Hatrik Sub Clover

*Trifolium subterranean*

Hatrik is a mid season cultivar, well adapted to waterlogged and poorly drained soils particularly over winter. Hatrik has good winter and early spring production. It has been selected for seedling vigour, high herbage production and tolerance to waterlogging with a high seed yielding ability to ensure long term clover dominant pastures. Vigorous growth and improved disease resistance ensures Hatrik provides bountiful, high quality forage for grazing, hay or silage production.

- Tolerant to waterlogged or poorly drained soils
- Excellent seedling vigour
- High herbage production
- Good seed yields

**Seed agronomy table**

<table>
<thead>
<tr>
<th>Maturity</th>
<th>Mid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days To Flower</td>
<td>114</td>
</tr>
<tr>
<td>Burr Burial Strength</td>
<td>5</td>
</tr>
<tr>
<td>Min Rainfall</td>
<td>450</td>
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</tbody>
</table>
Hard Seed Level 1 = Least Hard 10 = Most Hard
Burr Burial Strength 1 = Very Weak 10 = Very Strong

Enterprises this seed is being used for
Sheep
Beef Cattle
Diary Cattle
Horse
Hay & Silage
Viti & Horti

Strengths
• Tolerant of heavy grazing under set stocking.
• Vigorous seedlings provide good winter feed.
• Adapted to soils prone to winter waterlogging.
• Very persistent in high rainfall areas.

Limitations
• Poor persistence on well-drained sandy soils.
• Insufficient hard seededness for persistence in tight cropping rotations (1 year crop:1 year pasture).
• Susceptible to germination following «false breaks».
Shallow-rooted, so unable to capture deeper soil moisture and susceptible to premature death in dry springs.

Some older cultivars have high oestrogen levels contributing to ewe infertility.

**Plant Description**

A prostrate self-regenerating annual pasture legume tolerant of waterlogging and heavy grazing that grows from autumn through to spring and buries its burrs.

**Pasture type and use**

Suited to permanent and semi-permanent pastures and to crop rotations where cropping is infrequent. Other subspecies (subterraneum and brachycalycinum) are better suited to soils not prone to waterlogging.

**Where it grows**

- **Rainfall:** Adapted to winter-dominant rainfall area of southern Australia with annual rainfall 425 -1200 mm. Mid season varieties suited to medium rainfall zone, later flowering varieties suited to higher rainfall zone. Can also be grown under irrigation.
- **Soils:** Prefers sandy loams to clays of moderate acidity (pH CaCl 4.5-6.5) and good water holding capacity. Highly tolerant of winter waterlogging.
- **Temperature:** Widely adapted to the agricultural areas of Western Australia, South Australia, Victoria, New South Wales and Tasmania. Good frost tolerance.

**Establishment**

- **Companion species:** A range of perennial and annual grasses, balansa clover, gland clover, persian clover, purple clover, burr medic. On paddocks with patches of well-drained soils it can also be sown with subterranean clover ssp. subterraneum (black-seeded sub clover) and lucerne.
- **Sowing/planting rates as single species:** 8 - 20 kg/ha.
  * ensure seed is Goldstrike treated.
- **Sowing/planting rates in mixtures:** 3-8 kg/ha, depending on the number of mixture components.
  * ensure seed is Goldstrike treated.
- **Sowing time:** Sow April-June, into moist soil following good weed control. Shallow sowing (<40 mm) is essential.
- **Inoculation:** Goldstrike Treated.

  The use of Goldstrike XLR8 seed treatment is recommended to reduce damage from insects at seedling stages. Can biologically fix 25 kg nitrogen/tonne of herbage dry matter.

- **Fertiliser:** Phosphorus (with potassium on deficient soils) at sowing _ levels dependent on soil tests. Trace elements (Cu, Mo, Zn) may be required on very infertile soils.
Management

Maintenance fertiliser: Annual applications of super-phosphate (with potassium or sulphur on deficient soils) are required to achieve maximum productivity. Levels are dependent on soil tests.

Grazing/cutting: Thrives under set stocking and can be grazed moderately hard while flowering. Likely to be shaded out from more erect plants under lax grazing. Can be cut for hay.

Ability to spread: Slow spread from site of sowing. Can spread by burrs attaching to wool.

Weed potential: Its slow rate of spread, its preference for moderate-high fertility soils and specific rhizobia requirement gives it low potential as an environmental weed. It is readily controlled by a range of broadleaf herbicides within crop.

Major pests: Red legged earth mite is a major pest, particularly at plant establishment, where it can kill emerging seedlings, but also causes damage in spring. Timeritel has proved an effective means of control. Lucerne flea and blue green aphids can also cause damage in spring. Refer to chemical labels for suitability and recommended rates for insecticides.

Major diseases: Some cultivars are susceptible to the foliar disease clover scorch (Kabatiella caulivora), found in high rainfall, humid areas. Other foliar diseases in higher rainfall areas include leaf rust (Uromyces trifolii-repentis), powdery mildew (Erysiphe polygonii) and cercospora leaf spot (Cercospora zebrina). Several root rots can attack subterranean clover, causing most damage to emerging seedlings and young plants. They include Phytophthora clandestina, Fusarium avanaceum, Pythium irregulare and Rhizoctonia solanii.

Herbicide susceptibility: Refer to chemical labels for suitability and recommended rates for herbicides registered for use on subterranean clover.

Animal production

Feeding value: Excellent as green feed with in vitro digestibility in the order of 70% and crude protein over 20% until mid-flowering. Quality reduces once plants hay off. Dry herbage feeding value over summer is less than maintenance value (often < 50% in vitro digestibility) although animals may be able to obtain sufficient energy and protein by digging up seed burrs.

Palatability: Readily consumed by livestock, either as green or dry feed.

Production potential: Vigorous seedlings provide good early season production. Later flowering varieties capable of more than 10 t/ha annual production in long season environments.

Livestock disorders/toxicity: Some older varieties of subterranean clover contain high levels of phyto-oestrogens, which can affect the sheep reproductive system. The most active isoflavone is formononetin, which can cause a decline in ewe fertility. Two other isoflavones, genistein and biochanin A, are also present in all subterranean clover varieties, but these have less impact. If ewes are mated when they are grazing green, potent subterranean
clover their reproductive performance can be temporarily impaired. Continued exposure over several years to high levels of formononetin can lead to permanent infertility. Ram fertility is not affected. Formononetin is present in subterranean clover only while the pasture is green. However, hay produced from oestrogenic varieties can be almost as potent as green pastures. Formononetin levels drop away during late flowering. Generally, dry subterranean clover pastures that result from normal haying-off are not oestrogenic. However, if there is a very early finish to the season, it is possible for oestrogenic varieties to retain some potency in the dry state. All recently released varieties have low formononetin levels. There have been isolated reports of cattle bloat on very clover-dominant subterranean clover pastures.