

Birdsfoot Trefoil

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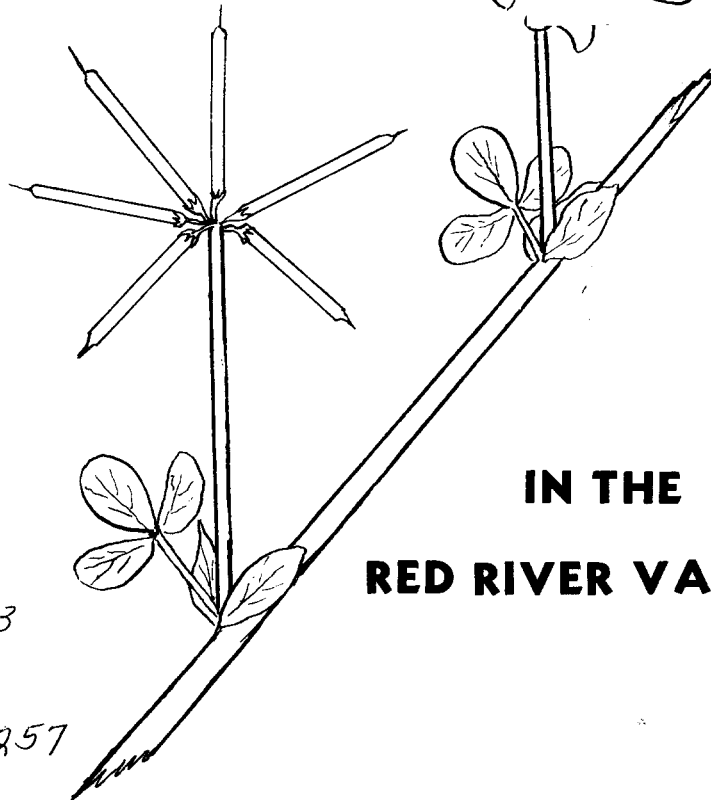
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IN THE
RED RIVER VALLEY

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NORTH DAKOTA AGRICULTURAL COLLEGE

Birdsfoot Trefoil In the Red River Valley

Interest in growing birdsfoot trefoil in the Red River Valley of North Dakota and Minnesota has been increasing for several years. Recent experimental results at the North Dakota Agricultural Experiment Station, experiences by a few farmers in the area, and governmental programs proposed or in effect, have increased the interest in this colorful and valuable legume.

Possibilities of growing this legume as a cash seed crop instead of as a forage crop in this area now appear most likely. Seed supplies are short, the price is high, and seed is in demand in several other forage consuming areas of the United States.

The Red River Valley Certified Trefoil Seed Growers Association was organized by a group of farmers in August, 1955, at Ada, Minnesota, to promote trefoil seed production.

WHAT IS BIRDSFOOT TREFOIL?

Broad-leafed birdsfoot trefoil is a perennial, yellow-flowered legume. It has short, fine stems (approximately 12 to 24 inches tall, average about 16 inches) and five leaflets per "leaf". The broad-leafed type appears most adapted to this area. Narrow-leafed trefoil and big trefoil also are grown in other regions of the United States.

Five to 8 individual flowers are borne at the tip of a single flowering stem. Each produces a long, slender, bean-like pod containing approximately a dozen seeds. These several pods radiate from the common point of attachment to the flowering stem, hence the name "birdsfoot" trefoil.

Birdsfoot trefoil was seeded first at the North Dakota Agricultural Experiment Station in 1943 in an observation plot and in large forage experiments in 1951. A foundation field of Granger birdsfoot trefoil was established at Casselton in 1955. Several foundation and registered fields of Empire and Viking were established in 1955, or will be in 1956, in the Red River Valley.

HOW BIRDSFOOT TREFOIL IS USED

Birdsfoot trefoil is used primarily for pasture, although some varieties are taken for hay. This legume is nutritious and palatable. It rarely, if ever, causes bloat. The Empire variety stands close and continuous grazing and has given excellent beef yields in grazing trials at several experiment stations.

WHERE BIRDSFOOT TREFOIL IS ADAPTED

Trefoil probably will be most useful for pastures in the Red River Valley of North Dakota and Minnesota where flooding during the growing season or some other growing condition is unfavorable to alfalfa. It can also be grown outside the Valley under irrigation or where soil moisture is more favorable than on average upland soils.

Trefoil is being tested in dairy pastures at the North Dakota Experiment Station. A test plot of Empire type seeded in 1943 is still alive and vigorous at Fargo, indicating good winter hardiness.

Trefoil is not as productive as alfalfa in Fargo tests--producing only about 2/3 as much forage as alfalfa which is a superior hay plant where adapted. Trefoil is about two weeks later in the spring than alfalfa, produces a less vigorous seedling, and is not as deep-rooted and drouth-escaping as alfalfa. It does not have the early vigor to compete with brome grass.

Early, cool-season weeds are also a problem in the early growth of trefoil but possibly may be controlled by a suitable companion grass. Reed canarygrass grown with trefoil in pasture plots appears promising but pasture trial data with animals are not available. Meadow fescue or crested wheatgrass possibly can be used to suppress weeds in trefoil for seed production.

