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Corn and Soybean Replant Decisions

Deciding to replant a sparse stand is one of the most difficult decisions a crop producer will face. The decision's difficulty stems from predicting how the replanted crop will be affected by the combination of planting date and changing environmental conditions. Although difficult, replant decisions are made by some Missouri farmers every year.

This guide provides a step-by-step procedure for estimating dollar gain or loss from replanting based on a careful evaluation of the field in question and an analysis of its attainable yield, as follows:

1. Determine the cause of the sparse stand.
2. Determine the stand density and uniformity.
3. Estimate the crop's attainable yield with the sparse stand.
4. Estimate the expected gross revenue of the crop with the current sparse stand.
5. Estimate the attainable yield and gross revenue from a replanted stand.
6. Estimate the cost to replant.
7. Determine whether replanting will be cost effective.

A worksheet for the above calculations is at the end of this guide, and the Missouri Replant Decision Aid (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/CornSorghum/Docs/replant-decision-aid.xlsx) is available online. Both tools can help estimate the costs and benefits of replanting.

Cause of the sparse stand

Identifying the cause of the sparse stand is an essential first step. Causes of sparse stands during germination and emergence include poor seed quality, improper seeding depth, low soil moisture content, soil crusting, saturated soil, herbicide injury, insect feeding and disease infection. Stand density can be reduced after emergence by weather events such as hail or flooding, animal grazing and insect feeding. The causes of stand loss must be determined before replanting to ensure that the condition will not repeat in the second planting. Otherwise, growers risk a similar incomplete stand with even lower yield potential due to the later planting date.

In most instances, planting into existing sparse stands without plant termination is not recommended. Stands with a mixture of plant sizes and maturities perform poorly and are difficult to manage effectively. Replanting areas of the field with nearly 100% stand loss will not have the same adverse effects if the two plantings are not competing with one another. You can terminate sparse stands with either herbicides or tillage before replanting.

Stand density and condition

An accurate estimate of the remaining population is necessary to determine the attainable yield of the sparse stand. If possible, wait a few days after the damaging event or expected emergence to determine if plants are alive or likely to resume growth. But remember, timing is critical at this stage, and making a prompt decision is better than delaying it.

In a field where the stand varies across the landscape, assess stands by counting in areas that represent the good, intermediate and poor populations. Fields that are more uniform will require fewer counts. When making a replanting decision, only consider areas of the field where the stand is insufficient to deliver a satisfactory yield. As you count plants, include only those that appear healthy or have a reasonable chance of recovery. Do not count weak or severely damaged plants with little potential to recover. To estimate stands after hail or animal damage, note which parts of the plant are damaged and how they affect the potential for regrowth. Leaf area removal, for example, is far less impactful on yield than bruising of the lower stem in early vegetative stages.

Count plants in an area of which you know the dimensions so that you can calculate the number of plants per acre. You can simplify your calculation by counting plants in a length of row equal to one-thousandth of an acre and multiplying by 1,000. Table 1 provides the row lengths equivalent to one-thousandth of an acre for 15-, 20- and 30-inch-wide rows. For drilled beans, row counts are less accurate due to less

Revised by
Drew Kientzy, Research Analyst, Agriculture Business and Policy Extension
Andre Froes de Borja Reis, Assistant Professor, Plant Science and Technology
Ben Brown, Extension Specialist, Agriculture Business and Policy Extension

Table 1. Row length that equals one-thousandth of an acre.

Row width	Row length that equals 1/1,000 acre
30 inches	17 feet, 5 inches
20 inches	26 feet, 2 inches
15 inches	34 feet, 10 inches

precise seed metering. Stand counts in this situation can be conducted by measuring a known area, counting the plants in that area, dividing the count by the square feet in the counted area, and multiplying by 43,560 to reach the stand in 1 acre.

Attainable yield of the sparse stand

Yield is influenced by both environment and cultivar or hybrid. Corn and soybean yields are most affected by weather conditions during yield-defining stages, such as pod-setting and seed filling for soybeans or differentiation, pollination and seed filling for corn. Given good growing conditions, corn and soybean plants in a partial stand can flex reasonably well to a lower-population environment with yield reaching close to the normal. However, poorer soil or growing conditions limit the crop's ability to use the additional space, sunlight and nutrients available to the individual plant, so yield will be less than that experienced by a full stand.

