

Influence of Corn Stature on Establishment of Improved and Commercial Alfalfa in Interseeded Systems

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Alfalfa Inters seeding

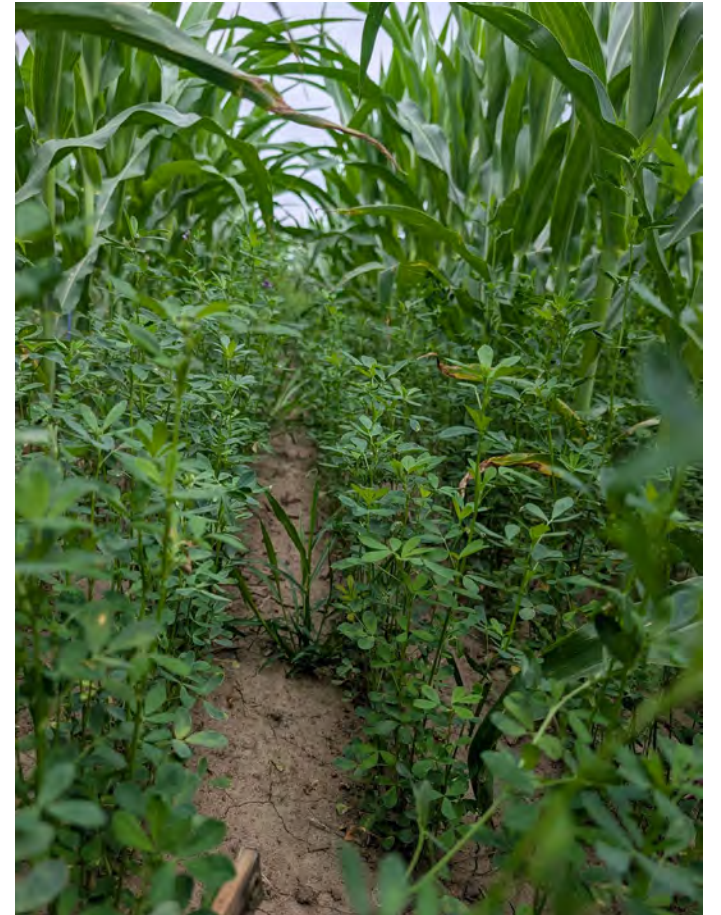
Interseeding – Planting a cover/companion crop into an already developing cash crop.

General benefits

- Reducing erosion after harvest
- Nitrogen fixation
- More overall yield in the same amount of space

Challenges

- Alfalfa health



Improved Alfalfa

Some commercial varieties naturally perform well in interseeded systems

55H94, 55H96, Magnagraz II, Hybriforce 3400, etc.

These varieties have traits in common

Breeding for interseeded systems has shown to improve performance.



Short Corn

- Tends to be roughly 33% shorter than tall corn*
- Shorter stature reduces risk of lodging
- What benefit could short corn bring to an interseeded system?



<https://www.cropscience.bayer.us/articles/traits/what-are-short-stature-corn-hybrid>

Hypotheses

- Short corn's short stature will allow interseeded alfalfa greater access to light, resulting in an overall higher percentage of alfalfa cover.
- The breeding efforts of improved alfalfa will result in a higher percentage of cover when compared to a standard alfalfa variety.
- Short corn interseeded with improved alfalfa will be the most productive treatment due to combined beneficial factors.

Site Locations

Arlington, WI -Plano silt loam soil

Prairie Du Sac, WI -Richwood silt loam soil

Similar in terms of soil and climate.

In 2025, PDS received slightly more total rainfall over the growing season.

Repeat in 2026.



