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Birdsfoot Trefoil

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Birdsfoot trefoil (Lotus corniculatus L.) is a long-lived, winter-hardy perennial with a branching, tap-like root system, with many stems growing from each crown. The plants form a thick carpet effect when grown alone. The stems, in comparison with alfalfa, are more slender and are inclined to lodge but may reach a height of 12 to 36 inches when supported by such grasses as timothy, redtop and orchard grass. The plants produce many yellow, pea-like flowers from late June through July. When ripe, the seed pods extend outward at right angles from the stalk, giving the appearance of a bird's foot.

Like other legumes in common use, birdsfoot trefoil came from abroad. It is native to the Mediterranean region and northward to the Scandinavian peninsula. Birdsfoot trefoil has become naturalized (growing wild) in several parts of the United States, notably western Oregon and eastern New York. It is not definitely known just how or when it was introduced into this country, but it is known to have been here more than 65 years. It did not attract much attention as a forage legume, however, until the last 10 years.

There are two types of birdsfoot trefoil, commonly referred to as the “narrow-leaf” and “broad-leaf” strains. Observations during the last 6 years show that the broad-leaf type is the more desirable for Iowa. It is superior in winter hardiness and its forage yields are nearly double those of the narrow-leaf variety. Our results obtained thus far indicate that birdsfoot trefoil will not compete with alfalfa as a hay crop.

Establishing Stands

Although stands of birdsfoot trefoil have been obtained on untreated soils low in fertility, it responds markedly to limestone and phosphate fertilizer in stand establishment and forage yields.

Small plot and field plantings show that birdsfoot trefoil makes its greatest contribution to Iowa farms as a pasture legume when grown with bluegrass. It is more sensitive to competition from bluegrass during establishment than the common legumes such as red and sweet clover. When seeded in a bluegrass pasture it is very important to thoroughly work up the bluegrass sod with a disk or spring-tooth harrow.

Following seeding operations, the seedbed should be rolled with
a cultipacker to firm and cover. On bluegrass pastures that have been limed, phosphated and thoroughly renovated, we have obtained from 3 to 9 plants of birds-foot trefoil per square foot from a seeding rate of 6 pounds per acre. It has been observed to mature and shatter seed when pastured. When a thin stand is obtained, it can be expected to improve by its own reseeding.

The seed of birdsfoot trefoil is small and round and intermediate in size between that of red and alsike clovers. There are approximately 375,000 seeds per pound and the seed weighs 60 pounds per bushel. The hard seed content commonly is found to be as high as 50 percent. The seed should be inoculated prior to sowing. The inoculant used for other common legumes is not satisfactory. Special cultures have been isolated and are now available from various commercial concerns, or soil from around well nodulated plants may be used with good results.

Seed Production Problem

One of the problems encountered with this species has been that of seed production. The amount of seed produced here at Ames has been very small. Our observations in southern Iowa indicate that a much greater quantity of seed may be expected there. At the present time, seed of birdsfoot trefoil is very expensive. It ranges in price from $1.50 to as much as $2.00 per pound. A very poor commercial seed crop was produced in 1943.

Before birdsfoot trefoil can be generally recommended to Iowa farmers as a pasture legume, we believe that a greater number of trial plantings should be made on farms to observe its performance on many soil types and under actual grazing conditions. Within the last 2 years field plantings have been made in each of 10 counties well distributed across southern Iowa. Additional experience and observations will be obtained from these plantings as to the best methods of handling this legume when a crop of seed is to be harvested. In the meantime, birdsfoot trefoil will continue to remain on the list of promising new legumes for pasture purposes in Iowa.

Iowa Growers

Those who are interested in seeing this new legume growing will find plantings on farms operated by the following Iowa farmers: Elmer Nollen, Pella; Raymond Levis, Russell; Chester Sutton, Derby; Joseph Templeton, Otley; Delbert Mayberry, Anamosa; A. J. Johnson, Elkader; Julius Lynch, Harlan; Sam Taylor, Toledo; Ralph Chase, Decatur; Merle Travis, Bedford; H. C. Flint, Winterset; and Herbert Barrow, Keosauqua.

We have had this pasture legume under observation at Ames through a period of nearly 10 years. Since 1942 we have been watching it under pasture conditions on the college Pasture Improvement Farm near Albia. Here it has spread and thickened under the most unfavorable conditions both as to soil and grazing management. This year we are establishing two new birdsfoot trefoil pastures. Our respect for this pasture legume increases each year.

Birdsfoot trefoil shows much promise as a legume to grow with bluegrass. This seeding on the Albia Pasture Farm was made at the rate of 6 pounds trefoil and 8 of bluegrass per acre.