Weeds of Western Australia - Soursob (Oxalis pes-caprae L.)

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Soursob is another introduction from South Africa and has become established in a number of districts, especially in the Avon Valley. Although the leaves have the appearance of a clover, Soursob is unpalatable and is not closely related to the clovers.
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 soursoob (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 ½in. 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 the Government Botanist, 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 already mentioned, grazing cannot be regarded as providing an effective method of control. As the plant is propagated mainly by means of bulbs which are in the process of forming before the flowering stage is reached, control measures must be commenced early in the season, usually in June or July. Ploughing and cultivation are not really effective if delayed until late winter or spring, as bulb formation is then nearing completion.

In South Australia, where the weed occurs freely on wheat land, satisfactory crops have been obtained by sowing early with a vigorous variety of wheat or by late sowing of an early maturing variety after necessary cultivations have been carried out. In the first case the objective is for the cereal to out-grow the weed, while in the second case the density of the weed is reduced, thus providing less competition for the cereal.

Soursob can be destroyed by the application of a 5 per cent. solution of sodium chlorate, but, owing to the cost, this method is only practicable for limited areas. The hormone-like herbicides alone are not effective but some encouraging results have been recorded by Orchard* following trials in South Australia with sodium chlorate added to 2, 4-D amine. Twelve ounces acid equivalent of the amine with one pound of sodium chlorate in 10½ gallons of solution per acre controlled the growth of soursob with little effect on the associated barley crop. Further work along these lines is being undertaken. As with cultivation, spraying must be carried out early in the season before bulb and bulbil formation has commenced.

Owing to the presence of dormant bulbs which may remain in the soil in a live condition for several seasons it is necessary to continue any control programme for at least three years.

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