

Birdsfoot Trefoil—A New Legume for Minnesota

Rodney A. Briggs

Birdsfoot trefoil is a new addition to the legume family that may fill a place where alfalfa and other legumes are not adapted.

Trefoil has many uses. It is excellent for use in a long rotation. As a persistent legume, it may greatly add to the production of long-term pasture land. It shows promise under poor growing conditions such as soils with poor drainage, high lime soils, slopes too steep to include in a regular rotation, and soils of poor fertility. It also has a high degree of drouth tolerance.

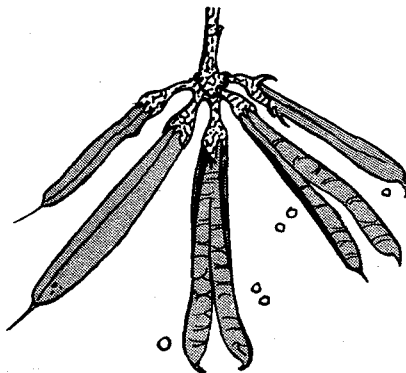
Try birdsfoot trefoil on these problem areas or in renovating pasture lands. But be sure to use the proper method of seeding and management in order to get the greatest success.

USES

Trefoil should be used primarily for pasture since adapted varieties lack height and hay or silage yields are low. The hay produced, however, is fine-stemmed and leafy and equal to alfalfa in feed value.

DESCRIPTION

Birdsfoot trefoil is a slow-growing, long-lived perennial legume with yellow-orange, pea-like blossoms. Fine stems 12-24 inches tall grow from a branching crown. Its root system branches more than that of alfalfa or the clovers. Trefoil



Birdsfoot trefoil gets its name from the shape of its seed pods.

can be recognized by its light green color, its fine stems, and its seed pods shaped like a bird's foot.

Trefoil has no definite flowering habit; flowering continues more or less throughout the summer. The flowers produce slender brown or purple seed pods from mid-June until fall.

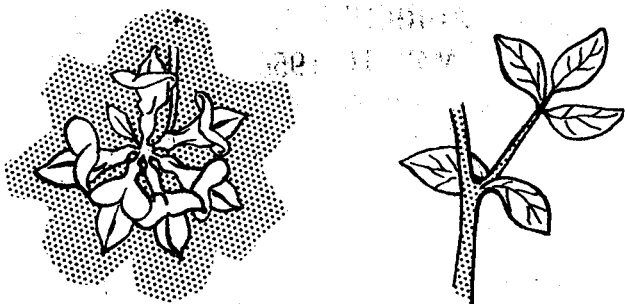
SEED

The seed of birdsfoot trefoil is slightly larger than the seed of alsike clover and is olive green, purple, or brown. There are about 400,000 seeds to a pound, and a bushel of seed weighs 60 pounds. Since the hard seed content of trefoil may be as high as 60 per cent, you may have to use more seed.

ESTABLISHMENT

1. Select land that will be in semipermanent sod.
2. Take soil samples to determine lime and fertilizer needs.
3. Prepare a good seedbed. If the sod is poor and thin, renovate it. But plow if you can.
4. Inoculate well to insure establishment. Be sure you use the proper inoculant--and use it at two or three times the normal amounts. Using a sticker such as sugar, molasses, or dried milk with water does the best job of inoculation.
5. Sow 4 to 6 pounds of seed per acre alone or 2 to 5 pounds in simple mixtures with 5 pounds of bromegrass or 4 pounds of timothy. For seed production sow at 3 to 5 pounds alone.
6. Seed shallow ($\frac{1}{4}$ to $\frac{1}{2}$ inch in depth) on a well prepared firm seedbed. To help establish the crop, firm the soil with a corrugated roller before seeding or use the band seeding technique. Using a corrugated roller seeder is another possibility. If possible, do seed after a row crop and don't seed right after a sod crop. In renovations, do a good job of killing old sod before seeding.