Treatments and Experimental Design

Treatments:

- Corn Stature
 - Short Corn
 - Tall Corn
- Alfalfa
 - Standard
 - Improved
- Randomized Complete Block Design
 - Full Factorial



Plant Counts



<https://extension.umn.edu/forage-harvest-and-storage/stem-and-plant-density-predictors-alfalfa-yield>



Summer Data Collection

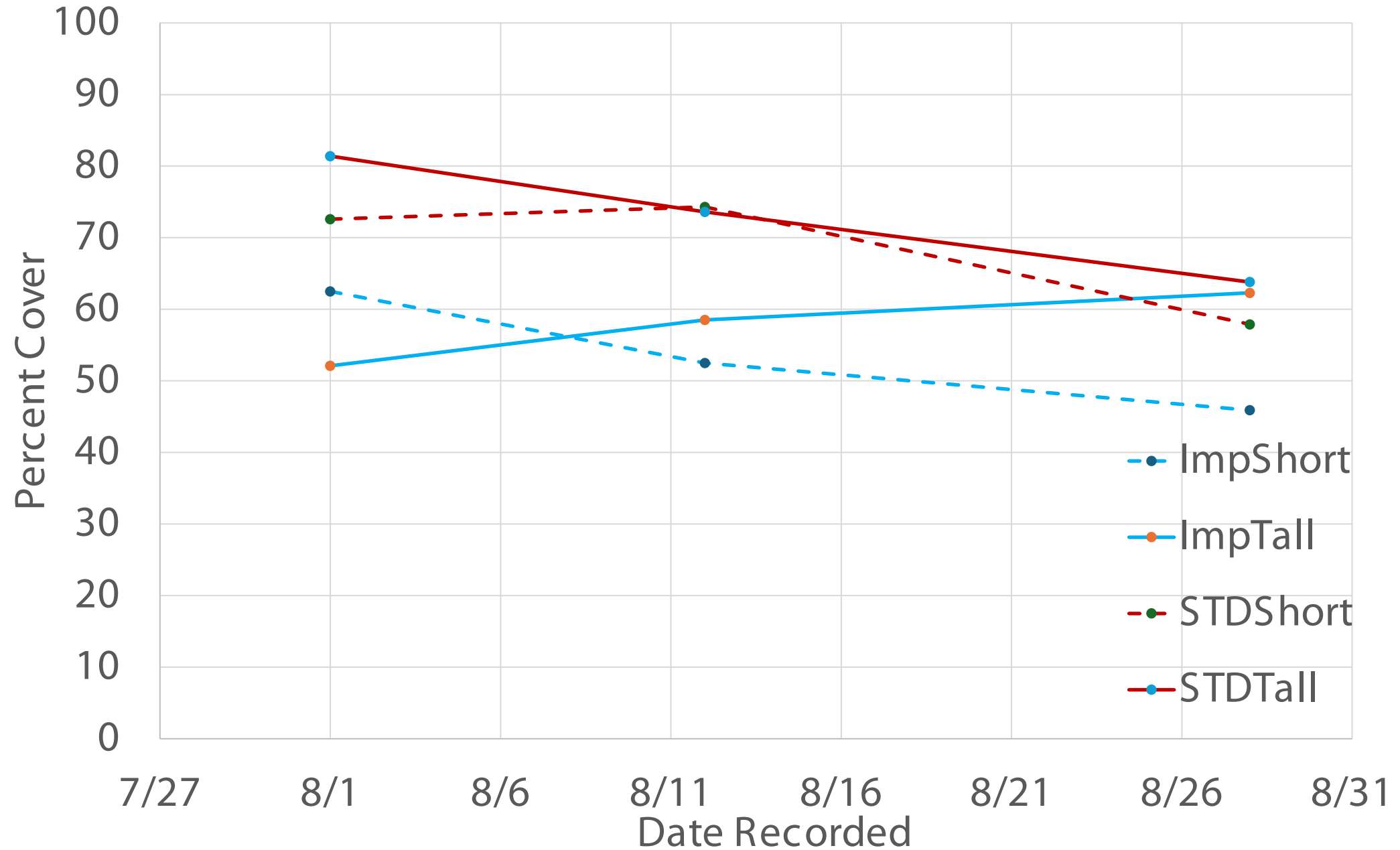


Percent Cover



Percent Leaf Injury

Arlington Percent Alfalfa Cover

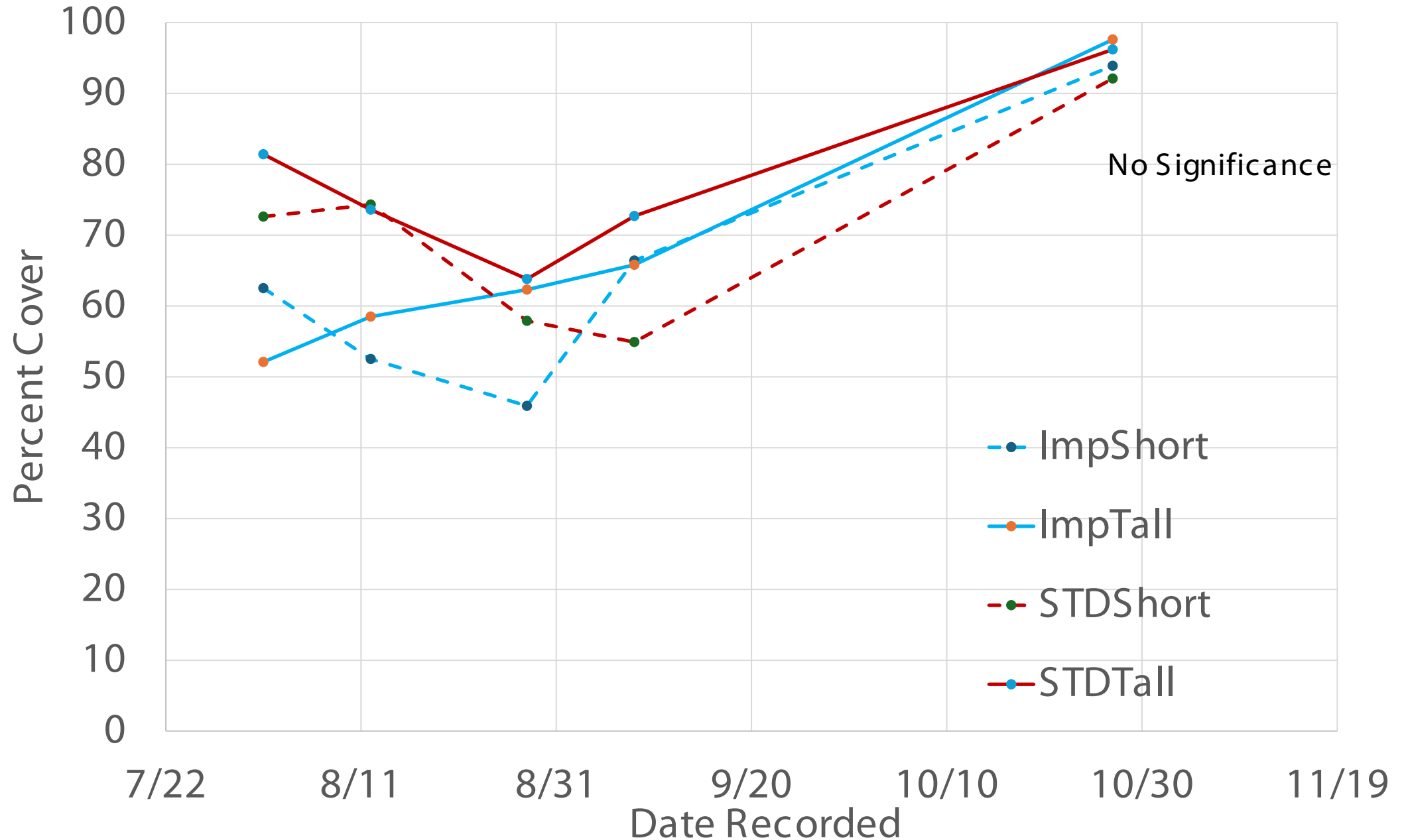


