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Sod Seeding Alfalfa

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Introduction

Seeding directly into native hay stands can dramatically increase hay yield and quality. Low yielding hay areas too stony or saline for conventional tillage can be significantly improved by directly seeding alfalfa into the native vegetation. The following table shows the increase in yields on an upland site in the Interlake over four years.

Increased Yield From Sod Seeding

	Sod Seeded		Native Hay Check	
Year	lb/acre	kg/hectare	lb/acre	kg/hectare
seed down year	522	585	432	484
2nd year	1654	1854	480	538
3rd year	3760	4215	600	672
4th year	4940	5538	625	700

The table shows a significant increase in yield. However, equally important is the superior quality of the alfalfa forage. Samplings at harvest indicated a protein content of 7 to 8 percent for the native hay while samples from the sod seeded alfalfa area ran at 13 to 14 percent protein.

A wide selection of new sod seeding drills make this practice possible. Although sod

seeding was done as early as 1928, it is only recently that suitable, commercially available equipment has been developed. The practice of sod seeding or zero till is also being encouraged by the energy saving on fuel and the soil conservation aspect on soils susceptible to wind and water erosion. Some of the following practices will help in successful establishment of legumes into existing sod.

Preparation

Planning one year ahead is essential to prepare the site for sod seeding. This will allow the operator to control weeds and native vegetation before seeding. Controlling competition is critical to establishing new forage stands. Clipping and/or over grazing, burning, chemical sprays or a combination of these techniques can be used both to control weeds and native grasses long enough to allow seedling establishment and also to reduce the trash cover for easier drill penetration.

Control of Grass and Weeds

A number of herbicides can be used for vegetation control prior to sod seeding. 2,4-D can be used to control broadleaf weeds, however, herbicide residues at high rates may affect seedlings. At the present time, Roundup and Gramoxone show the most promise for permanent pasture renovation.

Roundup, as an overall spray at 1 to 1.5 L/acre, is most effective when applied to grasses 6 to 8 inches (15-20 cm) tall. It translocates to the roots and can completely kill out competing grasses. However, it is an expensive treatment.

Gramoxone can be used to suppress sod growth. Apply 1.25 to 2.2 L/acre in May after 2 to 4 inches (5 to 10 cm) of new growth has appeared. Gramoxone or paraquat kill the above ground vegetation but does not translocate into the roots so regrowth will occur. However, control lasts for about three to four weeks which allows enough time for the forage seedlings to establish.

In the year of seeding, soil samples should be taken to determine the fertility requirements of the plants. Phosphorus fertilizers may be applied with the seed at rates up to 25 lbs/acre (25 kg/ha) of actual P2O5. Additional rates of phosphorus and all other nutrients should be applied broadcast before or immediately after seeding. Avoid nitrogen fertilizers since they will encourage more grass growth and provide more competition to the seeded legumes.

Total 1973 Yields and Legume Contribution of Sod Seeded Birdsfoot Trefoil and Alfalfa in Bluegrass Sod.
Shelby-Grundy Experimental Farm, Ringgold County, Iowa
(sod seeded 1972).

Yield of Dry Matter -- Tons/Acre

	Medium -- High Fertility		Low Fertility	
Legume sod seeded	Total	Legume	Total	Legume
Trefoil	3.5	2.3	3.2	2.3
Alfalfa	4.2	3.0	2.2	0.5

Select Proper Species

Since the purpose of sod seeding is to improve the quality and yield of forage, a legume is recommended. Alfalfa is the easiest to establish. The seedlings are vigorous, the plant grows rapidly, and the crop is adaptable to a large range of soils and moisture conditions except where moisture is excessive. Alfalfa seeded at 7 to 10 lbs/acre (7.8 to 11.2 kg/ha) can be used for both hay and pastures. As a pasture, it needs rotational grazing or rest periods for maximum production and stand persistence.

Birdsfoot trefoil at 2 lbs/acre (2.2 kg/ha) is slow to grow and establish; reseeds itself upon establishment; is non-bloating; moisture tolerant and withstands heavy grazing.

Sweet Clover seeded at 8 lbs/acre(8.9 kg/ha) is a good establisher; is drought and salt tolerant but not highly recommended as it is a biennial and not perennial.

Tame grasses can be seeded but are not recommended as these are difficult to establish when there are native grasses already present in the swath. Once the legumes are established, the grasses will thicken and improve in vigor.

Seeding

Early spring planting is the best. Seeding can be done while snow or frost is on the ground. Dormant seeding (usually after November 1st) has also been successful providing the soil temperature is below 2oC and soil moisture is low enough to prevent germination until the following spring.

Sod seeding drills will provide good soil penetration, soil seed contact and coverage on most soils without previous tillage or seedbed preparation.

Equipment

Grain drills have been successful on light soils, very early in spring provided the existing vegetation is sparse and moisture conditions are ideal. Such conditions may only occur for a few days. The ideal seeding depth is 0.39 inches (12 cm) on a moist firm seedbed.

All legumes should be inoculated with the appropriate rhizobium, (nitrogen fixing bacteria) immediately prior to seeding.

Stand Management

For successful pasture renovation, management of the seedling stand is critical. Avoid close grazing of new seedlings. Maintain soil fertility levels by using soil test fertilizer recommendations. Do not graze or harvest legumes between August 15th and the first killing frost. Leave at least 3 to 4 inches (7.6 to 10 cm) of residual forage growth going into the winter.

On established stands, legumes should be rotationally grazed for up to 6 days, then followed by a 24 to 30 day rest period to allow for replenishing the root reserves. Stands should be fertilized and weeds controlled. A general caution is to avoid grazing too early and overgrazing.

For more information, contact your local Ag Rep or Forage Specialist at Manitoba Agriculture, Food and Rural Initiatives.