

Red Clover – Fortune in a Flower

“I’m feeling lucky like a four-leaf clover” (Jennifer Lopez)

Good fortune and luck are associated with red clover, whether it has three or four leaves. Cows, soil and therefore farmers will benefit from this fortunate flower.

Red clover is a herbaceous, short-lived perennial plant, variable in size, growing to 20–80 cm tall, native to Europe, Western Asia, and northwest Africa and naturalised all over the world including Australia. It has a deep taproot which makes it tolerant to drought and gives it a good soil structuring effect. It is widely grown as a fodder crop, valued for its nitrogen fixation, which increases soil fertility and for these reasons, is used as a green manure crop. Several cultivar groups have been selected for agricultural use, mostly derived from *Trifolium pratense* var. *sativum*.

Our Resilient Farms Agronomist, Jade Killoran, says: “Red clover is a short-term perennial clover which grows well in autumn and summer. It grows rapidly and has very high yields in the right conditions, also attracts beneficial insects and fixes N. It is well suited to cool, high rainfall zones, and tolerates clay/loam soils and some waterlogging.

One thing to watch is that some red clover varieties can have high oestrogen levels, which may affect breeding stock when grazing. Varieties such as Astred have low oestrogen levels and may be a good choice if the pasture mix is not particularly diverse. However, if sown at 1 kg or less in a diverse mix, oestrogen levels in the clover should be less of an issue.”



Dry Matter Yield

In answer to last week's question, according to Pastures Australia:

Under optimum growing conditions red clover peaks at **70-90 kg dry matter/ha/day** in spring and summer, dropping to 5–10 kg dry matter/ha/day in winter. Therefore in peak growing conditions red clover yields between about 13 and 18 tonnes annually in contrast to arrowleaf clover (*Trifolium vesiculolum*) where annual production yields of over 10 t DM/ha have been recorded in Tasmania and 9 t DM/ha on the southern slopes of NSW.

Tiny Clover Lovers

Cattle and sheep are not the only lovers of clover. Insects feed on the flowers. In their natural habitat **bumblebees** are a major pollinator of red clover and some countries such as New Zealand and Chile have imported bumblebees as pollinators. However, as these bees are non-native and likely to affect populations of native bees, the Victorian government are trying to keep them out of the state. Tasmania has bumblebees so if you see one Agriculture Victoria asks that you contact their Customer Service Centre on [136 186](tel:136186).

Red legged earth mites (RLEM) also tend to prefer clover over other pasture species. This pest species, appropriately named *Halotydeus destructor*, was introduced to Australia in the early 1900s from South Africa. If you are planting a pasture which is known to harbour a large population of these destructive little critters, you might consider using an alternative legume such as vetch which they are not so fond of.

Clover and Stock Fertility – According to the DPI, NSW: “Clover disease is an induced infertility in sheep as a result of the animals consuming clovers containing **high levels of** oestrogenic compounds. Clover disease was prevalent during the 1960s and 1970s when many pastures were sown to some older varieties of sub clover that were high in oestrogen. Clover disease.... will only impact sheep flocks if more than 30 per cent of their diet is oestrogenic clover.”

Here's what a 2016 academic paper has to say¹:

“Despite their unrivalled value in livestock systems, certain temperate, pasture, legume species and varieties may contain phytoestrogens which can lower flock/herd fertility. Such compounds, whose chemical structure and biological activity resembles that of estradiol-17 α , include the isoflavones that have caused devastating effects (some of them permanent) on the fertility of many Australian sheep flocks. While the persistence of old ‘oestrogenic’ ecotypes of subterranean clover (*Trifolium subterraneum*) in pasture remains a risk, genetic improvement has been most effective in lowering isoflavone production in *Trifolium* species; infertility due to ‘clover disease’ has been greatly reduced.”

¹ (Fertility of Herbivores Consuming Phytoestrogen-containing *Medicago* and *Trifolium* Species by K. F. M. Reed, Reed Pasture Science, Brighton East 3187, Australia; rps@eftel.net.au ;Academic Editor: Secundino López; Received: 29 May 2016; Accepted: 20 July 2016; Published: 30 July 2016)



Most research in this area has been done on sheep, but there is definitely evidence that plants high in oestrogen can affect cattle and horses too. So, the message seems to be, use new varieties and make sure you don't put too much in the mix.

Fun clover facts:

Red Clovers Takeover in Chile - The red clover has become increasingly important as a source of economic stability in Chile, which has made the need for pollinators even more important.

Clover for cooking - Red clover's flowers and leaves are edible, and can be added as garnishes to any dish. They can also be ground into a flour. Flowers can be used to make jelly and tisanes, and in Essiac recipes.

Doctor Clover - In alternative medicine, red clover is promoted as a treatment for a variety of human maladies, including symptoms of menopause, coughs, disorders of the lymphatic system and a variety of cancers.

