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Repository Citation

Sigafus, Roy E.; Templeton, W. C. Jr.; Taylor, T. H.; and Wyles, J. W., "Some Observations and Comments on Birdsfoot Trefoil" (1972). *Agronomy Notes*. 125.

https://uknowledge.uky.edu/pss_notes/125

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UNIVERSITY of KENTUCKY • COLLEGE of AGRICULTURE

AGRONOMY NOTES

DEPARTMENT of AGRONOMY Lexington 40506

Vol. 5, No. 1

January, 1972

SOME OBSERVATIONS AND COMMENTS ON BIRDSFOOT TREFOIL

Roy Sigafus, W.C. Templeton, Jr., T.H. Taylor, and J.W. Wyles

Farmer's Bulletin No. 2191, TREFOIL PRODUCTION FOR PASTURE AND HAY, was released by the U.S. Department of Agriculture in July, 1967. This publication noted that acreages of trefoil in the U.S. increased from 770,000 in 1957 to over 2 million acres in 1967. This bulletin is an excellent guide to kinds of trefoils, to the different varieties available, and to general production practices in obtaining stands and in managing this legume. It is stated in the bulletin that birdsfoot trefoil is not recommended south of a line drawn from the Nebraska-Kansas border to the east coast, except at higher elevations. (The very northern tip of Kentucky is about 70 miles south of the Nebraska-Kansas line.)

We have been studying birdsfoot trefoil for several years. Our observations indicate that under management programs which will permit natural reseeding for a few years, birdsfoot trefoil shows promise for improving pastures in some areas where it has been thought to be of little or no value.

Woodford County Grazing Experiments

A mixture of New York Empire birdsfoot trefoil and an imported French strain was seeded in Woodford County in the spring of 1954. Good stands were obtained and Kentucky bluegrass was seeded in the area in September 1954. Under grazing with cattle, the trefoil stands were much reduced by 1956, and, at the termination of the grazing trials in 1959, trefoil had almost disappeared from the experimental pastures. However, trefoil was observed to be doing well in a reserve pasture where animals were kept when not on the experiments.

In 1962 the reserve pasture was divided into smaller areas and a grazing trial of 3 treatments was imposed for five years. Grazing in different sets of pastures was started at different times as indicated in Table 1. Good stands of trefoil were maintained by an 8-10 week reseeding period during the middle of the summer, regardless of the date spring grazing was started. Early grazing tended to permit more weed growth, and a delayed starting time increased the amount of grass.

An estimate was made of the amount of seed produced in a single season on the early-grazed pasture. Pods from small areas were harvested by hand as they ripened. Converting the small plot yields to an acre basis indicated that approximately 270 pounds of seed were produced per acre.

Table 1. Botanical composition of 12-year-old Kentucky bluegrass-birdsfoot trefoil pastures in August 1966 after being subjected to spring grazing at three times during 1962-66.

Time spring grazing initiated 1962-66	Botanical Composition in Percent			
	Grass %	Birdsfoot trefoil %	Other legumes %	Weeds %
April 10 - 30	20.5	55.4	4.3	19.8
April 20 - May 15	28.4	59.6	2.0	10.1
May 25 - June 15	41.6	29.4	trace	8.7

Natural reseeding has been favored by the grazing management imposed on these pastures since that time, and excellent stands of birdsfoot trefoil are still present in the 18th year after establishment. Considerable volunteer red clover is also present.

Sheep Grazing Trials at Eden Shale Farm

On the Eden Shale Farm near Owenton a legume-reseeding experiment has been conducted with sheep on small pastures for four years. Trefoil has been maintained in satisfactory stands for four years and, with the associated grass, has furnished about as much grazing as grass to which 100 pounds of nitrogen has been added per acre annually. An alfalfa-grass mixture has given as many days of grazing as grass to which 200 pounds of nitrogen has been added each year. Application of 100 pounds of nitrogen per acre increased grazing days 47 percent, while 200 pounds of nitrogen gave a 70 percent increase.

Hay and Pasture Management Study at Lexington

On the campus Farm at Lexington, birdsfoot trefoil stands obtained from seed from the Woodford County pastures are being compared with the Viking and Dawn varieties in a management study. The trefoil was seeded into established bluegrass in the fall of 1967. In a replicated trial, small plots are cut to simulate either grazing or hay management. For hay, the plots are cut 3 or 4 times a year and, for pasture, 5 or more times. Stands are thinning where reseeding is not permitted. Seedlings are becoming established in both the hay and pasture management areas when not cut for a period in the summer to permit seed development. The strain from Woodford County is proving more productive than the other varieties.

Utilization of Birdsfoot Trefoil for Pasture in Kentucky

Although there has been over a million additional acres of birdsfoot trefoil seeded in the U.S. in the past 15 years, most of the increase has been in the northern and northeastern states. With the presently available varieties, it would appear that

trefoil will go out of stands in two or three years in Kentucky if managed for hay or pasture in the usual manner. However, based on observations made of three different experimental plantings, management programs which permit natural reseeding for a few years may permit the maintenance of long-lived stands.

In the northern states, the most successful plantings have been with Kentucky bluegrass. Although bulletins on birdsfoot trefoil say it will grow on soils too acid or too wet for alfalfa, this does not mean that this will be true in Kentucky. When growing a plant outside its recognized region of adaptation, it is often necessary to provide better-than-average conditions. There are many permanent pastures in Kentucky where Kentucky bluegrass is growing on limestone soils and where there is good air drainage. These would appear to be the most likely potential sites if trefoil is to be tried. Renovating of Kentucky bluegrass areas as described in Extension Leaflet 277 should prove possible. Five to eight pounds of Dawn, Empire, or Viking birdsfoot trefoil should be seeded. Because the trefoil seedlings are much weaker than alfalfa or red clover, these legumes should not be included with trefoil. Proper inoculation is most essential. Unless inoculation is successful, one can be almost sure that the seeding will be a failure. Use of three to four times the recommended rate and an adhesive such as milk or one of the carbonated beverages to moisten the seed would be advisable. Little production should be expected from the trefoil in the year of establishment. Grazing and/or clipping management should be such as to keep the grass and weeds very short during the establishment period. Once the trefoil is established, it should be given an 8-10 week seed-production period from June to August for a few years to insure an adequate amount of seed in the soil to propagate the legume.