Rainbow&Brown

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WEED FILE:
CALIFORNIAN THISTLE Part 1

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Californian Thistle – *Cirsium arvense*

This Weed File comes in two parts (Part 1 and Part 2, of course) because there's a bit more information than will reasonably fit on one page. So please make sure you read both parts to get the full story.

WHY IS THE CALIE DIFFERENT?

The Californian thistle (also known as the "Calie" thistle) differs from other thistles in New Zealand in that it is a perennial. All our other thistles are annuals or biennials, and they all have tap roots on the individual plants. But the Californian thistle instead has a far-creeping root system that sends up a large number of aerial shoots, and it is these that we normally think of as being "a thistle" rather than just part of the thistle. Thus a clump of Calie thistles is almost invariably all growing from a single root system, and is thus effectively a single plant. This can extend to an entire paddock's population of Californian thistles all actually being one giant plant.

The aerial portion of the plant dies back in the late autumn or winter with the early frosts, but the huge root system remains viable and fresh growth emerges in the spring.

Because of the extensive nature of this root system, Californian thistles can be difficult to eradicate, and virtually impossible with any single treatment. The aerial growth that is "killed" by mowing or spraying is soon replaced by fresh growth. The implication of this is discussed in detail in Part 2 of this Weed File.

DESCRIPTION

Californian thistle is an erect perennial that grows to about 150cm tall and generally in dense colonies or patches. The stems are erect and furrowed, and multi-branched towards the top. The stems do not have spines. The leaves are fleshy and lance-shaped, dark green on top and lighter below, are about 150mm long by 50mm wide, and have small-toothed edges as well as 5-10mm spines.

The flowers of the Californian thistle are purple, mauve or white, egg-shaped and about 20mm long by 15mm wide. This is smaller than Scotch and nodding thistles, although of similar size to the winged thistle.

The flowers on a single plant (or plant complex) are either all male or all female, and therefore pollination is often very poor with little if any viable seed being produced in a pastoral situation. Flowering occurs in summer and autumn.

DISTRIBUTION

The Californian thistle is common throughout all parts of New Zealand and in many areas is the major thistle problem, indeed in some regions it is the major pastoral weed pest of any kind. It will inhabit pastoral, arable and waste areas, and is able to grow in almost any climate. The plant was introduced from Europe.

PASTURE THEFT

Stock (except goats) will avoid grazing close to Californian thistle because of the sharply spined leaves. This leads to very poor utilisation of the closely adjacent pasture. The total effect of effective pasture loss with Calis has been reported as 600kg/Ha in a low thistle density paddock! The Californian thistle is without doubt the most economically significant of NZ's pastoral weed species.

Additionally, sheep grazing pastures containing Californian thistles can suffer from scabby mouth, a viral infection of the punctures in the lips and mouth caused by the thistle spines.

CROPS

Californian thistle is highly competitive in crops, and can quickly establish in a new crop from an old root system. The residual herbicides that are often used in advance to protect new crops are not necessarily effective against the Cali because the thistle's root system lies deeper in the soil than the effect zone of the residual herbicide, so that the thistle plant is unscathed and can produce new growth that is both unexpected and considerable.

AN IMPORTANT CONSIDERATION

At different stages of its growth, the sugars within the aerial (above ground) portion of Californian thistles will move in one direction or the other. At early flowering (late spring/early summer) the sugars are flowing predominantly up and out, from the upper leaves into the flowers. In late summer, at the end of flowering, the sugars begin flowing actively in the other direction, down into the root system. This change of direction of the plant's "biological flow" can be exploited to maximise the effect of both chemical and non-chemical control measures, as will be discussed in Part 2 of this Weed File.