7. Don't make trefoil have to struggle the year you seed it, for it can't compete successfully for moisture or light.



You can identify trefoil by its typical five leaflets and its pealike, yellow blossoms.

First, eliminate as much competition as possible from quackgrass, bluegrass, or perennial weeds before seeding. Second, if you use a companion grain in spring seedings, seed at a reduced rate and then have it grazed, clipped, or harvested as hay or silage before it reaches maturity. (Flax is an excellent companion crop.)

If you decide on a straight seeding of trefoil--no companion crop--you can clip the trefoil once or twice in the seeding year to control weeds and yet not injure the trefoil. Clip and remove the stubble after grain harvest to help fall development of trefoil.

8. Trefoil likes fertile soil. While trefoil adapts more readily to acid soils and low fertility than other legumes, it gives maximum yields with a good fertility level. Fertilize according to the suggestions for red clover in Extension Bulletin 277, "Guide to Fertilizer Use in Minnesota."

YIELDS

Yields of trefoil from pasture or hay vary from 1 to 4 tons depending on soil fertility and growing season. Seed yields may vary from a few pounds to over 200 per acre. Trefoil should be cut for hay or silage when well in bloom and pastured when 6 to 8 inches tall.

SEED PRODUCTION

Many questions about seed production of birds-foot trefoil are still unanswered--problems of weed control, pollination, insect control, harvesting, and clean seed. But there is hope for the seed pro-

ducer in the future as new cultural and chemical techniques are developed.

Weed control -- MCP applied early in the season at the rate of 3 ounces per acre of active material will do an effective job of controlling mustard and other troublesome broadleaf weeds. This treatment may also reduce or eliminate sweetclover. In some instances the chemical will delay the trefoil but no harmful effects have been noted yet.

Pollination -- Supply one hive of domestic bees per acre for pollination during flowering.

Insect control -- No spray program has been developed yet for the control of harmful insects. When outbreaks occur such as the field cricket infestation of 1955, spray immediately. See Extension Bulletin 263, "Insecticides."

Harvesting -- Since the seed of birds-foot trefoil matures unevenly and shatters very easily when mature, harvesting is a major problem. For this reason the crop should be mowed when most of the seed pods are well filled but not fully mature.

Some tests indicate that mowing, windrowing, and baling when still moist gives the greatest yield of seed. But unless the acreage is very low, this method requires too much labor.

Another method is to windrow, cure as hay, stack, and thresh from the stack.

The method most commonly used is windrowing with a windrow attachment and then pick-up combining two to three days later. Cutting and then making a small windrow during rainy weather helps prevent shattering. But direct combining gives poor results unless you can go over the field two or more times.

Seed should be rough scalped shortly after harvest to prevent heating.

Clean seed -- High quality seed must have high mechanical purity; that is, it must be free from weed seeds, other crop seeds, and other foreign material. This is achieved in two ways: clean seed fields and careful seed cleaning. Chemical weed control and, in some instances, hand roguing may be necessary to eliminate weeds and other crops from trefoil seed fields.

There are few seed cleaning plants equipped to clean trefoil seed, so check with the manager of the seed cleaning plant before shipping any seed there.

UNIVERSITY OF MINNESOTA, INSTITUTE OF AGRICULTURE, ST. PAUL 1, MINNESOTA

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ADVANTAGES

TREFOIL --

1. Is drouth resistant and water tolerant.
2. Is long lived and can reseed itself.
3. Makes excellent permanent pasture.
4. Equals alfalfa in feed value.
5. Can grow on a wide range of soils.
6. Reduces the bloat problem.
7. Has good summer production.
8. Stands grazing well once established.

DISADVANTAGES

TREFOIL --

1. Is hard to get established.
2. Makes slow growth the first year.
3. Is normally not as productive as other legumes.
4. Has high seed costs.
5. Starts slower than clover or alfalfa in the spring.
6. Is not suited for short rotations.

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