You, your local extension specialist or your crop advisor must consider the field's historical yield, deviation from the target population, and stand uniformity to "guesstimate" the attainable yield. An accurate estimate is essential for making an informed replanting decision.

Expected revenue of the sparse stand

Replanting decisions should consider your expectations for prices received for grain. When projected grain prices are relatively high, replanting becomes economically justifiable even with relatively modest stand losses. Conversely, when prices are low, the incentive shifts toward minimizing input costs, meaning a more significant stand reduction is needed before replanting makes financial sense.

Replant assistance through federal crop insurance

The U.S. Department of Agriculture's (USDA) Risk Management Agency (RMA) offers replant payments to help farmers recover from early-season crop losses due to events likely flooding, frost, or drought. These payments are part of the federal crop insurance program and are designed to cover the basic costs of replanting the same crop. To qualify, producers must meet several conditions: The crop must be insured, the same crop must be replanted (e.g., corn must be replanted with corn), and the damage must affect at least 20 acres or 20% of the insured unit, whichever is smaller. Additionally, replanting must occur within the policy's planting window, and the insurance provider must inspect and approve the replanting before it begins.

Replant payments are calculated using a fixed number of bushels per acre multiplied by the USDA's projected, or base, price for that crop. For the 2025 crop year, the RMA set the projected price for corn at $4.70 per bushel and for soybeans at $10.54 per bushel. The standard Missouri replant rate is 8 bushels per acre for corn and 3 bushels per acre for soybeans. Based on these values, a qualifying corn producer in Missouri would receive $37.60 per acre (8 × $4.70), whereas a soybean producer would receive $31.62 per acre (3 × $10.54). These payments are standardized and do not vary based on actual replanting costs or yields. Importantly, they are paid in addition to any future insurance payouts for yield losses later in the season. Contact your crop insurance advisor before conducting any field activity.

Revenue expectation from a replanted field

Delayed planting usually decreases yield potential. The amount of decrease is difficult to predict. Use Tables 2 through 7 to estimate the effect of planting date and stand count on yield from replanted or low population fields.

Once you have a yield prediction, determine income by multiplying yield by the predicted market price. Use the same predicted market price you used in estimating the expected gross revenue of the sparse stand.

Cost of replanting

Even if yield from replanting would be greater than that from the damaged field, the cost of replanting could still exceed the value of the additional yield from replanting. Therefore, you must estimate as accurately as possible the following costs.

Seed cost

Determine cost of seed by multiplying unit seed cost by the seeding rate. In many instances, seed companies reduce seed prices if their products were initially used in the sparse stands.

Fuel, machinery and labor costs

Include all fuel and machinery costs associated with replanting. Reduced tillage or no-till methods can reduce these costs. You can use custom charges or owned machinery costs from the University of Missouri Crop Budget spreadsheet (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/crop-budgets.xlsx), but if your own equipment costs are known, you can make a more accurate decision.

Pesticide costs

Usually, additional preemergence herbicide will not be necessary unless tillage is performed to eradicate the failed planting. If you do not use tillage to remove the existing stand, a burndown herbicide application is necessary. Include only those costs that would not be incurred from already-planned herbicide applications. If the sparse stand resulted from disease or insect damage, additional fungicide or insecticide might be needed.

Additional costs

Other costs include interest on loans associated with replanting, increased dryer costs for late maturing corn, and labor costs not already covered.

For purposes of this analysis, none of the other costs of production are important. Fertilizer, chemical and other costs already incurred in production are considered sunk costs that do not affect the decision to replant.

Table 2. Percent of maximum corn yield attainable in North and Central Missouri at given stand count and planting date.

	Plant population, thousands per acre								
Planting date	**9**	**12**	**15**	**18**	**21**	**24**	**27**	**30**	**33**
April 5	57	67	76	84	90	95	98	100	100
April 12	55	65	74	82	88	92	95	97	98
April 19	53	63	72	79	85	89	92	94	95
April 26	52	61	69	76	82	86	89	91	92
May 3	50	59	67	74	79	84	86	88	89
May 10	48	57	65	71	77	81	83	85	96
May 17	46	55	62	69	74	78	80	82	92
May 24	45	53	60	66	71	75	77	79	79
May 31	43	51	58	64	68	72	74	76	76
June 7	42	49	56	61	66	69	72	73	74
June 14	40	47	53	59	63	67	69	70	71

Table 3. Percent of maximum corn yield attainable in Southeast Missouri at given stand count and planting date.