BIRDSFOOT TREFOIL BEST FOR SEED NOW

Agronomists, seedsmen and farmers are most interested in birdsfoot trefoil seed production in the Red River Valley now. Test plots at the North Dakota Agricultural Experiment Station, Fargo, have exceeded 300 pounds an acre each year since 1952. Seed prices are high. Certified Empire retailed at approximately \$2.00 per pound in the Fargo area in 1956. No seed is available (1956) here or in production areas of New York state. Certain problems must be overcome before this area can become an important trefoil seed producing area. These are:

1. There is a demand for seed, or for seed at lower prices, in the southern corn belt and east, in New York and the New England states, and in irrigated areas from Montana to New Mexico. Some seed can be used for pasture in this area on sites where alfalfa cannot survive.
2. Excellent seed crops have been produced most years at Fargo but getting the seed into the bag is a problem. The pods tend to split and shatter the seed as soon as the pod is ripe, especially when air humidity is below 35 percent.

3. Weeds and other legumes are troublesome field contaminants. Some, for example mustard, sweetclover and alsike clover, are very difficult or impossible to remove from trefoil seed.

SATISFACTORY SEED CROPS DEPEND ON:

1. Clean seed, planted in a clean field.
2. A good stand of trefoil in all seed harvest years.
3. Adequate pollinating insects and control of injurious insects, if any.
4. Satisfactory means of harvest to save all seed possible.
5. Use trefoil field for seed only. No forage harvest should be taken except along with seed crop. Leave first growth each year for seed crop.

Many farmers in the Valley have been supplied registered or foundation seed of Empire or Viking variety in 1956 by the North Dakota Experiment station or the Red River Valley Certified Trefoil Seed Growers Association for certified or registered seed production in 1957. The following procedures are recommended to these and other growers in establishing a stand of birdsfoot trefoil:

1. Prepare a firm, clean, uniform seedbed as for alfalfa, red clover, etc., away from other growing varieties of birdsfoot trefoil (See State Seed Certification regulations).
2. Use flax companion crop, preferably, or reduce rate of oats or wheat, or seed late during June with no companion crop.
3. Use press drill with seed spouts dropping trefoil behind disks and in front of press wheels, or use Brillion packer-seeder. Some farmers have mixed trefoil with flax and seeded shallow, not over 3/4 inch deep, with good results.
4. Inoculate seed with bacteria at 2 to 4 times the rate recommended on inoculum box. Mix equal amounts of inoculum and skim-milk powder and apply to dry seed while stirring thoroughly. Dampen slightly and carefully with water until "dust" sticks to seed, but not so wet seeds "ball up" and won't feed out of drill properly.
5. Seed immediately at 4 to 5 pounds an acre. Approximately 9 seeds should fall on every square foot of soil for each pound seeded per acre. Calibrate seeder carefully, as seed is valuable.
6. Two to 3 pounds an acre of crested wheatgrass seeded with the trefoil may be helpful in weed control without decreasing the seed yield of trefoil. Crested wheatgrass also holds up

the trefoil for easier harvest. Crested wheatgrass in the trefoil field will not prevent certification or registration of seed produced, according to the North Dakota State Seed Department.

7. Seeding should be broadcast--not in cultivated rows.
8. New York experiments show trefoil responds to phosphorus and calcium fertilizer. Fertilize, if soil tests indicate need, or your other crops regularly respond to fertilizer. Use enough for the companion crop and the trefoil in the seeding year and as needed on trefoil later.
9. Weed control sprays on companion crops with trefoil are not recommended. Mow weeds high, if necessary, when no companion crop is used.
10. Watch for parasitic "dodder" weed in field. Destroy all plant growth around any known dodder infested areas.
11. Do not graze in seeding year! Any grazing, mowing, or other type of forage harvest other than along with the seed crop, has reduced seed yields in other states. However, removal of forage with seed is thought to be helpful in controlling Rhizoctonia disease which might be a problem in the Red River Valley, or elsewhere under irrigation.
12. Spraying for weed control with such chemicals as MCP may be possible but there is insufficient information to recommend chemical weed sprays or rates of application in 1956.

WHEN TO HARVEST SEED

1. First growth trefoil will be ready for harvest most years in the Red River Valley by Aug. 1.
2. Crop is ready for seed harvest when most of the pods are light brown. At this stage some flowers and buds will still be present, some pods will be green, a few will be dark brown, and some will be very dark brown and shattered.
3. Get information from Agricultural College agronomists, county extension agents or experienced growers on when to harvest, if this is your first trefoil seed crop.

HOW TO HARVEST SEED

1. Use 7-foot mower-swather or regular swather very early in morning.

2. Thresh seed from windrows 3 to 8 hours later.
3. Do not mow more trefoil than you can thresh the same day.
4. More seed can be saved if "straw" from the combine can be picked up and threshed after more drying.
5. Or pick up freshly cut windrows and dry in a hay dryer at not over 95 degrees, then thresh to save seed efficiently.
6. Some growers allow windrows to dry until safe to bale, then dry and thresh. Bales should not heat, or germination of seed will be injured.
7. Special seive and combine adjustments are necessary for threshing trefoil. See your instruction manual, county extension agent or Agricultural College farm engineer for this information.
8. Rough cleaning of the seed on the farm, followed by a final cleaning in an "approved seed house", or by facilities provided by the Red River Valley Certified Trefoil Seed Growers Association, are necessary.

SOURCES OF CERTIFIED SEED

Order now for registered or foundation seed for 1957 seedings. Send orders to J.F. Carter, Agronomy Department, North Dakota Agricultural Experiment Station, Fargo, or to Red River Valley Certified Trefoil Seed Growers Association, Ada, Minn.

Empire and Viking varieties are suggested for seed production. Granger may be recommended after further testing of this variety at Fargo and Casselton. Other varieties are available and can be grown here for other forage consuming areas in the future. Get the best available registered or foundation seed possible for production of high quality seed.

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