



# ST. JOHN'S WORT

A.J. GORDON  
Plant Protection Research Institute

St. John's wort, *Hypericum perforatum* L. (Clusiaceae), a native of Europe, Asia and North Africa, has become a major weed in most of the temperate regions of the world. It readily forms dense stands that crowd out pasture plants and most grasses. Other names for this weed are Klamath weed and goat weed, and the Afrikaans name is "Johanneskruid" or "skelkruid".

## MORPHOLOGY

St. John's wort is an erect, herbaceous, perennial plant. When mature, it produces upright flowering stems that may reach from 0,3 m to over 1 m in height. The bright yellow flowers which occur in terminal clusters, have a diameter of 10 to 20 mm, have five pointed petals with characteristic black oil glands on the margins and numerous stamens. The three-celled fruit capsules

contain masses of 1 mm long, light-brown, sticky, pitted seeds when ripe. The leaves are ovate to elongated, up to 20 mm long, but usually much shorter, and 5 mm broad, sessile, opposite with small black spots underneath. The oil glands give it a minutely perforated appearance when held against the light.

Flowering stems, with two opposite, longitudinal ridges along their length, are branched towards the top and are often reddish in colour. The main root system is branched and penetrates deep into the soil. Rhizomes occur just under the soil surface and produce buds from which new plants may develop.

## GROWTH AND REPRODUCTION

St. John's wort has two distinct growth phases. In autumn and through the winter, creeping prostrate

FIG. 1. A dense infestation of St. John's wort near Stellenbosch  
Insert. Flowers of St. John's wort





FIG. 2. The biological control agent *Chrysolina quadrigemina*

growth is formed, and in summer each mature plant produces one to several erect, leafy, woody stems up to 1,3 m tall. Clusters of bright yellow flowers appear between November and January and die off towards late summer leaving characteristic brittle, brown stalks. The invasiveness of St. John's wort is attributed to its ability to reproduce vegetatively (by rhizomes) and sexually (it produces copious numbers of highly viable seed which may remain viable in the soil for up to 6 years). Well-developed plants may produce 30 000 seeds in a single season. The weed spreads mainly by seed dispersal. The seeds are distributed by wind, water and by adherence to animals, vehicles and implements.

Due to a chemical, hypericin, St. John's wort is poisonous to livestock. Livestock with as little as 1 % of St. John's wort in their diet become restless and develop an intensely itchy and reddened skin, especially when exposed to light.

Livestock losses due to St. John's wort are mostly through animals losing condition and not through direct toxicity.

## DISTRIBUTION

St. John's wort is an important weed in parts of Australia, North and South America, and New Zealand. It occurs mainly in rangelands, neglected pastures, along roadsides and in forest clearings. In California it was first noticed in 1900 and it increased rapidly so that by 1944 it occupied over 800 000 ha of valuable rangeland.

It was introduced into South Africa in 1942 as an impurity in vetch seed imported from Australia and sown at Helshoogte near Stellenbosch. It was declared a noxious weed in March 1948, by which time it had spread over an area of about 500 ha. Although St.

John's wort has remained restricted to the South-Western Cape where it did not pose a serious threat to the fynbos, it was feared that it would spread east along the coast to the natural grasslands of the south-east and east coasts where it could become as invasive as in other countries.

St. John's wort presently occurs around Stellenbosch, Paarl, Grabouw, Faure, Somerset West, Durbanville, Tulbagh and Cape Town as individual, scattered plants or in small clumps.

More recently it has been found on the Worcester side of the Du Toits Kloof Mountains and in Sir Lowry's Pass village.

## CONTROL

A chemical control programme was initiated in South Africa in 1948 and involved the spraying of individual plants with 2,4-D or 2,4,5-T. The areas sprayed were revisited and any regrowth or seedlings resprayed. Flowering stems and young pods were also cut down to prevent seeding. This control method was expensive and largely ineffective.

In view of the success obtained with biological control in Australia and California, it was decided in 1959 to introduce the leaf-feeding beetle *Chrysolina quadrigemina*. Tests carried out on a wide range of economic plants in Australia and Britain, had shown that the beetle fed only on the genus *Hypericum*. In South Africa, additional tests were done on a selection of indigenous plants and a few economically important plants not tested overseas.

Subsequent to release, this beetle whose larvae severely defoliate the stems during the winter months, destroyed the dense infestations of the weed which existed at that time. *C. quadrigemina* was, however, not so effective in shadier and moist areas. The beetle was therefore supplemented by a gall midge *Zeuxidiplosis giardi* which was introduced into South Africa in 1972. The midge, whose larvae enter and develop in galled growth tips and axillary buds, was released around Stellenbosch and was shown to suppress plant growth and seedling survival. Although St. John's wort is at present under control and poses no real economic threat, the presence of the weed will have to be carefully monitored.

## LEGISLATION

St. John's wort has been proclaimed a noxious weed throughout the Republic of South Africa under the Conservation of Agricultural Resources Act 1983 (Act No. 43 of 1983). In terms of this legislation no-one may spread this species or allow it to be distributed, and it must be controlled wherever it occurs.