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Soursob (Oxalis pes-caprae L.)

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OF WESTERN AUSTRALIA

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SOURSOB
(Oxalis pes-caprae L.)

DURING winter and spring, the yellow colouration of paddocks is not always due to the flowers of the widely distributed Capeweed. In some districts, particularly in the Avon Valley, the yellow-flowered soursob (Oxalis pes-caprae L.), has become firmly established. The genus Oxalis contains 800 or more different species, the two main natural centres of distribution being South Africa and tropical and extra-tropical South America.

The two species native to Australia have been supplemented by a number from South Africa. The commonest of these is O. pes-caprae, to which the name “soursob” is most frequently applied. The other species include yellow, pink and red-flowered types, having a similar herbaceous perennial habit.

Soursob has its strongest development in South Australia where, in many parts, it dominates the landscape. It occurs extensively in Victoria, and also infests appreciable tracts of land in New South Wales and this State. Species of Oxalis were introduced to England as garden subjects as early as 1658, while about a century later other species were arriving from the Cape of Good Hope. There is little doubt that the common soursob found its way to this country as an intentionally-introduced garden bulb, and almost certainly was brought from the Cape Province. It appears to have been introduced prior to the establishment of the Adelaide Botanical Gardens in 1855 and was recorded in the first catalogue of cultivated plants issued in 1859.

The date and method of introduction to Western Australia are uncertain but it is now widespread throughout the South-West and also occurs in the Avon Valley and parts of the Great Southern district.

DESCRIPTION

The name “soursob” is a variation of “soursobs” more frequently used when it first appeared in Australia and undoubtedly is derived from the sour taste of the leaves. Until recently O. pes-caprae was known as O. cernua. Oxalis is the Greco-Latin name for some plants with bitter leaves. Cernua describes the drooping flowers while pes-caprae means the foot of a goat and alludes to the shape of the leaflets.

It is an almost glabrous perennial with a vertical subterranean rhizome up to \( \frac{1}{2} \) in. thick at ground level, but tapering into a fine thread attached to the parent bulb or root. The rhizome has numerous adventitious roots and also produces one to several bulbils in the axils of small scale-leaves. A cluster of typical leaves is formed at ground level. Each has a short flattened base, a long cylindrical stalk and three terminal, clover-like leaflets, often marked with small purple spots. The flowers are yellow, drooping and clustered in umbels of 3-16 on long peduncles. The capsule is pointed-oblong but rarely matures in Australia. Flowering usually occurs from June to October.

Although the leaves could be confused with those of clovers the flowers are very different and the plants are not closely related.
SOURSOB (Oxalis pes-caprae L.)
A—Complete plant showing bulb; B—Leaf; C—Flower; D—Section of flower; E—Stamens
(From a pen-drawing by Mr. C. A. Gardner)
SIGNIFICANCE

In this State, soursob occurs in many orchards and is also a troublesome weed of crop land and pastures, especially in moist situations. Despite the delicacy of its structure the plant provides keen competition for other herbage, aided by the fact that development from bulbs and corms is usually more rapid than from seed. The prolific bulb formation gives rise to a dense mass of plants which tend to smother the less vigorous pasture species and can also affect the yield of cereal crops.

Owing to a high oxalic acid content—the cause of the sour taste—soursob is not eaten readily by stock. On occasions, however, because of the absence of more palatable herbage, sheep have eaten this weed in quantity and cases of chronic oxalic acid poisoning have occurred. Wethers have remained healthy when trouble has been experienced with ewes apparently associated with the greater calcium requirement of ewes, especially when pregnant. All classes of sheep, however, can be affected.

The poisoning is considered to be due to the absorption of the oxalic acid into the animal's system to form calcium oxalate making the body deficient in available calcium. The disease usually does not appear until the animals have been grazing on the soursob for some time. Sheep reared in districts in which the plant is prevalent are less likely to be affected than animals introduced from an area where the weed does not occur.

In some cases the animals have died suddenly, in others they have lingered for some time. A stiffness in gait is followed by loss of control of the hind quarters and at times, also the forequarters.

CONTROL

As soursob is very difficult to eradicate, it is important to prevent it from becoming established. It is spread by a number of means, including stock, farm implements and running water, but has also been distributed both as a garden plant and in the soil around shrubs and fruit trees. "Balled" trees and shrubs should be examined prior to planting to ensure that they are not carrying bulbs of soursob or, for that matter, other undesirable weeds. If only a few plants appear they should be dug out immediately.

The above-ground parts of soursob can be destroyed by the application of a 5 per cent. solution (1 lb. per 2 gallons) of sodium chlorate, but, owing to the cost, this method is only practicable for limited areas. In order to prevent the formation of new bulbs, spraying must be carried out early in the season when a general emergence of the plants has occurred but before flowering has commenced. Even if done at the optimum growth stage, eradication cannot be expected from a single application.

As already mentioned, grazing does not provide an effective method of control but a substantial reduction can be brought about by ploughing and cultivation. Some work undertaken by Michael in South Australia showed that after a favourable season, there could be three tons of bulbs per acre while areas subjected to two workings produced only 7 cwt. per acre.

In South Australia, where the weed occurs freely on wheat land, ploughing is recommended when the old bulbs are nearing exhaustion—usually between late May and the middle of June. A further cultivation is carried out in late July or early August to prevent the formation of new bulbs on plants that survived the ploughing. These two workings can often be followed by the sowing of an early maturing cereal. The procedure outlined does not eradicate soursob but reduces its intensity so that a more satisfactory crop may be grown. Once the weed is established, eradication cannot be expected unless control measures are repeated in a thorough manner for several years.

Soursob is resistant to the commonly used hormone-like herbicides but the search is being continued for an effective chemical treatment. The possibilities of biological control have not been overlooked.
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