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To Replant or Not to Replant

That is the question that many producers ask themselves in spring for a variety of reasons. Corn and soybeans fields can lose their plant populations for various reasons. A lack of soil moisture is a possible cause but this year it is more likely a problem due to too much water that flooded parts of the field, uncovered seeds, washed out seedlings, or even crusted over the soil making germination more difficult. At times, cold weather and slow growth can make well-intended herbicides cause injury in the crop rather than reduce weed seed germination. Of course, lower yields are expected for later planted crops and there is always the cost of planting new seed, so it can be hard to determine where that replanting line should be crossed.

With soybeans, it is possible to over-plant part of a field with an exceptionally poor stand. Not recommended, but possible. However, corn does not do well with a mixture of plant sizes and often the differences in maturity will be a problem at harvest. With corn, it would be better to start that part of the field over with tillage and replanting, though the pre-emergence herbicide will need to be reapplied. All this extra effort is really only worth large areas with really poor stands. So the real question is, how poor of a stand do I really have?

The first step is to count the number of plants in a row for a certain length then times that number by what part of an acre that represented. The easiest to do this is in 1/1000 of an acre row lengths. For corn,

15" rows: Number of plants in row for 34 ft and 10 inches X 1000 = population per acre

30" rows: Number of plants in row for 17 ft and 5 inches x 1000= population per acre

Make several checks throughout the area in question and attempt to be as random in sampling as possible.

While yield is mostly influenced by weather and especially the weather during July and August, it is difficult to tell in May what the yield potential might be. Table 1 from the University of Missouri shows that corn has some ability to compensate yield with lower plant populations. Also, if it ends up being hot and dry this summer, then a slightly lower plant population would have more preferred for yield anyway. However, most of the time with flooded corn, the population is just fine on the high ground and nearly gone in the terrace channels and low areas, making this calculation spilt the field in two parts.

Yield is also reduced the later in the season it is planted, on average. By the time it dries out enough again for planting, it could be late May to early June and this could be another year where soybeans get planted before the second attempt of corn. Table 2, also from the University of Missouri, is the planting date and yield expectation from southern Missouri, which is closer to our planting than the rest of Kansas. Keep in mind that this is an average. There are years when early June planted corn has yields nearly as high as early April planted corn.

The final determination of replanting is a calculation of what will the affected area yield revenue be and if that is higher than the expected yield is replanted minus the cost of replanting.

Originally expected yield x Effects of population loss (Table 1) = Estimated yield from the sparse stand x estimated market value = Profit from sparse stand.

Originally expected yield x Effect of late planting date (Table 2) = Estimated yield of replant x estimated market value = Gross revenue from replant – cost of replanting = Profit from replant.

There are Excel sheets and worksheets from extension to help you make this calculation.

However to muddy the waters, there is also the factor of crop insurance or FSA payments to compare in the question of to replant or not to replant.

If any crop producer needs help finding resources or replanting calculation sheets, please give your local extension office a call. The number for me in the Wildcat District is 620-778-1037 or email jcoover@ksu.edu.

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Population	Yield environment	
	Normal	High*
	Percent of expected yield	
36,000		100
34,000		99
32,000		98
30,000	100	96
28,000	99	93
26,000	98	90
24,000	95	87
22,000	92	82
20,000	88	77
18,000	83	72
16,000	78	67
14,000	73	62
12,000	68	57

Table 1. Population reduction yield potential. University of Missouri Extension

Corn		Soybean	
Planting date	Yield as percent of expected	Planting date	Yield as percent of expected
April 1	99	May 8	100
April 6	98	May 15	99
April 11	96	May 22	98
April 16	94	May 29	96
April 21	91	June 5	93
April 26	88	June 12	89
May 1	85	June 19	84
May 6	82	June 26	79
May 11	79	July 3	72
May 16	75	July 10	65
May 21	70		
May 26	65		

Table 2. Yield reduction from late planting. University of Missouri Extension