

Sub Clover System integration

Increasing production with
subterranean clover



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The importance of legumes in New Zealand

While subterranean clover (sub clover, *Trifolium subterraneum*) is the best-adapted clover for dryland pastures in New Zealand, there is a lot of confusion and misinformation surrounding it. In our experience, sub-optimum results are often caused by :

- Planting a cultivar not suited to NZ conditions
- Planting a cultivar not suited to farm conditions
- Not sowing enough seed
- Not managing it correctly

This guide highlights key information to help ensure optimum results are achieved.

Clovers, along with other legumes such as lucerne, are an essential component of New Zealand pasture systems because of their ability to fix N from the air through a symbiotic relationship with bacteria which form nodules on legume root systems.

This fixed N in the soil is available for uptake by non legume pasture plants. The three most common commercially available clovers in New Zealand pastures are the perennials white clover (*Trifolium repens*) and red clover (*T. pratense*) and the annual sub clover (*T. subterraneum*). They fix up to 30 kg N per tonne of clover dry matter grown.

Sub clover systems

Selecting cultivars

There are very large differences among cultivars and it is vital to sow those that are well adapted to local conditions. The following characteristics are important to consider ;

Flowering time

Cultivar flowering time indicates the environment it is best suited to and its management (grazing strategies and reseeded). There are two scenarios to consider :

Later flowering cultivars have a longer growth cycle and the opportunity to exploit favourable growth conditions in November / December but will be ill adapted if drought starts in early November in most years ;

If the strategy is to maximise early spring biomass production for ewe lactation, then earlier flowering cultivars are desirable in the seed mix.

Hardseededness

A hard seed protects against false strikes. Some of the seed set by sub clover contains hard seeds. Some of these seeds will germinate one or two years later than most.

This helps protect the plant from 'false strikes' where early germination in late summer is followed by autumn drought and loss of seedlings.

Burr burial

Burr burial is an important characteristic. Cultivars with low ratings tend to be less persistent on some soil types and may require special management.

Additional important characteristics

- Prostrate growth habit and leaf size
- Cold sensitivity and tolerance
- biomass production and disease/pest susceptibility

Sub clover systems

Managing your sub clover pasture :

Site preparation

The methods of site preparation will depend on the topography of the site and previous use (e.g. cropping or pasture)

Weed control - Sub clover is a poor competitor and sensitive to shading, so effective weed control is essential for successful establishment.

Cultivation - On flat to rolling terrain, normal fine, firm seed bed recommendations apply.

When to sow

Sub clover should be sown in autumn. Soil moisture is an important environmental factor for germination so seed should be sown between late February and mid-April in response to individual summer rainfall pattern and soil moisture accumulated during any summer fallow.

Sub clover should not be sown in spring as it is unlikely to set seed before summer drought.

Sowing

The need to sow sub can be determined by the lack of it. If you can walk across the paddock in September without standing on sub clover at each step you have not got enough. You either have a poorly adapted cultivar and/or what you have has been mismanaged.

Seed sowing methods

The method of sowing sub clover seed in dryland pastures depends on the topography.

Direct drilling - If possible, sub clover should be drilled rather than broadcast. This is because the seed is adapted to germinate from seed burrs buried in the top 10 mm of soil.

Broadcasting - In steep hill country areas, aircraft are used to spread seed by over-sowing. It is recognised that rates of establishment using over-sowing are usually much lower compared with drilling.

What rate to sow

Cultivars differ in seed size but in most cases there are only 15 seeds per square metre for each kilogram sown. Therefore 10 kg per hectare will give about 100 established plant per square metre.

Managing your sub clover pasture

Dry matter production

Pure swards of sub clover produce 5 - 16 t DM/ha/yr depending on rainfall. This is similar to mixed grass and clover pastures at the same site. However, clover content is often only 10 % to 20 % of the total production in mixed pastures.

Clover herbage has a higher feeding value than grass. Therefore farming for legumes rather than grazing management, particularly during flowering, is key to sub clover persistence in permanent pastures.

Graze lightly to start

Grazing management during the first spring flowering of newly established sub clover should be lax (i.e over 2000 kg DM/ha).

However, towards the end of the growing season, stock should be removed due to selective grazing of the clover. This should be one or two weeks before the typical dry period.

Autumn

Before sub clover germination in autumn, aim to keep grass in pastures short with mass of 700 - 1000 kg of DM/ha (1-2cm).

After a good strike, spell the pasture until sub has at least four trifoliate leaves. Sub thrives when it is given a chance to establish before its first grazing.

Spring

Reap the rewards. The spelled sub clover-dominant pastures will provide maximum ewe lactation during lambing.

