

Culture and uses of 'KALO' DWARF ENGLISH TREFOIL



In the State of Oregon

'Kalo' dwarf English trefoil *Lotus corniculatus* var *arvensis* Pers., is a long-lived perennial legume with a moderately deep, branching root system, semierect stems, and medium green foliage. Most plants are slightly hairy, but a few are glabrous or nearly glabrous. Leaflets are in groups of five, consisting of a terminal leaflet, a pair of opposite leaflets at the apex of the petiole, and a pair of opposite leaflets at the base. Leaflets are obovate to elliptical, and at least half as wide as their length. The average leaflet is about 10 mm. wide and 15 mm. long.

Numerous short pink rhizomes are characteristic of this variety. These rhizomes begin developing at the onset of flowering each year, and become most conspicuous during late bloom.

Flower buds are red tipped. The flowers are medium yellow to deep yellow, and are streaked with thin red lines of varying length. There are usually five to eight flowers per umbel. Pods are slender, about 25 mm. long, and form at right angles at the end of the peduncle. Their arrangement resembles a bird's foot. Seeds total approximately 470,000 per pound, or roughly 1,000 seeds per gram. Seeds are spherical or nearly spherical, brown, and frequently speckled with darker spots.

Adaptation

Kalo dwarf English trefoil is particularly well adapted to the Willamette and Puget Sound Valleys, and to the western slope of the Cascade Mountains. It has a precipitation range of about 18 to 80 inches. It is both cold tolerant and drought resistant, remaining green throughout the summer in western Oregon and western Washington. It is similar to 'Cascade' and 'Granger' birdsfoot trefoils in site requirements and cold hardiness. Kalo trefoil will persist on soils of low to moderate fertility. Medium

Plant Materials Technical Note No. 52

acidity is also tolerated. However, Kalo trefoil responds well to lime on acid soils, and also responds well to phosphorus on most soils. Other nutrients sometimes deficient in the soils of western Oregon and western Washington include potassium, sulfur, boron, and molybdenum. Inadequate amounts of the foregoing nutrients may result in reduced yields of dwarf English trefoil vegetation and seed.

Uses

Kalo dwarf English trefoil has demonstrated the ability to form dense, vigorous stands on roadsides and other exposed sites. Under close use by deer, this variety of trefoil has not only maintained its original stand, but has flowered and matured seed, resulting in increased stand density. Therefore, it has a distinct advantage over the more erect trefoils, such as Cascade and Granger, for grazing. Because of its persistence, low growth habit, low fertility requirements, and nitrogen fixing ability, Kalo is expected to become widely used as a component of roadside mixtures. It is also likely to become popular for use on clearcuts for cover, nitrogen production, and food for big game.

Because Kalo dwarf English trefoil remains green throughout the summer, and its bright yellow flowers persist for up to three months, it is a valuable beautification plant. As is true of other trefoils, Kalo is non-bloating. Hence, it is anticipated that Kalo dwarf English trefoil, like big trefoil, will prove to be well suited as a pasture legume.

Establishment

Under ideal conditions, for pasture, hay, silage or green chop, Kalo trefoil is spring-seeded with a companion grass such as orchardgrass, timothy, meadow foxtail, or tall fescue. Six pounds per acre are sown on a firm seedbed, using a seeding depth no greater than $\frac{1}{2}$ inch. Grazing is withheld for at least the first 6 months after seeding or until the dominant vegetation reaches a height of 6 to 8 inches,

For erosion control, Kalo dwarf English trefoil is usually seeded in the fall with both fast starting and slow starting species such as sub clover, dwarf intermediate wheatgrass, and creeping red fescue. In such a mixture the trefoil and red fescue serve as the slow starting but long lived components.

Management

In pastures, trefoil should be rotationally grazed, using a four-week recovery period. Like other trefoils, Kalo is cut for hay and silage as it comes into bloom. A stubble height of 3 to 4 inches is satisfactory. Continuous close grazing can be expected to quickly reduce plant vigor and stand density. Fertilizer needs are best determined from soil tests.

References

Hafenrichter, A. L., J. L. Schwendiman, H.L. Harris, R.S. MacLauchlan, and H.W. Miller. Grasses and Legumes for Soil Conservation in the Pacific Northwest and Great Basin States. USDA, SCS, Agr. Handbook No. 339.

Henson, Paul R., H.A. Schoth. The Trefoils - Adaptation and Culture. USBA, ARS, Agr. Handbook No. 223.

MacDonald, H.A. Birdsfoot trefoil *Lotus corniculatus* L. Its Characteristics and Potentialities as a Forage Legume. Memoir 261. Cornell University Experiment Station. May 1946.

McKee, Roland. Fertilization Relationships in the Genus Lotus. Agronomy Journal. 41:313-316. 1949.

McKee, Roland and Schoth, B.A. Birdsfoot trefoil and big trefoil. Circular 625. USDA, Government Printing Office. 1949.

Phillips, R. L. Cyanogenesis in Lotus species. Crop Science 8:123-124. 1963.