

## **Sainfoin is Making a Comeback in the 21st Century**

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There is a lot of recent interest about sainfoin for hay or pasture. Sainfoin (*Onobrychis viciifolia* Scop.) is an ancient crop originating in arid regions of Eurasia and first domesticated in Europe several centuries ago. In Old French the translation of sainfoin is “healthy hay”. It is a forage legume adapted to similar regions and uses as alfalfa, however its main advantage is its bloat-free characteristic. A significant amount of sainfoin research and variety development occurred in the Western U.S. and Canada during the 1970’s, but the crop was never widely grown. Sainfoin is best adapted to well-drained, calcareous soils in the West, and under these conditions it is competitive with alfalfa in its production and longevity. Under irrigation, high rainfall or in humid areas, the longevity of sainfoin is not equivalent to alfalfa, primarily due to root and crown rot diseases.

Sainfoin is well-adapted to the hay-stockpiling system used by ranchers in Montana and the northern Great Plains. In this system, first-cut hay is harvested, and the resulting aftermath is used for fall grazing. Sainfoin at mid-bloom retains its leaves and nutrient content better than other forage legumes, and first-cut yields of sainfoin are consistently higher than those of alfalfa. Sainfoin is bloat-free due to its levels of condensed tannins, however it is highly palatable to livestock and wildlife. Also, sainfoin is immune to the alfalfa weevil.

The current interest in sainfoin appears to be due to ranchers seeking high-quality pasture mixes to reduce haying. Since the 1970’s several producers have used the bloat-free “Cooper Mix” for hay-stockpiling or direct grazing. This seed mix is based on sainfoin, with varying proportions of meadow brome grass, birdsfoot trefoil and/or orchardgrass developed by former Montana ARS scientist C.S. Cooper.

The major limitation to the widespread use of sainfoin is its large seed size and resulting high seeding rates and costs. Sainfoin has a large single-seeded pod, with about 18,000 seeds per pound (compared to 220,000 for alfalfa). In early research, the established seeding rates for most forage legumes and grasses are about 22 or 30 viable seeds per square foot on dryland or irrigated lands, respectively. Therefore the required seeding rate for pure stands of sainfoin is 30 to 35 pounds (dryland) and 40 to 45 pounds (irrigated) of pure live seed (PLS) per acre. At prices ranging from \$2 to \$3 per pound, this requires from \$60 to \$135 of seed per acre for a pure stand. To reduced seed costs, sainfoin is often planted in a mixture with desirable forage grasses.

Sainfoin’s adaptability and production have been documented in Montana for the past 45 years, and we are encouraging producers to consider it for new hay or pasture plantings. In designed pasture mixes such as the Cooper Mix, it is more economical than ever. Below are some resources to help producers with their decisions:

#### Seed Sources:

Numerous seed sources are available in Montana, and most seed suppliers handle or can source seed of sainfoin. These include the older varieties 'Eski', 'Remont', 'Melrose' and 'Nova', and the new varieties 'Delaney' and 'Shoshone'. One product called "Rocky Mountain Remont" is derived from an old certified seed field of Remont (available at 406-278-9951). This line performed similarly to Eski and Remont in recent forage variety trials. Use an adapted variety, and be sure the seed has a recent germination and purity test.

#### More Information:

Growing sainfoin (our MSU Extension MontGuide):

<http://www.montana.edu/wwwpb/pubs/mt9321.pdf>

#### Seed inoculation:

Sainfoin requires a specific Rhizobium inoculant for nodulation, and it is not found naturally in most soils. Buy pre-inoculated seed or inoculant to treat before planting.

<http://animalrangeextension.montana.edu/articles/forage/General/LegumeInoculationMTGuide.pdf>

Variety forage performance data in MAES trials:

[http://www.animalrangeextension.montana.edu/articles/forage/Species/2004\\_MiscLegume\\_Summary.pdf](http://www.animalrangeextension.montana.edu/articles/forage/Species/2004_MiscLegume_Summary.pdf)