

Arrowleaf Clover – Enhancing Australian Soil for over a Century

“As happy as a pig in clover” (American saying dating from mid 19th century)

Tasty and fattening, pigs are not the only farm animals to enjoy clover. Cows, sheep and horses will thank you for a pasture mix rich in clover – and so will your soil.

There are about 300 species of clover on the planet, many of which are used to feed livestock. This week we’re looking at Arrowleaf clover (*Trifolium vesiculolum*) which is native to southern and southeast Europe and Turkey, but has grown in Australia for decades, and is a popular pasture crop.



Arrowleaf clover (Photo – Google commons)

Our Resilient Farms Agronomist, Jade Killoran, says:

“Arrowleaf clover is an annual clover which is fairly dormant in winter and known for growing into the late spring and summer. It has a deep taproot which makes it fairly tolerant of dry conditions. It can be sown in spring as well as autumn. If it is sown in with subclover, it will keep growing after these clovers finish off. It likes a well-drained soil and has adapted well to being sown in central and northern Victoria, but can be sown in spring in our wetter southwest paddocks. It should be a good legume to extend high quality fodder and N fixation into the summer.”

Pastures Australia lists the strengths of Arrowleaf clover as:

Long growing season, extending into summer; Excellent spring/summer dry matter production; Responds well to summer rain; Ability to suppress summer weed species; Deep taproot; Highly palatable, bloat safe legume.



Marauding Mite Might be Beaten by Molasses

The tiny redlegged earth mite (RLEM) is a big fan of all clovers. In answer to last week's teaser, some Victorian farmers have been experimenting with spraying molasses on pastures and crops to sweeten the leaf surface area and lift the health of the plant. Soft bodied insects such as this tiny spider are deterred by sugary substances and less likely to attack healthy plants. The method has met with some success.

One of the farmers taking part in the Climate Resilient Farms project discovered that a clover field once plagued by RLEM, became healthy after his free-range chickens had spent some time there.

Does anyone else have any advice on discouraging these little blighters?



RLEM (Photo thanks to the *Border Chronicle*.)

Other Clovers

According to Jade, of the ten or so clover species which are used as fodder crops, at least eight are suitable, or appear suitable, for Southwest Victoria. These are:

- 1. Red clover (*Trifolium pratense*)** – covered in a previous feature.
- 2. Arrowleaf clover (*Trifolium vesiculolum*)** - featured here. Current sowings should provide more information about the fit of arrowleaf clover in the region.



3. Crimson clover (*Trifolium incarnatum*) – Also known as Italian clover, this species is native to southeastern Europe and southwestern Asia Minor. According to Jade, crimson clover has been used as a fodder crop for some time in the USA but has only been introduced to Australian seed mixes in the last two years. She says: “It is visually striking and one of the best clovers for nitrogen fixing. Future sowings should provide more information about the fit of crimson clover to this region.”

Crimson clover (photo courtesy of Feedipedia)



4. Balansa clover (*Trifolium michelianum*) - This is an annual, self-regenerating clover introduced from Turkey and has been used in Western Australia since the mid 1980s. It is adapted to most soils where subterranean clover grows well, tolerates wet, waterlogged conditions during winter, and has low to moderate tolerance to saline soils.

Balansa clover (Photo – www.agric.wa.gov.au)



5. Strawberry clover (*Trifolium fragiferum*,) - Native to Europe, Asia, and parts of Africa, it has long been cultivated as a cover crop, for hay and silage, as green manure and to attract bees. The DPI list its advantages as a:



“Valuable component of a pasture mixture in areas where soils become waterlogged, alkaline or are moderately saline, or in pastures where saline irrigation water is used. It will survive an extremely wide range of temperatures, from minus 0°C to more than 35°C. Once established, strawberry clover persists under heavy grazing pressure more successfully than white clover. (It is less susceptible to) many diseases and insect pests that commonly attack clover.”

Strawberry clover (photo – Google commons)

6. Persian clover (*Trifolium resupinatum*) – Also known as reversed clover and shaftal, Persian clover is a native of Turkey, Afghanistan, Portugal, Greece, Iran, Iraq and parts of Northern India where it is an important hay crop in areas with cold winters. It was introduced to South Australia in the 1950s and grown commercially in the early 1970s. Persian clover has become a valuable species for the temperate pastures of southern Australia.