RGT NARRIKUP

Subterranean clover

- Subspecies ssp.subterraneum
- Mid season maturity
- Great for dryland permanent pasture
- Ideal companion with RGT Greenly II
- Offers tolerance to Red Legged Earth Mite
- Combine with other subterranean cultivars

Combining two flowering dates, usually mid and late, helps ensure extended production

Feed available



Option for summer dry regions offering spring to midsummer performance - graze until flowering then reduce stocking rate to promote seed set

Stock suitability

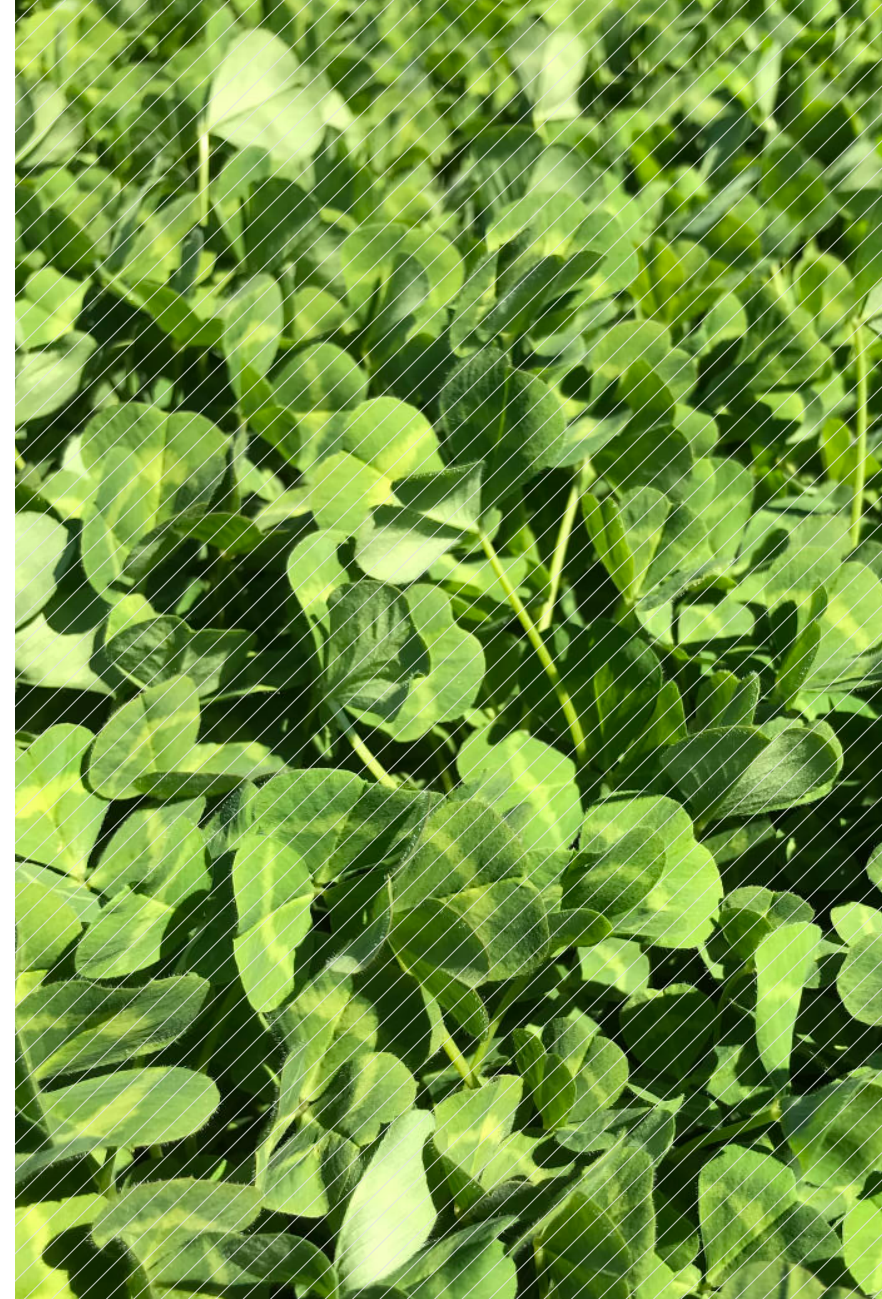


All stock types

Sowing rate

10 Kg/ha

or combine with other subterranean clovers in perennial pasture mixes



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RGT ROSABROOK

Subterranean clover

- Subspecies ssp.subterraneum
- Late flowering making it well suited to New Zealand
- High yielding
- Great for dryland permanent pasture
- Ideal companion with RGT Greenly II
- Offers tolerance to Red Legged Earth Mite
- Combine with other subterranean cultivars

Combining two flowering dates, usually mid and late, helps ensure extended production.

