

Falcata Alfalfa



Successful revegetation of western rangelands has suffered from a lack of affordable, drought tolerant legumes. Alfalfa and yellow sweet clover have long been favored as additions to grass seed mixes but each have weaknesses which often lead to unsatisfactory long term results. Scientists believe Falcata alfalfa, found growing in eighty-year old stands in western South Dakota may have superior drought resistance and longevity qualities compared to alfalfa varieties now commonly available.

Why are legumes important?

Legumes such alfalfa, yellow sweet clover, lupine, prairie clover and loco weed all fix nitrogen in the soil. This nitrogen is available for other plants to use, and studies show that grasses planted with legumes yield more forage than grasses without legumes. Some legumes can add 50-90 lbs of nitrogen to the soil per acre, each year. Many of our rangeland soils are naturally nitrogen deficient and this can limit the growth and quality of range grasses even in wet years. Native legumes used in seed mixes fall into three categories: expensive, finicky or toxic. Consequently, yellow sweet clover and alfalfa have become the legumes of choice for seeding because of their reliability, vigor and low cost.

Alfalfa and yellow sweet clover

Yellow sweet clover is often the first choice of expense conscious ranchers, but many have discovered that it can be a false economy. Yellow sweet clover has two major drawbacks which have caused land managers to back away. Yellow sweet clover can become aggressive, spread to adjacent range and put serious competitive pressure on existing native grasses and forbs. Additionally, yellow sweet clover cycles dramatically, making it difficult to count on.

Alfalfa is a steady producer but tends to lack persistence in areas below 15" of precipitation, and may die out during extended drought. Attempts to overcome drought vulnerability in alfalfa have focused on creating rhizomatous varieties with fibrous root mass such as Travois and Spreador, the theory being that new, vigorous plants sprouting off of older mother plants will be able to endure drought better than their older relatives. These desirable characteristics have been achieved by introducing *Medicago sativa ssp. falcata* characteristics, falcata alfalfa, into established alfalfa lines. Breeders have favored the development of high pro-

duction, disease resistant varieties, from which large amounts of inexpensive seed can be harvested. Because falcata seed is difficult to produce, interest in falcata has been low....until now.

What do we know about falcata alfalfa?

In 1915, N.E. Hansen, professor at Brookings, South Dakota, sent seeds he had collected in Siberia to several farmers and ranchers to try. Over the decades, these patches of falcata alfalfa went unheralded until in the 1950's, when Norman Smith recognized the potential of the falcata alfalfa thriving untended on land his great uncle had planted near Lodgepole, South Dakota. Smith began interseeding the seed from these pioneer stands into his rangeland, with considerable success. While other alfalfa varieties have met with poor establishment success on rangelands, falcata readily establishes in native rangelands.

In 2000, while conducting research on carbon sequestration of rangelands, Dr. Gerald Schuman, research scientist from the USDA Agricultural Research Service became fascinated by the success and longevity of Smith falcata alfalfa. Schuman determined that soil nitrogen was significantly higher in native grass stands with falcata than stands without falcata. Additionally, falcata increased the overall biomass of grass stands from 42% to 143% and led to increases of up to 30% in plant protein in plants where falcata was interseeded. Falcata alfalfa had added as much as 5 tons of organic carbon per acre on some pastures.

Falcata alfalfa's endurance appears to be due to its fibrous roots which compete well for limited soil moisture. The fibrous, creeping root mass may also help defend against invasion by weedy annual bromes such as cheatgrass, *Bromus tectorum*.

Some have expressed concern about falcata alfalfa's ability to spread across the range. In eighty years, it has moved two miles into adjacent land at the Smith ranch by livestock ingestion and fecal spreading. Species diversity can be reduced if falcata canopy cover exceeds 50%. How falcata alfalfa will behave in other areas is not known.

How to plant and use falcata alfalfa

Plant in 4-5 ft. row spacing by placing sweeps in front of the drill opener (disk) to produce an opening in the sod 1 1/2" deep and 6"-8" wide. A seeding rate of 1/3- 1/2 pound per acre will produce a falcata density of 4-5 plants per square yard after several years as plants begin to spread between the seeded rows. Plants compete well with most native western grasses but may struggle against smooth brome when conditions favor the brome grass. Falcata should not be grazed until the second year after seedling establishment.

Because of its slow regrowth, falcata should be rested at least one month before regrazing. Well managed spring, fall and winter grazing will enable falcata to thrive. Avoid frequent and extensive grazing of this winter-hardy alfalfa.

Besides the benefits of superior forage and yield, alfalfa in a range setting can pull livestock away from hard hit riparian areas and can reduce the need for winter feed supplements.

For many, the benefits of falcata alfalfa can be outstanding, but there's only one way to find out, and that's to try it. For a small investment you may get substantial benefits for a hundred years!

Available at Wind River Seed, (307) 568-3361