



Evaluation of sainfoin-alfalfa mixtures and persistence for bloat-safe grazing

CATEGORY [agronomy](#) | June 21, 2022

Forage dry matter yields of sainfoin-alfalfa mixtures were greater than sainfoin monocultures in all trials. However, sainfoin persistence levels in alfalfa-sainfoin mixtures were less than the recommended level to eliminate ruminant bloat risk. Further agronomic studies on optimum seeding ratios of alfalfa to sainfoin, and weed control in sainfoin stands are needed to confirm their adaptation and use for bloat-safe alfalfa grazing.

Newer sainfoin cultivars with improved regrowth is renewing producer interest in growing sainfoin-alfalfa mixtures for bloat-safe alfalfa grazing and greater cattle weight gain. However, success of sainfoin regrowth and persistence in mixtures with alfalfa in the Parkland region of Saskatchewan needs to be evaluated.

In this study, the objective was to evaluate the forage dry matter yield (DMY) and persistence of newer sainfoin cultivars in mixtures with alfalfa. A second objective was to determine the impact of harvest frequency on the persistence of sainfoin.

Forage dry matter yield and mixture composition

In the first experiment several sainfoin cultivars and sainfoin-alfalfa mixtures were compared in field plots at Lanigan, Saskatchewan from 2016 to 2018. A total of 12 sainfoin cultivars were seeded in June 2015 in monocultures or in alternate rows with AC Grazeland alfalfa. The seeding rates were 29.4 lbs./ac (33 kg/ha) for sainfoin monoculture and a ratio of 14:8 lbs./ac (16:9 kg/ha) for the sainfoin/alfalfa mixtures.

All plots were harvested in early July (Cut 1) in each of the three years of the experiment with a forage plot harvester. This was followed by a hand clipped regrowth sample (Cut 2) collected from each plot in late August.

The results showed that in all harvests, the forage dry matter yield was greater in the sainfoin-alfalfa mixtures than in sainfoin monocultures. However, the proportion of sainfoin in mixtures was less than the recommended level to eliminate ruminant bloat risk, which has been reported to be 20 to 30% sainfoin of dry matter yield. From 2016 to 2018, in Cut 1 the proportion of sainfoin in mixtures declined from 4.1 to 1.3 per cent of total dry matter yield, and 19.0 to 4.8% in Cut 2. The proportion of sainfoin was reduced by weed competition in this study.

Sainfoin persistence and harvest frequency

In a second experiment, field trials were established in May 2017 at the University of Saskatchewan to compare responses of three sainfoin cultivars grown in a monoculture under 1-, 2- or 3 harvest frequencies for 2 years in 2018 and 2019. A seeding rate of 15 lbs./ac (17 kg/ha) of sainfoin was used for each cultivar grown: AAC Mountainview, Nova and Shoshone. In the year of establishment, a pre-seeding application of glyphosate was applied for weed control, followed by a mowing treatment.

Using a forage plot harvester, the single harvest treatments were harvested in late June, the two-harvest treatments at the end of June and mid-August, and the three-harvest treatments in late-June, mid-July and mid-September in 2018 and 2019. The forage dry matter yield was calculated for all plots. A visual stand density rating was completed in 2019.

The results of this experiment showed that an increase of harvest frequency did not reduce the sainfoin stand percentage. The sainfoin cultivar AAC Mountainview was more persistent than the current standard Nova, with a stand percentage of 91% for AAC Mountainview compared to 62% for Nova.

Overall, in both experiments under different growth environments at Lanigan and Saskatoon, the sainfoin stand declined. This decline can be attributed to weed and alfalfa competitions, water

stress, low winter temperature stress, or their combination. Further agronomic studies on optimum seeding ratios of alfalfa to sainfoin, and weed control for sainfoin stands are needed to confirm their adaptation and use for bloat-safe alfalfa grazing.

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Photo by Bill Biligetu, U of S.