Weeds of Western Australia - Sorrel (Rumex acetosella L.)

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In Europe, Sorrel is regarded as an indicator of acid soils and the application of lime is frequently advocated as a control measure. In Western Australia it also grows on sour, poorly drained land but such conditions are by no means essential. Many seeds are produced, and new plants develop rapidly from small portions of the underground stems.
ALTHOUGH Sorrel or Sheep Sorrel as it is often called is native to Europe and Southern Asia, it is now recorded from many countries in the world and reference is made to it in most books dealing with weeds.

In England, it is regarded as being an indication of poor, sandy soils deficient in lime. In Australia, however, although it is found frequently on soils that are badly drained and wet in winter it is by no means confined to them. Our experience indicates that it is capable of thriving on a variety of soil types, but is most conspicuous on sour soils where it is subjected to little competition from other plants.

The early history of Sorrel in Australia is obscure but it now occurs in all States and there is little doubt that it first appeared during the early days of settlement. The seeds are often found as an impurity in agricultural seeds, particularly of European origin and no doubt early introductions were made in this manner.

Sorrel is found most frequently in the moister parts of the South-West, particularly on low lying portions of the coastal plain. It also occurs, however, in the drier areas on well drained soils and the red colouration associated with the prolific flowering and seeding is not uncommon in the wheatbelt.

DESCRIPTION

Sorrel is a perennial herb with a creeping rhizome and slender erect stems 4-18 inches in height, often turning red. The leaves are alternate, the lower ones usually dagger-shaped and the upper ones narrower, being lance-shaped or even linear. All are hairless and stalked. The stipules — small structures at the base of the leaves — are thin and papery, usually white or silver in colour and forming a ring around the stem. Male and female flowers are formed and both are inconspicuous, neither having the coloured petals usually associated with floral structures. The female flowers give rise to small, triangular nutlets, each of which contains a single seed of similar shape.

The plant flowers and seeds in the spring and summer.

Sorrel means, "of a reddish brown colour" and the name obviously refers to the colouration of the stems, flowers and nutlets, a feature most noticeable when the plants are maturing under dry conditions.

SIGNIFICANCE

Sorrel, like the related docks, has a high oxalic acid content which makes it relatively unpalatable. It is eaten to a certain extent by stock, however, possibly while grazing other herbage rather than by choice. It has affected animals, particularly breeding ewes, but is seldom regarded as having toxic properties.

Although a weed of both pastures and crop land, Sorrel is probably most troublesome in orchards and gardens, particu-
SORREL (Rumex acetosella L.).
A—Plant showing habit; B—Leaf; C—Male flower; D—Anther; E—Female flower; F—Fruit;
G—Seed; H—Transverse section of seed.

(From a drawing by C. A. Gardner, Government Botanist.)

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larly market gardens. Its vigorous perennial habit provides strong competition for crop plants but it is affected by shading and the growing of appropriate crop and pasture species is a worthwhile control measure.

CONTROL

Control is made difficult by several features of this tenacious weed. It seeds very freely and the seeds are contained in a protective nutlet, enabling them to retain their vitality in the soil for a long time. Sorrel often appears on clean land following cultivation, the seeds having remained dormant for years until provided with favourable conditions for germination.

The plant itself is a vigorous perennial with an extensively developed underground stem and root system, giving rise to surface shoots at intervals. Fragments of these stems or runners are capable of producing new plants, and spasmodic ploughing or cultivation serves to spread rather than control the weed. Stock distribute the plant by passing undigested seeds and it is also spread as an impurity in grass and small clover seeds, especially white and drooping-flowered clover. Seeds do not occur in graded subterranean clover seed but are found in burr and rough samples.

Preventing the weed from becoming established is, of course, preferable to attempting eradication later. Any plants noticed should be forked out and burned, remembering the importance of destroying the seeds and underground parts. On larger areas the land should be ploughed in the early spring before flowering has occurred, following up with spring-tyne cultivation as often as necessary during the summer. The objective of the repeated cultivation is to lift the underground stems and expose them to the drying effects of the sun. With the first rains of the following season, oats or some other smothering crop should be sown.

Besides being a large undertaking where extensive areas are involved, from a soil conservation viewpoint summer workings are seldom desirable and this method, therefore, has limitations. Sorrel in market gardens, especially on the coastal sandy soils, can be reduced to very small proportions by regular rotary hoeing during the spring and summer. If the affected section is treated as a unit there is less risk of carrying the plant to clean portions of the paddock. Summer waterings naturally encourage the weed.

Drainage and the use of lime are beneficial when warranted by the conditions but, as already pointed out, many affected areas are well drained and not deficient in lime. When practicable, the most economical method of dealing with heavy infestations is to establish and maintain a vigorous pasture. Where possible perennial species such as white clover, strawberry clover and paspalum should be grown but subterranean clover and drooping-flowered clover are also suitable. Such pastures will not necessarily eliminate the weed but, by competing strongly, will reduce its significance.

Sorrel is not readily affected by chemicals which have a limited use in its control. A 10 per cent. solution (1 lb. per gallon of water) of sodium chlorate applied at the rate of one gallon to 20-30 square yards will dry the plant back to ground level but further growth must be treated as it appears. A similar check can be obtained with a solution containing 2 lb. acid equivalent of 2,4-D ester in 100 gallons of water. Both these treatments affect other plants.
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