



NZ Forage Systems Fact Sheet

Arrowleaf clover

Key Points

1. Arrowleaf clover is an annual legume producing high quality spring/summer feed in warm, low rainfall areas.
2. Poor winter growth.
3. Intolerant of cool winters or waterlogging.
4. Under New Zealand grazing management it is unlikely to set sufficient seed to re-establish.
5. Currently best used as an annual crop.



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Arrowleaf clover - *Trifolium vesiculosum*

Annual legume producing high quality feed over late spring/summer. Widely used in temperate Australia where annual rainfall is below 500 mm.

Relatively new species to New Zealand. Arrowleaf clover has been used successfully in Hawke's Bay for ewes and lambs and as a late season hay crop. It has been successfully sown with plantain and other clovers, providing extra legume in the first year.

In a Lincoln University experiment, Arrowleaf clover produced 9,800 kg DM/ha compared ($P < 0.001$) with 3,370 kg DM/ha from sub clover and 1,790 kg DM/ha from white clover. Growth rates of over 100 kg DM/ha/day have been measured in October-November in Hawke's Bay.

Lamb growth rates of 254 g/day in November to January have been achieved on Arrowleaf clover pastures in dryland Victorian trials and similar growth rates have been reported in New Zealand.

Strengths

- Provides high quality feed over late spring/summer.
- Suitable for hay crop.
- Responds well to summer rain.
- Deep taproot and ability to suppress summer weed species.
- Highly palatable.
- Bloat safe legume.
- Upright plant that resists lodging - will grow to 700-800 mm tall.

Limitations

- Intolerant of poor drainage.
- Cannot be sown greater than 4 mm deep.
- Susceptible to weed competition as a seedling.
- Very slow to establish, 120-150 days from sowing to first grazing.
- Poor winter growth.
- Very hard seeded under most New Zealand conditions.
- The need to restrict grazing during flowering to enable re-seeding means it is not suitable for permanent pastures and requires annual re-sowing under current management systems.
- Requires moderate to high fertility for maximum yields.

Establishment

Avoid cold wet areas. Susceptible to *Phytophthora* root rot under waterlogged conditions. Sow in autumn at 3 kg/ha in a mix and 8 kg/ha as a single species as soon as soil moisture is adequate. Establishes from broadcasting or over-sowing if seedbed is well rolled or tressed. Do not sow deeper than 4-5 mm. Arrowleaf clover has been successfully sown with plantain along with perennial legumes (e.g. red and white) as it increases legume content in the first spring and summer performance. If Arrowleaf has not previously been sown, ensure that seed is inoculated with the correct *rhizobia* strain (Group C WSM 1325). Arrowleaf clover is highly responsive to fertilizer which promotes early root development and seedling vigour. Major nutrient requirements are phosphorous and potassium. Maintain Olsen P above 25.

Weeds and pests

Good weed control is necessary prior to sowing as it is susceptible to competition during establishment. Post emergence weed and/or grass control may be required. Insects (red-legged earth mites and springtails) can be an issue during establishment. Arrowleaf is very susceptible to herbicides or mixtures containing bromoxynil, terbutryn, diflufenican and 2,4-D amine. It will also tolerate MCPA amine.

Some farmers are achieving good post emergence weed control of a wide range of weeds and grasses by using 130 g ai/ha *haloxyfop-P* (Crest/Galant) plus 1440g ai/ha *bentazone* (Troy/Basagran) all in 125 litres water/ha with a suitable wetter. Arrowleaf clover needs to be at the 3-5 leaf stage before spraying. If insects are an issue, *chlorpyrifos* (Lorsban) at 500 g ai/ha can be added to the mix.

Management and animal performance

Plants may be grazed mid to late winter. Grazing encourages stem development but hard grazing may remove developing stems. Well suited to silage or hay after 1 to 2 early grazings. Produces high quality, high protein forage. Feed nutritive value remains high through to maturity.

Cultivars

Most seed is imported so seed supplies can be tight. Order seed early. Currently two cultivars commonly available in New Zealand. There is no data on comparative yields in New Zealand. Late flowering types have been successfully used in summer dry conditions throughout New Zealand.

Cultivar	Maturity	Notes
Cefalu	Early	
Arrotas	Late	Produces later into the summer than Cefalu. Subject to plant variety rights.