Root Sampling



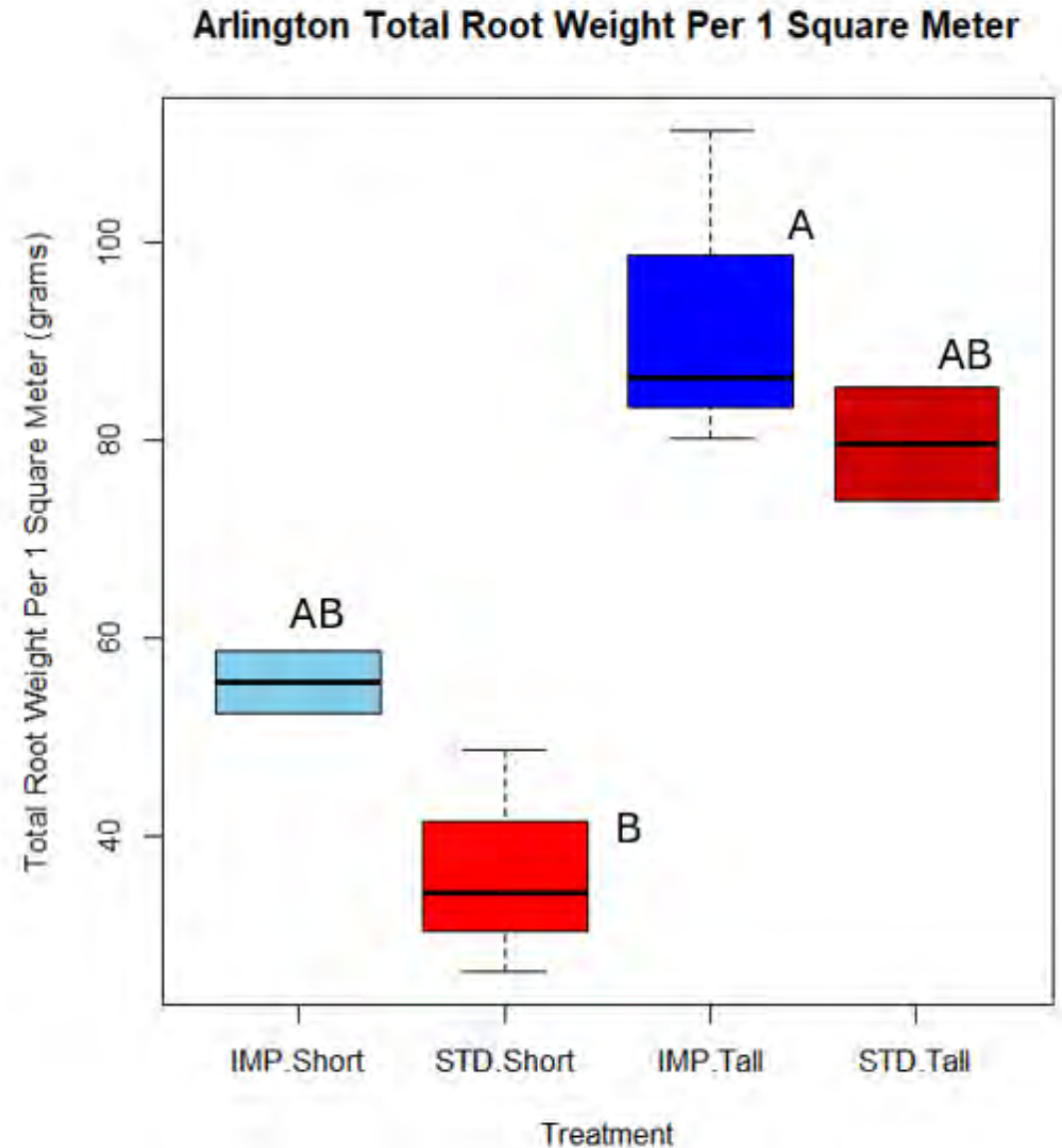
<https://www.treadlitebroadforks.com/products/the-market-gardener-broadfork-30-wide-7-tines?srltid=AfmBOor6B4Oh8mf1194TZBezIcHJ2cc1qPHcOTVG13xhev6y8Uj3jAWM>