Feed available



Option for summer dry regions offering spring to midsummer performance - graze until flowering then reduce stocking rate to promote seed set

Stock suitability



All stock types

Sowing rate

10 Kg/ha

or combine with other subterranean clovers in perennial pasture mixes



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RGT ROUSE

Subterranean clover

- Subspecies ssp.yanninicum
- Mid - late season maturity
- Great for dryland permanent pasture
- Ideal companion with RGT Greenly II
- Combine with other subterranean cultivars
- Suited to soils prone to waterlogging or higher annual rainfall
- Moderate levels of hardseededness to help protect against seedling losses with false breaks

Feed available



Option for soils prone to waterlogging or higher annual rainfall. Graze until flowering and then reduce stocking rate to promote seed set

Stock suitability

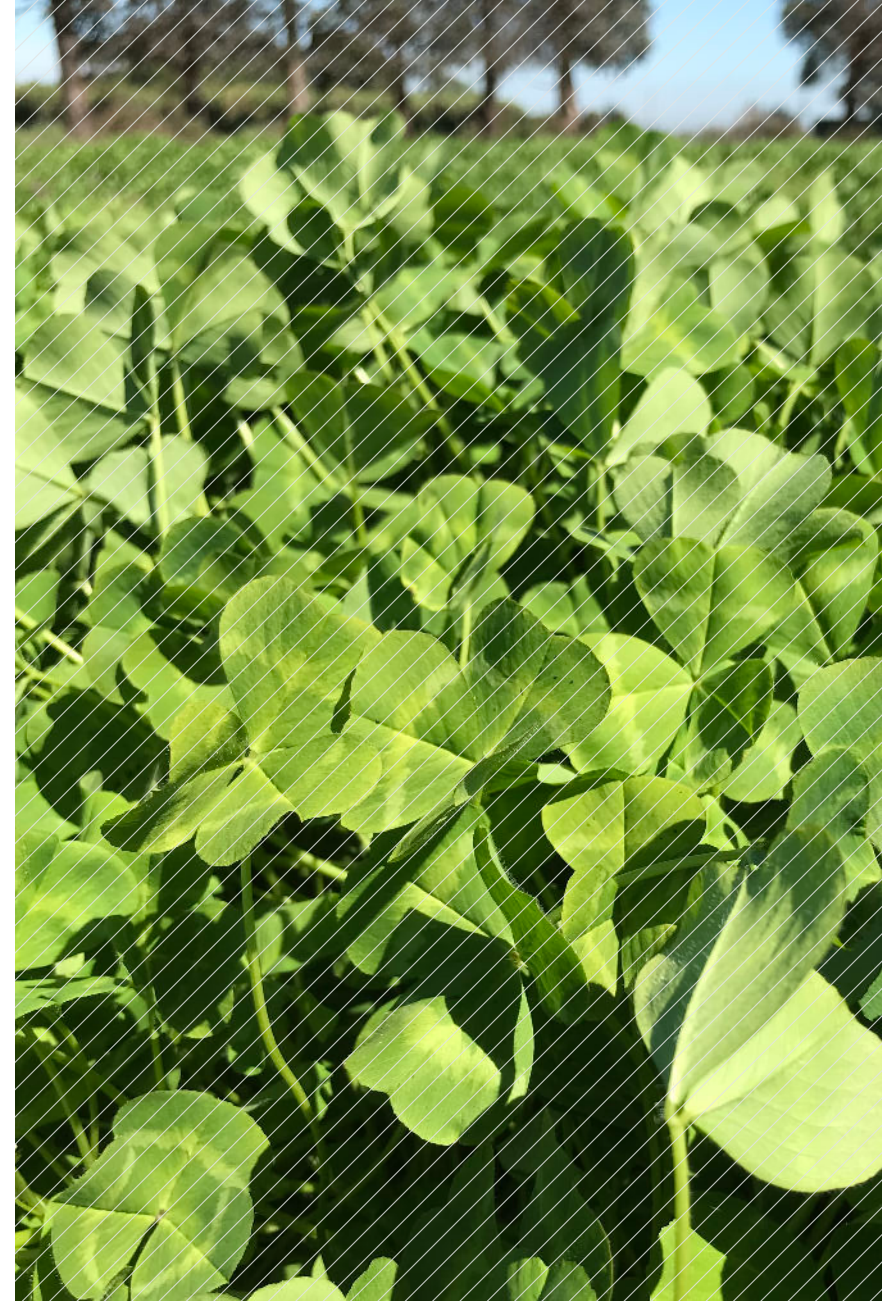


All stock types

Sowing rate

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