

Soybean Maturity Studies

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Group 2 vs. Group 3 Soybean Maturity with Early Planting (10 site-years)

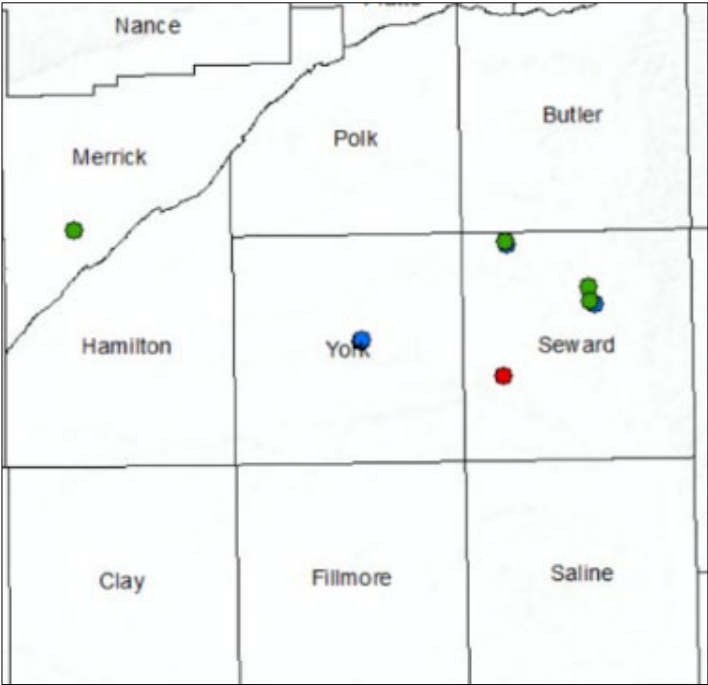
- With early planting of soybean (in April or as close to May 1 as possible), a longer-season variety may help take advantage of the longer growing season.
- However, some growers are also obtaining high yields with early- to mid-group 2 varieties.
- Planting a shorter season could also allow for advantages for planting cover crops and spreading out harvest load.
- The goal of this study was to determine if growers need to plant a longer-season maturity soybean to achieve optimum yields when planting early.



LOCATIONS, YEAR, REPS, VARIETIES, PLANTING DATE, AND IRRIGATION OF THE SOYBEAN MATURITY STUDIES (10 SITE-YEARS)

County	Year	Reps	Group 2 Variety	Group 3 Variety	Planting	Irrigation
Seward	2018	6	Big Cob BC24cr2x	Big Cob BC35wr2x	5/2/18	Pivot
Seward	2018	3	Pioneer 25A12X	Pioneer 31A22X	5/7/18	None
York	2018	7	Golden Harvest GH 2788X	NK S30-C1	5/2/18	Pivot
Seward	2019	3	Pioneer 21A28X	Pioneer 31A22X	4/22/19	None
Seward	2019	4	Pioneer 24A99X, Pioneer 27A17X	Pioneer 31A22X, Pioneer 33A53X	5/2/19	Gravity
York	2019	6	Golden Harvest GH 2788X	Golden Harvest GH 3475X	5/16/19	Pivot
Seward	2020	3	Pioneer 21A28X	Pioneer 31A22X	4/15/20	None
Seward	2020	3	Pioneer 21A28X	Pioneer 31A22X	4/11/20	None
Seward	2020	4	Pioneer 21A28X, Pioneer 25A04X, Pioneer 27A17X	Pioneer 31A22X	5/1/20	Gravity
Merrick	2020	3	Pioneer 21A20	Pioneer 34A50	4/25/20	Pivot

STUDY LOCATIONS & MATURITY DIFFERENCES AT HARVEST





Data Collection:

