

Stand dynamics of grass and alfalfa mixtures during seeding year.

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Inter and intra-specific competition among tall fescue (*Festuca arundinacea* Schreb), meadow fescue (*Festuca pratensis* Huds), and orchardgrass (*Dactylis glomerata* L.) mixtures with alfalfa (*Medicago sativa* L.) with increasing grass seeding rates impacted plant populations and plant establishment during the seeding year. 'Barienne' and 'BarElite' endophyte-free tall fescue, 'Pradel' meadow fescue, and 'Intensive' and 'Baridana' orchardgrass were seeded with 'Baralfa 53 HR' alfalfa in mixed, drilled 15 cm rows at grass seeding rates of 0, 15, 30, 45, 60, and 75 grass seeds per 100 alfalfa seeds at the University of Wisconsin Arlington research station in 2009 (444 alfalfa seeds m⁻²), at the Arlington, Lancaster, and Marshfield research stations in 2010 (655 alfalfa seeds m⁻²), and were harvested three times in the seeding year. Plant counts were taken 30 and 150 days after planting. Grass populations increased with seeding rate at 30 days, but not at 150 days mostly due to declines in grass populations from intra-specific competition among grasses. All grass seeding rates reduced alfalfa populations and establishment at 30 days after planting. Intra-specific competition among alfalfa plants in solo seedings reduced alfalfa populations and establishment equally at 150 days compared with the inter-specific competition of alfalfa with grasses in mixtures.