Arlington Percent Alfalfa Cover



Total Root Weight at Corn Harvest

- Tall-Improved: A – 92.6 grams
- Tall-Standard: AB – 79.6 grams
- Short-Improved: AB - 55.6 grams
- Short-Standard: B - 36.5 grams





ARL 124 STD SHORT

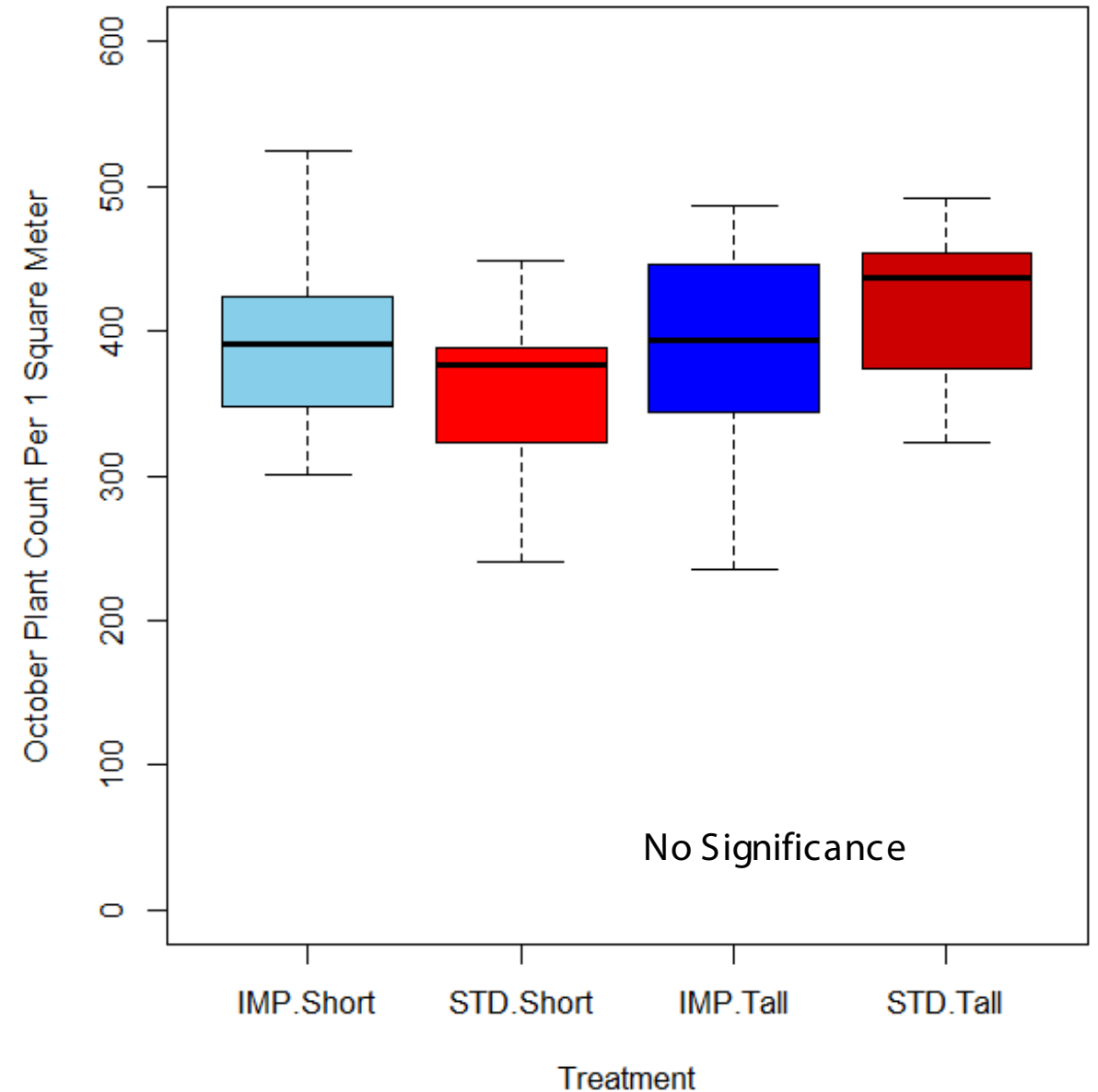


ARL 305 IMP TALL

Alfalfa Plant Counts at End of Season

No significance between treatments
($p=0.1123$)

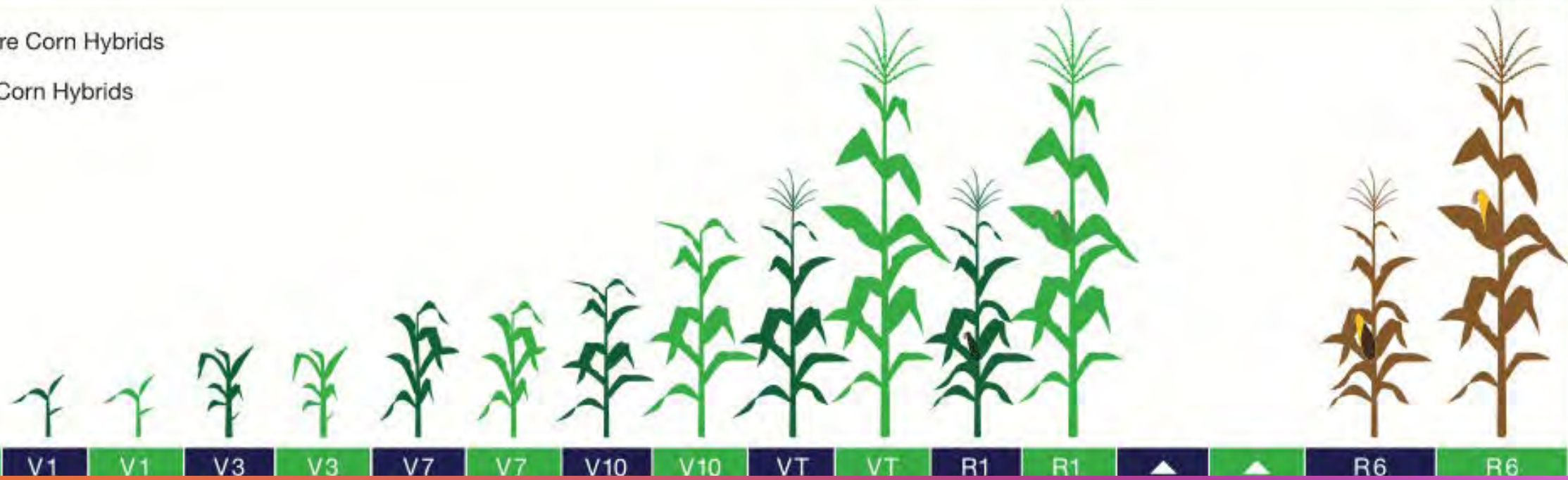
Arlington October Plant Count Per 1 Square Meter



What do our results mean?

- Minimal leaf injury
- Tall vs short corn?
- Improved vs standard alfalfa?

- Short Stature Corn Hybrids
- Traditional Corn Hybrids



<https://www.cropscience.bayer.us/articles/traits/height-difference-between-traditional-corn-products-and-short-stature-corn-hybrids>

Why did alfalfa under tall corn consistently perform better?

- What makes short corn short?
- PAR significantly higher under tall corn than short corn.

Next Steps

- Repeat in 2026
- Disease Resistance Experiment



Thank You:

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