	Plant population, thousands per acre								
Planting date	**9**	**12**	**15**	**18**	**21**	**24**	**27**	**30**	**33**
March 20	11	14	15	17	18	19	20	20	20
March 27	27	32	37	40	43	46	47	48	49
April 3	38	45	51	56	61	64	66	67	68
April 10	48	57	64	71	76	80	83	84	85
April 17	54	64	72	80	85	90	93	95	96
April 24	57	67	76	84	90	94	98	100	100
May 1	56	66	75	82	89	93	97	98	99
May 8	52	61	69	76	82	86	89	91	92
May 15	44	52	59	65	70	74	76	78	78

Table 4. Percent of maximum corn yield attainable in Southwest Missouri at given stand count and planting date.

	Plant population, thousands per acre								
Planting date	**9**	**12**	**15**	**18**	**21**	**24**	**27**	**30**	**33**
April 1	57	67	76	84	90	95	98	100	100
April 8	56	67	76	83	89	94	97	99	100
April 15	56	66	75	83	89	93	97	99	99
April 22	55	66	75	82	88	93	96	98	98
April 29	55	65	74	81	87	92	95	97	98
May 6	55	65	73	81	87	91	95	96	97
May 13	54	64	73	80	86	91	94	96	96
May 20	54	64	72	79	85	90	93	95	95
May 27	53	63	72	79	85	89	92	94	95
June 3	53	63	71	78	84	89	92	94	94
June 10	53	62	71	78	83	88	91	93	93
June 17	53	62	70	77	83	87	90	92	93

Table 5. Percent of maximum soybean yield attainable in North and Central Missouri at given stand count and planting date.

	Plant population, thousands per acre									
Planting date	**20**	**35**	**50**	**65**	**80**	**95**	**110**	**125**	**140**	**155**
April 15	46	67	81	90	95	98	99	100	100	100
April 22	45	66	80	89	94	96	98	99	100	100
April 29	45	65	79	87	92	95	96	98	100	100
May 6	44	64	77	86	91	93	95	96	100	100
May 13	43	63	76	85	89	92	93	95	98	100
May 20	42	62	75	83	88	90	91	93	96	100
May 27	42	61	73	82	86	88	90	91	95	100
June 3	41	60	72	80	85	87	88	90	93	99
June 10	40	58	71	79	83	85	87	88	91	97
June 17	39	57	69	77	81	84	85	86	89	95
June 24	38	56	68	75	80	82	83	84	87	93
July 1	38	55	66	74	78	80	81	83	85	91

These costs affect profitability, but the replant decision addresses only the question of whether the increased revenue from replanting exceeds the increased cost associated with replanting.

Making the decision

Estimate net income by subtracting the cost of replanting from expected income. To determine if replanting is appropriate, compare the net income from replanting with the income from a sparse stand. Even if this comparison is positive, you still may not wish to replant. Other demands on your time and competing crop management issues are important considerations.

You can use the worksheet at the end of this guide to organize important information and arrive at a well-informed decision. A completed worksheet example is illustrated as well.

Table 6. Percent of maximum soybean yield attainable in Southeast Missouri at given stand count and planting date.

	Plant population, thousands per acre									
Planting date	**20**	**35**	**50**	**65**	**80**	**95**	**110**	**125**	**140**	**155**
April 15	41	60	73	81	86	88	89	91	94	100
April 22	41	59	72	80	84	87	88	90	93	99
April 29	40	58	71	79	83	85	87	88	91	97
May 6	40	58	70	77	82	84	85	87	90	95
May 13	39	57	69	76	80	83	84	85	88	94
May 20	38	56	67	75	79	81	82	84	87	92
May 27	37	55	66	73	78	80	81	82	85	90
June 3	37	54	65	72	76	78	80	81	84	89
June 10	36	53	64	71	75	77	78	79	82	87
June 17	35	52	62	69	73	72	76	78	80	85
June 24	35	50	61	68	72	74	75	76	79	84
July 1	34	49	60	66	70	72	73	74	77	82

Table 7. Percent of maximum soybean yield attainable in Southwest Missouri at given stand count and planting date.

