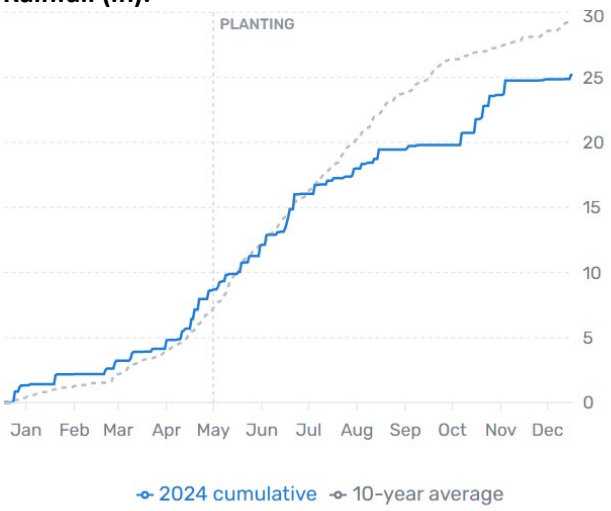
Planting Downforce Rates in Corn

Study ID: 1546059202401
County: Fillmore
Soil Type: Crete silt loam 0-1% slope
Planting Date: 5/15/24
Harvest Date: 10/28/24
Population: 32,000
Row Spacing (in): 30”
Hybrid: Stine® 9709-0
Reps: 4
Previous Crop: Soybean
Tillage: No-till
Herbicides: Burndown*:* Roundup PowerMAX®, AAtrex®4L, and Detonate® on 4/24/24 ***Post:*** DiFlexx® applied on 6/18/24
Seed Treatment: Company standard
Foliar Insecticides & Fungicides: None

Fertilizer: 100-150 lb/ac 11-52-0 variable rate applied in March. 150 lb N/ac UAN applied in late June.
Irrigation: Pivot Total: 8”
Rainfall (in):



Introduction: This grower had purchased Ag Leader’s hydraulic downforce system across the planter in hopes of reducing the wear and tear on his planter and better adjust for varying planting conditions. For this study, the grower used a low (40 lb pressure/row unit), medium (95 lb pressure/row unit), and high (200 lb pressure/row unit) downforce pressure during planting. The study design was a randomized complete block with 4 replications.

The goal was to take emergence counts each day to account for any differences observed in emergence for the different pressures. The low downforce had better emergence the first two days; however, by day 4 of emergence, the corn in all downforce treatments showed similar stand counts (Figure 1). The final emergence counts in the low and medium downforce treatments (34,000 plants/ac) were greater than the original plant stand the grower was aiming for (32,000 plants/ac).

A windstorm shortly after the DiFlexx® application resulted in corn leaning and goosenecking, impacting yields throughout the field. The leaned/goosenecked plants also made walking in the field difficult and harvest stand counts were not taken because of this.

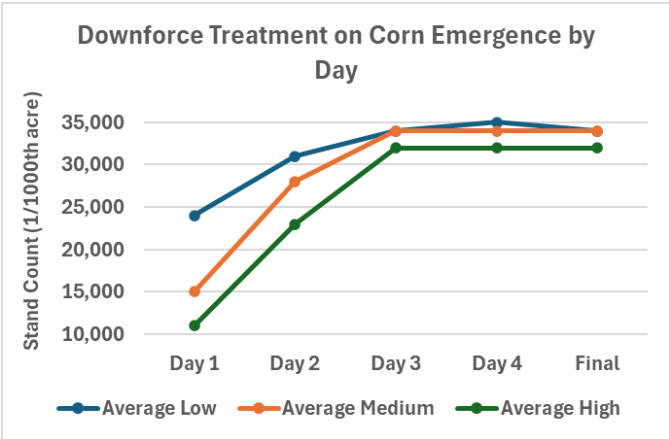


Figure 1: Emergence count by day (day 1 is first corn emergence)

Results:

	Emergence Counts (plants/acre)	Moisture (%)	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
Low	34,000 A*	11.5 A	208 A	905 A
Medium	34,000 A	11.5 A	209 A	908 A
High	32,000 A	11.5 A	205 A	892 A
P-Value:	0.23	0.84	0.46	0.46

*Values with the same letter are not significantly different at a 90% confidence level.
†Bushels per acre corrected to 15.5% moisture.
‡Marginal net return based on $4.35/bu corn.

Summary:

- There were no significant differences in emergence counts or moisture.
- There were no significant differences in yield and marginal net return.
- The grower plans to test the downforce study again next year.