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Kyambro - a hard-seeded Persian clover

Kyambro Persian clover (*Trifolium resupinatum*) is a highly productive annual pasture legume. It grows well on heavy alkaline soils receiving a minimum annual rainfall of 550 mm.

Kyambro is the first hard-seeded cultivar of Persian clover to be released in Australia.

Description

Kyambro is a semi-erect annual that becomes more prostrate under grazing. It is a vigorous spring grower with the bulk of production occurring from September to November. In contrast to Maral, Kyambro displays a range of leaf markers and produces finer stems, smaller leaves and an abundance of lateral shoots.

Kyambro begins flowering about 24 days earlier than Maral, or about 22 days later than Mount Barker sub clover. It is an aerial seeder and produces deep purple flowers with a strong fragrance.



Kyambro is a prolific seeder, with yields of up to 1,400 kg/ha being obtained in trial areas. It produces very small seeds, about 2 million to a kilogram. It has a high level of hard seeds at harvest (about 95 per cent), decreasing to about 80 per cent by April. This characteristic enables it to persist despite intermittent summer rainfall. Because of the high hardseed content, seed should be scarified before sowing.

No plant oestrogens have been detected in Kyambro and so there should be no problems with infertility in ewes. Swards of Kyambro have been continuously grazed with sheep showing no ill effects. However, bloating may occur in cattle grazing dense stands during spring.

Area of use

Kyambro performs well on heavy alkaline soils with a pH of 7.0 (water) or above. In these situations Kyambro requires a mean minimum annual rainfall of 550 mm.

A longer growing season is required if Kyambro is grown on lighter soils.

Kyambro can be used either as a component of permanent pastures or as a specialist crop sown for hay production. In permanent pastures it will provide a means of maintaining the legume content.

Kyambro is ideally suited to early starter irrigation and under these conditions it is capable of producing excellent winter growth.

Kyambro possesses excellent waterlogging tolerance.

Establishment

Kyambro establishes readily in the year of sowing. In mixed pastures it should be sown at 1 to 2 kg/ha by dropping the seed on a finely prepared seedbed and covered using light harrows. Higher sowing rates of 4 to 5 kg/ha should be used in hay crops. Take care not to sow too deep.

Seed should be inoculated with Persian clover inoculant.

Kyambro should be sown in early autumn after good weed control has been obtained. Early sowing results in the rapid growth of seedlings when the soil is still warm. This is especially important in wet areas because the early growth increases the young plant's tolerance to waterlogging. However, early sowing should not be at the expense of weed control. Good weed control at establishment is essential because all small-seeded legumes, including Kyambro, are susceptible to competition from grasses and broad leaf weeds.

Pests

Seedlings of Kyambro are susceptible to attack from redlegged earth mite and therefore the control of this pest in the year of establishment is absolutely essential. One treatment in autumn is normally enough to ensure satisfactory seedling survival.

Diseases

Kyambro has shown excellent tolerance to stem and leaf rust, a disease which can cause serious herbage and seed losses in Maral. In severe rust infestations seed yields of Kyambro may be up to three times greater than Maral's.

Kyambro has also shown excellent tolerance to clover scorch disease (*Kabatiella*).

Grazing management

First-year stands

It is essential that seed set is maximised to ensure long-term persistence of the pasture.

New pastures can be lightly grazed before flowering; however, stock must be removed before the first flowers appear. Stock can be reintroduced when the pasture has dried off.

Established pastures

Kyambro can demonstrate good persistence with appropriate grazing management. However, in some cases it has failed to persist. The reasons for this are thought to be competition from other plants, low seed set and hardness of the seed. Best results have been obtained when Kyambro paddocks have been grazed very bare over summer, prior to the break of the season. This avoids shading the young plants with the dry pasture and helps soften hard seed. Kyambro does not regenerate well where a bulk of dry residue remains on the pasture.

Set stock Kyambro paddocks after the autumn break. Kyambro plants will be too small to be grazed out but can easily be shaded out if the grasses or weeds get above them. Grazing at this time gives Kyambro a competitive advantage.

From early winter, Kyambro may be rotationally grazed. A rest at this time of the year seems to increase growth, and so supply more feed. However, care should be taken not to allow grasses and broadleaf weeds to 'swamp' the Kyambro.

To ensure a good seed set, Kyambro should be set stocked at a moderate rate from flowering until seed maturity. Crash grazing or cutting during this time will severely reduce seed yields.

Where a Kyambro pasture has gone grassy it may be improved by grazing prior to flowering, and then withdrawing the stock to allow Kyambro to set seed. Once the seed is mature the paddock should be grazed bare. If there is sufficient seed in the soil, spray topping at the end of the season followed by hard summer grazing may be another way of controlling grasses for the next season.

Kyambro is particularly tolerant to heavy, continuous grazing and will survive under these conditions.

An effective means of utilising Kyambro dominant pastures is to leave them ungrazed from spring until seed is set. In this way Kyambro provides good quality “standing hay” for use over the summer period.

Hay production

Kyambro is especially well suited for hay production and is capable of producing a large bulk of spring feed. Analysis of dry herbage shows that Kyambro is highly nutritious.

Pastures should not be cut for hay in the first year if they are expected to regenerate. However, where there has been good seed set in previous years the hard seed reserves in the soil should be sufficient to ensure satisfactory regeneration following hay production.

To sum up

Kyambro is a highly productive pasture legume, specifically developed for the heavy alkaline soils of the South East of SA.

- It is suitable for grazing and hay production.
- It has excellent rust tolerance.
- It is highly nutritious.
- It is well adapted to waterlogging.
- It requires a mean minimum annual rainfall of 550 mm on heavy soils.

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