

PLANT SCIENCES TIMELY INFORMATION SERIES

No. 2

July 2006



'Shoshone' Sainfoin

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Sainfoin, *Onobrychis viciifolia* Scop., is a member of the Fabaceae (Leguminosae) family. It is native to regions around the Mediterranean, Black and Caspian Seas and north into Russia. It has been cultivated in Europe for at least 450 years. Sainfoin was introduced from Turkey into the northern Great Plains of the U.S. in Montana and North Dakota in the 1960s. From these early introductions, varieties of sainfoin released by Montana State University included 'Eski' in 1964 and 'Remont' in 1971.

Sainfoin is an extremely palatable and nutritious forage crop. It is preferred over other forage species by cattle, sheep and deer. It matures faster than alfalfa providing early spring forage.



Figure 1. Lambs grazing on sainfoin in a mixed legume-grass pasture.

Sainfoin is similar to alfalfa in feed value. Both can be cut and baled at 10% bloom. However, unlike alfalfa, sainfoin can be grazed as it does not cause bloat in ruminant animals. Sainfoin can be used for wildlife habitat restoration, for wildlife enhancement as a component with other forage species or as a legume component under the Conservation Reserve Program. Due to extreme palatability and limited acreage of sainfoin, deer fencing was required at several test sites in Wyoming and Montana in order to obtain seed and forage production data. Beekeepers indicate honey yields with sainfoin are much greater than from alfalfa.

'Shoshone' sainfoin was derived from the intercross of surviving plants remaining in an irrigated sainfoin variety trial infested with the Northern Root-knot nematode (*Meloidogyne hapla*) in southeastern Wyoming. The Northern Root-knot nematode was first described on sainfoin in the U.S. from Wyoming in 1986 (1).

In tests conducted in the greenhouse at Laramie, Wyoming, Shoshone expressed a higher level of tolerance to the Northern Root-knot nematode than 'Remont' sainfoin by having higher dry shoot weight and root biomass, as well as lower plant mortality. A search for resistance in other sainfoin varieties and plant introductions was unsuccessful (2).

Shoshone was evaluated in Wyoming and Montana for forage production from 1996 through 2003 under both dryland and irrigated conditions. Two cut yields adjusted to 12% moisture were 4.37 T/A when irrigated and 1.21 T/A when grown under dryland conditions. Under irrigation, Shoshone intercropped in alternate rows with 'Manska' intermediate wheatgrass yielded 3.97 T/A and 0.95 T/A under dryland conditions when intercropped with 'Bozoisky' Select Russian wildrye grass.

Shoshone had the second highest 4-year forage yield (5.49 T/A, 12% moisture) of 16 forage legumes including alfalfa, birdsfoot trefoil and cicer milkvetch grown under irrigation in a 1- or 2-cut regime at Bozeman, Montana (D. Cash, Montana State University, 1996-1999).

Shoshone was jointly released in 2005 by the College of Agriculture, Agricultural Experiment Stations at the University of Wyoming and Montana State University, and by the United States Department of Agriculture, Natural Resources Conservation Service. The variety was named 'Shoshone' in honor of Chief Washakie of the Eastern Shoshone Tribe.

Attributes and Uses of Shoshone Sainfoin

- Excellent forage crop for haying or grazing.
- Does not cause bloat in ruminant animals.
- Good drought tolerance and winterhardiness.
- Resistant to the alfalfa weevil.
- Tolerance to the Northern root-knot nematode.
- Resistant to the Alfalfa Stem Nematode.
- Legume component in plantings for the Conservation Reserve Program.
- Legume component in seed mixtures used for wildlife habitat restoration and as a mixture in 'Food Plots' in hunting leases.
- Excellent honey produced in seed production fields.
- Non-invasive species.
- Excellent for horses on small acreages.

Foundation class seed of Shoshone is being produced at the Powell R&E Center under the supervision of the Wyoming, Seed Certification Service. Certified seed of Shoshone should be available for purchase in late summer 2006 from Montana and in late 2007 from Wyoming. Sainfoin requires a different strain of Rhizobium inoculant than alfalfa and is available commercially from Nitragin® Company, <http://www.nitragin.com>. Seed of 'Remont', released by Montana State University in 1971 and 'Eski', released in 1964, are both available.

Shoshone has recently been registered in Crop Science (Reg. no. CV-258, PI 639688). Application for Plant Variety Protection will be made soon.

References

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