	Plant population, thousands per acre									
Planting date	**20**	**35**	**50**	**65**	**80**	**95**	**110**	**125**	**140**	**155**
April 15	29	42	51	57	60	62	62	64	66	70
April 22	32	47	57	63	66	68	69	70	73	78
April 29	35	51	62	68	72	74	75	77	79	84
May 6	37	55	66	73	78	80	81	82	85	90
May 13	v	58	70	78	82	84	85	87	90	96
May 20	41	60	73	81	86	88	90	91	94	100
May 27	43	63	76	84	89	91	93	94	98	100
June 3	44	64	78	86	91	94	95	97	100	100
June 10	45	66	80	88	93	96	97	99	100	100
June 17	46	66	81	89	94	98	98	100	100	100
June 24	46	67	81	90	95	98	99	100	100	100
July 1	46	67	81	90	95	98	99	100	100	100
July 8	46	66	80	89	94	97	98	100	100	100
July 15	45	65	79	88	93	95	97	98	100	100

You can also download the Replant Decision Aid (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/CornSorghum/Docs/replant-decision-aid.xlsx) for help with the replant decision.

Corn replant EXAMPLE*

A. Estimated stand density of sparse stand	**14,000** plants/acre
B. "Expected" yield in bushels/acre	**170** bu/acre
C. Effect of sparse stand on yield potential (Table 2, normal yield environment for 14,000 population)	**69**%
D. Estimated yield from sparse stand (line B × line C ÷ 100)	**117** bu/acre
E. Estimated market value of crop	**$4.50** /bushel
F. Estimated income from sparse stand (line E × line D)	**$526.50**/acre
G. Extra herbicide needed due to sparse stand	**$15**/acre
H. Expected net income from sparse stand (line F – line G)	**$511.50**/acre
I. Estimated cost to replant (total of lines 1 + 2 + 3 + 4 below) 1. Seed **$50.00** 2. Fuel, machinery, labor **$36.00** 3. Pesticides **$0.00** 4. Additional costs **$5.00**	**$91.00**/acre
J. Effect of planting date on yield (Table 2, expected yield for May 20 planting)	**81**%
K. Estimated yield from replanted stand (line B × line J ÷ 100)	**138** bu/acre
L. Estimated income from replanted stand (line E × line K)	**$621.00**/acre
M. Net income from replanted stand (line L – line I)	**$531.00**/acre
N. Profit or loss from replanting (line M – line H)	**$19.50** /acre

* Assumptions: (1) Corn planted in central Missouri. (2) Original planting date was April 20. (3) Replanting date is May 20.

Note: In this example, the grower would probably replant corn if it did not interfere with soybean planting or some other activity. However, if conditions were present so that replanting was delayed until June 1 or later, it might not pay to replant.

Corn/Soybean replant worksheet

A. Estimated stand density of sparse stand	plants/acre
B. "Expected" yield in bushels/acre	bu/acre
C. Effect of sparse stand on yield potential (from Tables 2–7)	%
D. Estimated yield from sparse stand (line B × line C ÷ 100)	bu/acre
E. Estimated market value of crop	$/bushel
F. Estimated income from sparse stand (line E × line D)	$/acre
G. Extra herbicide needed due to sparse stand	$/acre
H. Expected net income from sparse stand (line F – line G)	$/acre
I. Estimated cost to replant (total of lines 1 + 2 + 3 + 4 below) 1. Seed _____ 2. Fuel, machinery, labor _____ 3. Pesticides _____ 4. Additional costs _____	$/acre
J. Effect of planting date on yield (from Tables 2–7)	%
K. Estimated yield from replanted stand (line B × line J ÷ 100)	bu/acre
L. Estimated income from replanted stand (line E × line K)	$/acre
M. Net income from replanted stand (line L – line I)	$/acre
N. Profit or loss from replanting (line M – line H)	$/acre

Note: Sparse stands may also result in some additional expenses. Defoliated plants and sparse stands may require an additional herbicide application.

Original authors: Ray Massey and Bill Wiebold

Extension
University of Missouri

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