Persian clover (photo – google commons)



6. Sub clover (*Trifolium subterraneum*) - Also known as subterranean clover and subterranean trefoil, this species is native to northwestern Europe, from Ireland east to Belgium. The plant's name comes from its underground seed development (geocarpy), a characteristic not possessed by other clovers. Due to its subterranean seed development:

“It can thrive in poor-quality soil where other clovers cannot survive, and is grown commercially for animal fodder. There are three distinct subspecies used in agriculture, each with its own ideal climate and soil type, allowing for wide distribution of the plant over varied environments.



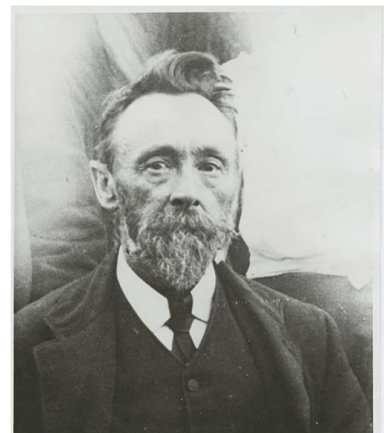
Subterranean clover (Photo- Google commons)

- *T. subterraneum* subsp. *subterraneum* is the generalist subspecies, and it can be grown in the widest range of environments.
- *T. subterraneum* subsp. *yannicum* is grown in moist areas that are prone to flooding.
- *T. subterraneum* subsp. *brachycalycinum* is a more sensitive plant, requiring dry, raked soil for its germination.” (Wikipedia)

An Almost Australian Clover

There are no clover species native to Australia, but thanks to Australian nurseryman, Amos William Howard, of Mount Barker, South Australia who recognised its value as a fodder crop, sub clover has a distinctly Aussie history. Howard (1848 – 1930), the son of a gardener, was born in Watford, England. In 1876 the family migrated to South Australia on the ship *Lightning* which ran aground on the Troubridge Shoal shortly before reaching its destination, but was refloated without loss of life. Would sub clover have been so Australian, had things proved fatal that day?

In about 1889 he noticed sub clover growing locally. After collecting and propagating the seed, his first recorded sale consisting of 13 lb. of "clean seed", is dated 18 January 1906.



Amos William Howard (photo – Google Commons)



According to Wikipedia:

“Subterranean clover revolutionised farming practice, converting many struggling farms into successful livestock holdings.

The discovery spread across Australia and to many other countries, due largely to Howard's generosity in publishing articles about the clover, supplying seed free of charge around the world, and advising on handling. By 1930, thousands of hectares in South Australia were carrying subterranean clover. It was also growing in all Australian States, and requests for seed and information were being received in great numbers from almost all countries in the world which had a temperate climate.

Howard's work is commemorated by the incorporation of a clover leaf into the arms of the District Council of Mount Barker. Two cultivars of subterranean clover have been named in his honour: "Howard" and "Mt Barker". A memorial to him on the Mount Barker Road was erected by the Australian Institute of Agricultural Science in 1963.

The A W Howard Memorial Trust Inc was established in 1964 in his name. It has awarded travel grants, research fellowships and study awards for pasture research annually to scientists and pastoralists.”

Fertility Fears

As was mentioned in our red clover feature, some of the older varieties of sub clover affected fertility in sheep. DPI, NSW recommends that you “Do not grow older varieties as some varieties (e.g. Dwalganup, Yarloop) can have high levels of plant oestrogens that may result in livestock infertility. All listed varieties have low levels and are unlikely to cause clover disease in sheep.”

6. White clover (*Trifolium repens*) - Native to Europe, including the British Isles, and central Asia, this is one of the most widely cultivated types of clover. It has been naturalised in Australia for a long time. Some of its advantages listed by the DPI are:

“Widely naturalised in higher-rainfall districts; Can be surface-sown or direct-drilled into existing pasture; Grows on a wide range of soil types; Medium to good tolerance of acidic soils.”



White clover (*Trifolium repens*) is the clover species most likely to produce a four-leafed specimen. According to Wikipedia, a 2017 survey of approximately 7 million clovers found the frequency to be about 5000 to 1, twice the popular probability of 10,000 to 1. The survey also listed the frequency of a five-leaf clover as 24,400 to 1, and of a six-leaf clover as 312,500 to 1.

Photo – Google commons.

