of Sunday, [USDA-NASS reported](#) half of Iowa's corn lay in seed beds, the other half in seed bags. That rate puts us 18 percent ahead of the five-year average. Forty-one percent of our anticipated crop was planted in one week, with only 4.3 days suitable for fieldwork. If we can use that number for days corn was planted, that's 5.9 million acres in 4.3 days or 1.37 million acres per day. Proving we can plant a lot of corn quickly in Iowa when conditions are right. Unfortunately, forecast conditions this week aren't too favorable right now. How should we think about this?

Corn already planted

By April 22 we had nine percent of Iowa's corn planted. Four percent of that was planted between April 16 – 22, four percent between April 9 – 15, and 1 percent prior to April 8. Depending on your specific location, all of the corn planted prior to April 15 should be emerged or very close to emerging now based on average heat unit accumulations across the state. However, heat unit accumulation (growing degree days or GDD) has been a bit less in the northern third of the state, so corn in those areas planted before April 15 may be close to emergence but not quite there yet. It takes about 90 – 120 GDD's from planting to emergence.

Corn planted after the April 15, including that planted last week, should be well along in the germination process but not yet emerged. For more information on this, read the article Elwynn Taylor and I wrote about [corn's germination process](#).

Once emergence occurs, evaluate plant stands carefully – whether you expect good emergence and seedling survival or not. Poor stands and plant-to-plant variability lower yield potential. However, depending on the potential date of replant, keeping the surviving stand may be the best option – even with variable plant heights and development.

There are two situations that may cause you to consider replanting:

1. If corn plants emerged non-uniformly, resulting in different plant developmental stages within a row but plant populations are reasonable, replanting will not likely be of benefit. 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 to 10 percent. You can estimate yield loss in fields exhibiting non-uniform development by using [a tool on uneven emergence posted at our website](#).

2. If corn populations are significantly lower than desired, replanting may be of benefit. Consider several things and make comparisons when determining if a specific field fits this category:
 - 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.
 - 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 guidelines for this decision. The data shows 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. Source: Iowa State University Extension, Corn Field Guide, CSI 0001; 2009.

The replant decision rarely comes easy. Numerous factors determine a field's yield potential. Consider data like that presented in Table 1 as a tool to use in approximating what may result — based on our best available research data. Please realize though that actual yield losses may be greater or less than what is shown.

Corn not yet planted: is the window closing?

[Optimum Iowa corn planting dates](#) range from mid-April to the end of April in north central and northeast Iowa and to the first or second week in May in other parts of Iowa. The table in my March 27 article, [Best planting dates for Iowa](#), summarizes the recommendations for various regions of Iowa. So, what is there to say the first week of May when only half of Iowa's corn is planted? Here it is in a nutshell:

Be patient if corn is not yet planted. It is far better to wait for good soil conditions than to 'mud in' corn.

There is little question based on our research trials that, on average, yield potentials begin to drop after May 2 in north central and northeast Iowa; after May 13 in southwest, south central and southwest Iowa, and after May 18 in northwest, west central, central and east central Iowa. Those are average responses and we don't know what 2012 will offer. If 2012 provides 'average' growing conditions, Table 1 contains some ideas on potential yield reductions associated with delayed planting. For example, if you target 35,000 plants per acre and you are able to plant between May 5 and May 15, you may experience 96 percent of the original yield potential.

Certainly it is time to plant if soil conditions allow. 'Mudding in' corn could be trouble the entire growing season. [Soil temperatures](#) are back to normal for this time of year across most of the state; normals are about 50 F. Soil temperatures point in our favor for planting corn. The calendar clearly shows we should not think too hard about planting, but the call for more rain this week will – and should – slow planting progress.

When soil conditions are favorable, it is time to plant corn. Is the window for planting corn closing? Not yet!



Figure 1. Corn planted April 4 emerged April 23, right on schedule with about 124 GDD accumulated from planting. R. Elmore photo April 23, 2012.



Figure 2. Corn planted on April 11 on schedule with about 80 GDD accumulated and 12 days in the soil. R. Elmore photo, April 23, 2012.

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