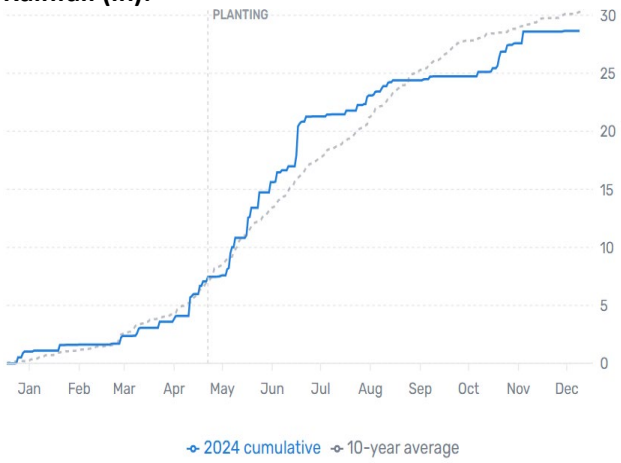
Evaluating Four Soybean Maturities

Study ID: 0802159202401
County: Seward
Soil Type: Hastings silt loam; 0-1% slopes
Planting Date: 5/6/24 for 2.1, 5/8/24 for rest
Harvest Date: 9/19/24 for Groups 2.1, 2.3. 9/25/24 for groups 2.7, 3.1.
Population: 135,000
Row Spacing (in): 30”
Variety: Varied
Reps: 4
Previous Crop: Corn
Tillage: Ridge-Till
Herbicides: ***Pre:*** Enlist®, Zidua®, Roundup PowerMAX® ***Post:*** Enlist®, Roundup PowerMAX®
Seed Treatment: Pioneer® full seed treatment: LumiTreo®, Luminate®, Sebring metalaxyl, L-2030 biofungicide®, ILEVO HL®, Phalanx ® Insecticide, Lumiderm®

Fertilizer: 100 lb /acre 10-24-0-10S-1Z
Irrigation: Gravity, Total: 4.4”
Rainfall (in):



Introduction: With an increasing focus on early planting of soybeans, growers are interested in planting both shorter-season and longer-season varieties to spread the risk load from weather impacts and harvest timing. A shorter-season variety can also aid in planting cover crops after harvest for grazing, erosion, or weed control. A longer-season variety may help take advantage of the longer growing season with higher yields. The goal of this study was to determine any impacts to yield and economics of planting soybean varieties to achieve optimal yields when planting early. This is the seventh year of evaluations of different soybean maturity groups (5 years with dicamba-tolerant soybeans, and this is the second year of Enlist-tolerant soybeans). This study compared Enlist-tolerant soybean varieties including group 2.1 (Pioneer® P21Z88E), 2.3 (Pioneer® P23Z58E), 2.7 (Pioneer® P27Z41E), and 3.1 (Pioneer® P31Z03E). The group 2.1 soybeans were planted May 6, 2024. A heavy rain ceased further planting. The other varieties were planted two days later. The group 2.1 and 2.3 beans were harvested on September 19, 2024, and the group 2.7 and 3.1 beans were harvested on September 25, 2024. The group 2.7 and 3.1 beans had green stems with some leaves, but the combine was harvesting them, so the grower chose to get them while he was harvesting in the area. Soybean stand counts (plants/ac) were taken on September 16, 2024, for the 2.1 and 2.3 varieties, and September 19, 2024, for the 2.7 and 3.1 varieties.

Results:

	Harvest Stand Count (plants/ac)	Moisture (%)	Test Weight (lb/bu)	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
Group 2.1 (Pioneer® P21Z88E)	82,125 B*	13.2 B	56.6 A	82 B	848 A
Group 2.3 (Pioneer® P23Z58E)	100,500 A	16.5 A	55.4 AB	83 AB	857 A
Group 2.7 (Pioneer® P27Z41E)	100,250 A	18.6 A	54.2 AB	83 AB	852 A
Group 3.1 (Pioneer® P31Z03E)	97,750 AB	18.9 A	53.6 B	86 A	889 A
P-Value	0.041	0.002	0.051	0.086	0.1

*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 $11/bu soybean, $56.70/ac for Pioneer™P21Z88E, $56.0/ac for Pioneer™ P23Z58E, $57.40/ac for Pioneer ™ P27Z41E, and $58.10/ac for Pioneer ™ P31Z03E.

Summary:

- Pioneer™ P31Z03E (Group 3.1) yielded higher (86 bu/ac), had higher moisture and thus lower test weight than Pioneer™ P21Z88E (82 bu/ac). Otherwise, there were no differences in yield amongst the varieties.
- There were no differences in marginal net return.
- There were significant differences in harvest stand count, moisture, and test weight.
- The lower plant stand of Pioneer™ P21Z88E may have been impacted by the heavy rains just after planting.
- Planting earlier or later season maturities depends on the grower's system and level of risk, particularly when in non-irrigated situations.