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Herbage Development Fact Sheet 8 • By Eric Hall and Andrea Hurst

Alsike clover, cv. Hytas(þ)

(*Trifolium hybridum* L.)

Origin
Recurrent phenotypic selection: 4 cycles of recurrent phenotypic selection for seedling vigour, plant vigour, uniform flowering and higher stem numbers within CPI 24852, introduced to Australia in 1958 as seed from the Swedish Seed Association, Uppsala, Sweden. The original germplasm was collected by Professor C. L. Behm from Erzurum Ziraat Murdurlugunde, Turkey, 1955.

Breeders
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Description
Hytas(þ) is a short lived glaberous perennial. It is a semi erect plant, with stems growing to around 80 cm tall. The well developed crown produces many branching hollow stems up to 1 metre long. The trifoliate leaves have no leaf marking with large serrated edged leaflets (Figure 1).

Flowers
Dense clusters on long stalk; globe shaped to 2.5 cm diameter; pale pink/white, fading to brown.

Major attributes
Hytas(þ) grows well on heavy, poorly-drained soils where many other legumes fail. Persistence can be increased by allowing stands to seed as it recruits readily from seed. Hytas(þ) differs from most other Alsike clovers by having a moderate level of winter activity.

Seasonal production
Hytas(þ) has a moderate level of winter activity, becoming highly active in early spring through to late summer, producing a large bulk of high protein, high-energy forage with a high level of digestibility and nutritive value.

Drought tolerance
Alsike clover has poor heat and drought tolerance[1].

Cold tolerance
Very high. Tolerates frosts to –9° C with little or no frost damage.

Waterlogging tolerance
Alsike clover grows well on heavy, poorly-drained soils and will even withstand flooding for considerable periods of time[1].

Salt tolerance
Low.

Soil and climate requirements
Best adapted for sowing in cool temperate medium to high rainfall areas receiving greater than 600mm average annual rainfall. Adapted to a range of soil types including wet and acidic soils, pH levels 5.0 to 8.0. Growth responses will increase significantly with improved fertility.

Maturity
Commences flowering early November. Seed matures mid-January.

Seed size
Thousand seed weight 0.666 gms (white clover 0.636 gms).

Hard seed
Very low. Around 10% hard seed.

Seed treatment
Seed must inoculated with appropriate rhizobia prior to sowing.

Rhizobium
Group B

Sowing methods
Drilled, direct drilled or broadcast.

Sowing depth
Best sown at 5mm.

Sowing rate
3–5 kg/ha, depending on seed-bed quality.

Sowing time
Preferably late summer to autumn for sufficient seedling development coming into winter, but can be sown in spring in areas with a long growing season.

Land preparation
Well-cultivated firm seedbed required for best results. For direct drilling or broadcasting there should be as little vegetation as possible and adequate soil moisture prior to sowing. Unlikely to establish when broadcast onto existing pasture.

Compatibility with other species
Highly compatible with the less competitive perennial grass species. Seedlings will struggle if sown in a mix with high rates of more vigorous grass species such as perennial ryegrass or perennial bromes. Reduce grass sowing rates if using Hytas(þ) as the companion legume with these vigorous species.

Suggested mix
Hytas(þ) with a low rate (10kg/ha) of short term/Italian ryegrass for use as hay or silage.

Seedling vigour
Initially poor due to its small seed size, however Hytas(þ) has been selected for improved seedling vigour.

Grazing management
Grazing should be lax early in the early stages of establish to allow the plants to develop a strong root system. Hytas(þ) is best suited to a rotational grazing system.

Suitability for hay and silage
Growth characteristics and the favourable response to infrequent defoliation make Hytas(þ) a valuable cultivar for hay production.

Dry matter yield
Peak growth period is during early spring through to late summer, with 5.7 t/DM/ha herbage produced in summer by a 6-month-old stand under dryland conditions at Cressy, Tasmania.

Feed value
Highly digestible, declining slowly with maturity.

Anti-quality factors
No oestrogen/toxin problems noted in Australia. Trifoliosis ('dew poisoning/bighead photosensitization/big liver disease') is attributed to alsike clover poisoning in North America. Light-skinned animals (especially horses) are particularly affected if they are allowed to graze on alsike when it is wet; contains an unknown agent which causes primary and/or secondary (hepatogenous) photosensitization[2]. May be some risk of bloat for stock grazing pure stands.

Seed harvest methods

Direct heading, cutter rowing. Holds seed very well when mature.

Tolerance of herbicides

Tolerates "clover safe" herbicides such as MCPB, 2,4-DB, benazolin types, but not the lesser selective herbicides[3].

Diseases

None recorded.

Pests

Susceptible to red legged earth mite attack as seedlings, but established swards appear more resistant. Alsike clover is regarded as susceptible to the same range of pests as red clover. Animal performance: No data available at this stage.

Acknowledgements and more information

1. http://ohioline.osu.edu/agf-fact/0007.html
2. http://www.pasturepicker.com.au/tasmania_north.htm
3. http://www.fao.org/ag/AGP/agpc/doc/gbase/data/Pf000348.htm

(Þ Variety is protected by Plant Breeders Rights

Figure 1 Hytas(Þ leaves and flowers

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