

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

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Spring-seeded alfalfa (*Medicago sativa* L.) produces only ~50% of the biomass of a fully established alfalfa stand. In silage corn (*Zea mays* L.)-alfalfa interseeded systems, spring-seeded alfalfa is established between rows of corn, which works as a companion crop to alfalfa and is harvested for silage. This results in a fully established alfalfa stand in the second year of the interseeded system. Alfalfa planted interseeded with silage corn is shown to improve overall forage harvested compared with traditional silage corn-spring seeded alfalfa rotations. However, alfalfa grown under corn has also shown to experience harsher growing conditions, likely due to interspecific competition, decreased direct sunlight, and more humid conditions under the canopy that promote fungal diseases. This often leads to poor survival of the alfalfa crop. Ongoing selective breeding has shown to improve alfalfa's tolerance to these conditions, and efforts are underway to evaluate the performance of these novel alfalfa lines when interseeded with different crops. Short corn is a newer group of corn hybrids shown to grow to a shorter height due to a shortening of internodes. This trait is beneficial for reducing corn lodging and could modify airflow and light interception under the canopy. The objective of the study was to evaluate whether a short statured corn would allow for better performance in alfalfa bred for interseeded systems, commercial and improved alfalfa. We evaluated the performance of an alfalfa cultivar bred for corn interseeding over 3 cycles (Improved Alfalfa) and a standard commercial alfalfa (Standard Alfalfa) interseeded under short stature (Short Corn) and regular corn (Tall Corn). The experiment was arranged in a randomized complete block design with a full factorial arrangement and four replicates and two locations. Initial results show that improved Alfalfa was roughly equal in canopy coverage to Standard Alfalfa. Both alfalfa cultivars grown under Tall Corn had a 9.6% increase coverage than Short Corn.