



## General Facts about Sub Clover

Sub clover is the best adapted clover for dryland pastures where perennial white clover does not normally survive summer drought. There are about 3 million hectares of summer dry pasture in New Zealand where sub clover will out yield white clover in the cool season when moisture is available. Sub must be sown more widely so productivity of our hill country pastures can be increased.

Sub clover is similar to other annual clovers in that it germinates after autumn rains, flowers in spring and dies in early summer after producing seed which remains dormant over summer.

Annual clovers are adapted to hot, dry Mediterranean summers and generally seed will only germinate with cooler autumn temperatures and when there has been significant rain (over 15 mm).

Early germination in summer is prevented by "hardseededness" where the seed coat will not let water into the seed. "Softening" of the hard seed coat is hastened by fluctuating soil surface temperatures during summer. Greatest night/day temperature variations occur where there is (some) bare ground rather than under vegetation cover.

It is important that maximum numbers of seedlings can be re-established each autumn from large numbers of seeds which were produced the previous spring.

### *Sub clovers are very good at Nitrogen Fixation*

Nitrogen Fixation: 25 kg nitrogen is fixed per tonne clover DM/ha/yr. Therefore 4 tonne of sub clover DM is equivalent to 100 kg nitrogen per hectare in an average dryland pasture.

All sub clovers form nitrogen fixing nodules on their roots in combination with Group C rhizobium bacteria. If sub clover is sown in undeveloped country seed should be inoculated with Group C peat inoculant.



## Management

### *Ideal basic management requirements for sub clover based pastures are:*

- Sow in autumn
- Try to avoid grazing sub clover seedlings until they have 4 or 5 leaves
- Graze to avoid shading of sub seedlings during late autumn
- Spell lambing paddocks through winter
- Sub based pastures can be set stocked in early spring for lambing, but sub will be more productive if a 3 or 4 paddock rotation is used through most of lactation
- In the first spring after autumn sowing a new sub clover pasture, spell the paddock when it is in full flower (often about mid October) to get maximum seed set to start the sub clover seed bank
- Graze the spelled new paddock with cattle after about 8 weeks, keep on top of summer grass seed head and graze hard from mid-summer and try get up to 20% bare ground; this helps seed softening and reduces competition from perennial grasses versus sub clover seedlings when they establish after autumn rain

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**Antas**  
Sub Clover



→ Antas sub clover has excellent seedling vigour, winter growth and superior spring production.

# Antas Sub Clover



## Antas Sub Clover

Antas has the potential to produce enormous amounts of feed. Because it belongs to the brachycalycinum sub species it requires higher pH than the other subterranean clovers. If soil pH is less than 5.8, lime should be applied.

Antas leaves are very large and its petioles (leaf stems) are also potentially tall under rotational grazing. These leaf characteristics mean that Antas can be very competitive with grasses compared to shorter sub clover cultivars. This can be turned to advantage by sowing with a low rate of Italian ryegrass e.g. 5kg/ha plus 10 kg/ha Antas sub clover. Such a specialised mixture should provide excellent early lambing feed. Antas can be spelled to set seed from late October and then grazed in December by cattle to spread seed and avoid sheep chewing the seed. Subsequent crops of Italian ryegrass may be sown the following February into regenerating Antas sub clover paddocks.

Antas is late flowering and can be sown in mixtures of permanent pasture in autumn.

The potential of Antas to grow rapidly in early spring should be controlled by maintaining pasture at no more than 8cm. This is to ensure seed burrs can reach the soil surface during flowering in October/November. This is especially important during the first spring when it is essential to set a large amount of seed. To achieve a large seed set, spell pasture from late October for a minimum of six weeks.



## Sowing Rates

<i>A good general mixture</i>	<i>kg/ha</i>
<b>Antas sub clover</b>	<b>5</b>
Woogenellup	5
Kakariki white clover	2
Perennial ryegrass AR1	10
Cocksfoot	1
Plantain	1
<b>Total</b>	<b>24</b>



## Livestock Production from Sub Clover

Ruminant species when given free range choice will select a diet with 70 % clover and 30 % grass. Pastures with perennial clovers such as white and red rarely have more than 20 % clover in spring.

In contrast annual sub clover grows much faster in the cool, moist seasons and well managed sub clover/ grass pastures will normally have at least 40% clover on offer in September. Live weight gains of lambs before weaning on such pastures will be proportional to the clover content. Grass dominant pasture is unlikely to give pre-weaning live weight gains of more than 200 grams/day. Singles on 40% sub clover pasture should grow at over 350 grams/day while twins should gain 300 to 330 grams/day.



## Sub-species

There are three sub-species within the subterranean clover species:

1. The most widely used sub-species is *Trifolium subterraneum* sub-species subterraneum; cultivars of this sub-species have round black seeds and tolerate acid soils down to about pH 5.4. Examples are Campeda, Woogenellup, Denmark and Rosabrook.
2. *T. subterraneum* sub-species yanninicum has white coloured seeds and is more tolerant of wet soils than the other two sub species. Examples are Monti and Napier.
3. *T. subterraneum* sub-species brachycalycinum has flattened black seeds and is adapted to soils with a pH above 5.7. Its flowers are small and the peduncles (flower stems) do not actively bury burrs. Instead the long twisting peduncles enable it to bury seeds under clods, stones and cracks in the soil. Antas is the only cultivar available from this high yielding sub species.



## Suggestions for exploiting the unique characteristics of Antas

- Early lambing prior to weaning onto lucerne
- Sown in permanent pasture mixtures up to 10 kg/ha
- Sow 10kg Antas plus 5kg Italian as a special purpose mixture
- Allow Antas to grow tall, make seed rich hay (but not in establishment year) and feed out to cattle