

Greensnap and Stand Reduction Effects on Corn Yield

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Objective

Determine the effects of greensnap and stand reduction on corn yield and kernel weight.

Materials and Methods

Site-Year 1: Ames (AEA) | Crop Year–2019

Soil type	Nicollet, Webster
Previous crop	Soybean
Cultivar	P0688AM
Planting date	June 04, 2019
Row spacing	30-in.
Seeding rate	36,000 seeds/acre
Tillage	Field cultivator in the spring
Fertilizer	150 lb./acre as MESZ (12-40-0) in the fall
Nitrogen	185 lb. N/acre as NH ₃ (32-0-0) in the spring
Harvest date	October 31, 2019
Experimental design	Randomized complete block design
Replications	Four
Treatments	Both the greensnap (stalk breakage above the ear) and stand reduction (stalk breakage below the ear) 'events' had three timings (TM: V16, VT/R1, R2 in 2019) and four severities (SV: 0%, 25%, 50% and 75%).

Site-Year 2: Ames (AEA) | Crop Year–2021

Soil type	Nicollet, Webster
Previous crop	Soybean
Cultivar	P0688AM
Planting date	May 06, 2021
Row spacing	30-in.
Seeding rate	36,000 seeds/acre
Tillage	Field cultivator in the spring
Fertilizer	150 lb./acre as MESZ (12-40-0) in the fall
Nitrogen	185 lb. N/acre as NH ₃ (32-0-0) in the spring
Harvest date	October 15, 2021
Experimental design	Randomized complete block design
Replications	Four
Treatments	Both the greensnap (stalk breakage above the ear) and stand reduction (stalk breakage below the ear) 'events' had three timings (TM: V13, V16, VT/R1 in 2020) and four severities (SV: 0%, 25%, 50% and 75%).

Site-Year 3: Ames (AEA) | Crop Year–2022

Soil type	Nicollet, Webster
Previous crop	Soybean
Cultivar	P0688AM
Planting date	May 23, 2022
Row spacing	30-in.
Seeding rate	36,000 seeds/acre
Tillage	Field cultivator in the spring
Fertilizer	150 lb./acre as MESZ (12-40-0) in the fall
Nitrogen	185 lb. N/acre as NH ₃ (32-0-0) in the spring
Harvest date	October 21, 2022
Experimental design	Randomized complete block design
Replications	Four
Treatments	Both the greensnap (stalk breakage above the ear) and stand reduction (stalk breakage below the ear) 'events' had three timings (TM: V13, V16, VT/R1 in 2022) and four severities (SV: 0%, 25%, 50% and 75%).



Results

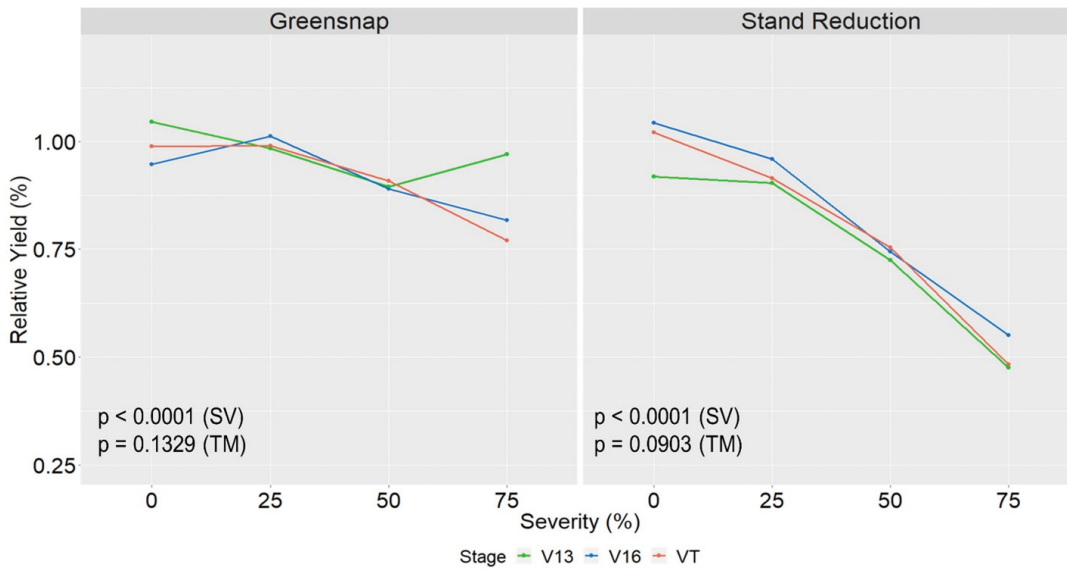


Figure 1. Relative yield at 15% moisture across years in both 'events' (2019, 2021, 2022).

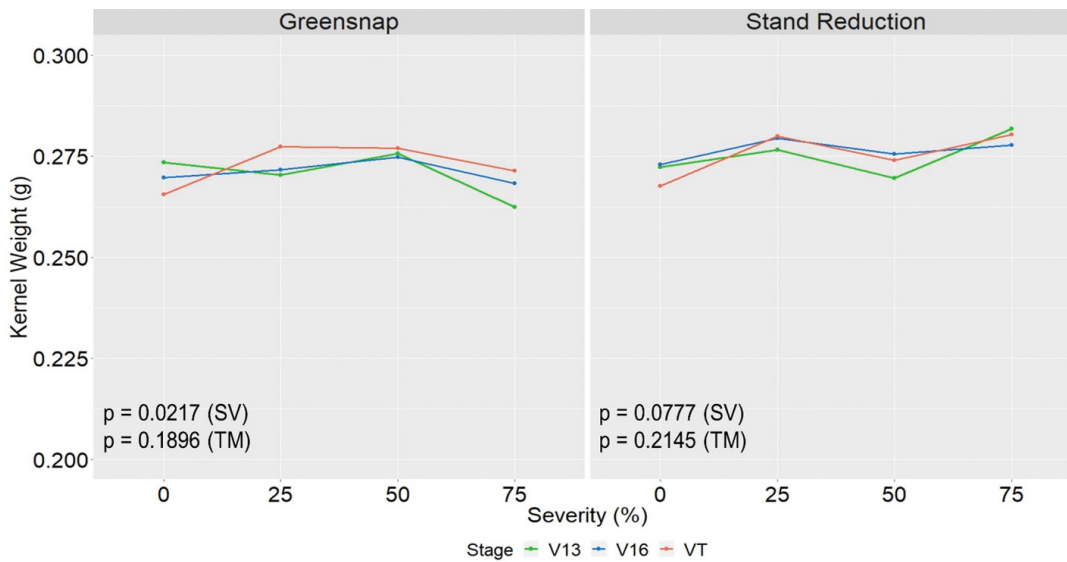


Figure 2. Kernel weight across years in both 'events' (2019, 2021, 2022).

Key Takeaways

- Across years, treatment severity significantly affected corn yields: however, the stage of the event did not affect corn yield. For both events, yield loss was less than 1% for each percent severity, as previously assumed.
- Generally, kernel weight increased for greensnap severity of 25% and 50% but was not affected by timing of greensnap. The stand reduction event had moderate kernel weight significance where the 75% severity was greater than the 0% severity.

Acknowledgements

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