- Stand Counts
- Pods and Node Counts
- Yield and Moisture

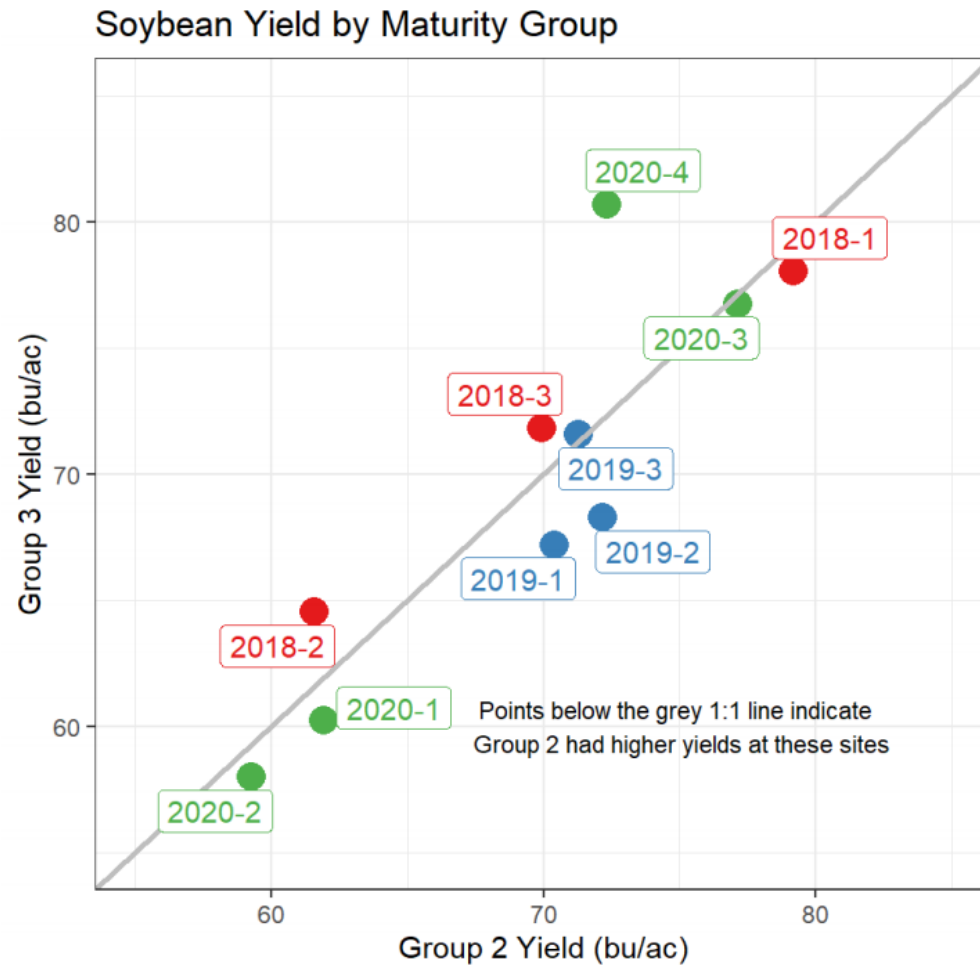


Figure 2. Distribution of yield for group 2 and group 3 soybeans across 10 sites. The grey diagonal line shows the zero-yield difference line. Sites falling below this line indicate higher yield for the group 2 soybeans.

Yield from the studies were analyzed as a large group by comparing the group 2 yields versus the group 3 yields (Table 2).

Table 2. Yields, pods per plant, and nodes per plant for group 2 and group 3 soybeans across 10 sites.

	Yield (bu/acre) [†]	Pods/plant	Nodes/plant
Group 2	70 A*	52.4 A	20.4 A
Group 3	70 A	53.3 A	20.8 A
<i>Site (P>F)</i>	<0.0001	0.0005	<0.0001
<i>Treatment (P>F)</i>	0.6978	0.690	0.140
<i>Site*Treatment</i>	<0.0001	0.393	0.0008

*Values with the same letter are not significantly different at a 90% confidence level.

[†]Bushels per acre corrected to 13% moisture.

Planted April 11, 2020. Harvested Sept. 15 and 23. No-Till. No Irrigation

Results:

	Harvest Stand Count (plants/ac)	Pods/ plant	Nodes/ plant	Test Weight (lb/bu)	Moisture (%)	Yield (bu/ac)†	Marginal Net Return‡ (\$/ac)
Group 2.1 (Pioneer® P21A28X)	125,500 A*	45 A	19 B	56.7 B	11.5 A	59 A	518.33 A
Group 3.1 (Pioneer® P31A22X)	125,333 A	51 A	22 A	57.1 A	10.0 B	58 A	502.67 A
P-Value	0.958	0.434	0.035	0.020	0.020	0.186	0.128

*Values with the same letter are not significantly different at a 90% confidence level.

†Bushels per acre corrected to 13% moisture.

‡Marginal net return based on \$9.50/bu soybean, \$44.77/ac for Pioneer® P21A28X, and \$50.27/ac for Pioneer® P31A22X. Both varieties has the same seed treatment, so this cost is not included in the comparison.

Planted May 1, 2020. Harvested Sept. 25-26. No-Till. Gravity Irrigated.

Results:

	Harvest Stand Count (plants/ac)	Pods/ plant	Nodes/ plant	Test Weight (lb/bu)	Moisture (%)	Yield (bu/ac)†	Marginal Net Return‡ (\$/ac)
Group 2.1 (Pioneer® P21A28X)	134,500 A	51 A	20 A	55.7 B	10.3 B	73 C	646.84 C
Group 2.5 (Pioneer® P25A04X)	122,750 B	55 A	20 A	56.3 A	9.9 B	79 A	700.39 A
Group 2.7 (Pioneer® P27A17X)	122,500 B	61 A	21 A	56.4 A	9.9 B	80 A	708.51 A
Group 3.1 (Pioneer® P31A22X)	120,125 B	53 A	20 A	56.2 AB	11.0 A	77 B	678.74 B
P-Value	0.001	0.137	0.636	0.042	0.003	<0.0001	<0.0001

*Values with the same letter are not significantly different at a 90% confidence level.

†Bushels per acre corrected to 13% moisture.

‡Marginal net return based on \$9.50/bu soybean, \$44.77/ac for Pioneer® P21A28X, \$50.27/ac for Pioneer® P25A04X, \$47.52/ac for Pioneer® P27A17X, and \$50.27/ac for Pioneer® P31A22X. All varieties have the same seed treatment, so this cost is not included in the comparison.

Soybean Maturity Study Summary

- Yield response to maturity group differed by site.
- Overall, yields, pods per plant, and nodes per plant were not different between the group 2 and group 3 soybean.
- We're seeing an estimated 1 day delay in harvest for every 0.1 increase in maturity group.
- The similar yield results demonstrate an opportunity for growers to plant a variety of maturities to spread out harvest.
 - Additionally, for non-irrigated fields, planting a range of high-yield maturities can spread out risk due to uncertainty of rainfall timing.
 - Planting a shorter season maturity group allows growers to establish cover crops earlier.



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FEBRUARY 25 AND 26, 2021

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