Agriculture Notes

Cutting lucerne for hay

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Lucerne can be successfully made into hay from October to April in the irrigation areas of northern Victoria and from November to March in southern Victoria. Occasionally earlier or later cuts are possible in any district due to unseasonably warm weather conditions.

Properly harvested lucerne hay is high quality feed with a digestibility of up to 70% and a crude protein content of around 20%.

Both the quality and the quantity of hay produced are important in determining returns from an irrigated stand. Under good management annual yields of good quality lucerne hay greater than 20 tonnes per hectare can be achieved.

Stage of growth at cutting

The correct cutting interval for lucerne is a compromise between protein content and yield.

Generally, cutting lucerne frequently at a short interval will result in an increase in the quality of hay (due to a larger proportion of leaves) and therefore a higher protein content, but the cost of this is lower yields, more rapid invasion by weeds, and reduced stand life as the plant's root reserves are depleted rapidly. Haymaking costs are also increased because more field operations are needed for a similar and often lower yield.

Cutting at too long an interval will give greater yields, but the hay will be stemmy and of relatively low nutritive value.

Each lucerne variety has an optimum interval between cuts. Generally, highly winter-active varieties grow rapidly after cutting and mature in a shorter time, and therefore can be cut more often than winter-dormant varieties.

Winter-dormant varieties, on the other hand, although slower to grow away after cutting, will continue to grow and branch for a longer period before flowering and usually produce a higher yield per cut than a winter-active variety, due to the longer interval possible between the cuts.

The optimum cutting interval for lucerne varies with seasonal conditions, variety, and irrigation management. In practice, the best cutting interval for properly irrigated lucerne is 4-5 weeks in summer and 5-6 weeks in spring and autumn.

The correct time to cut is indicated by new shoots emerging from the crown; this usually occurs at 10-30% bloom (10% bloom is defined as 10 stems out of 100 with some bloom). Either stage (new shoots or 10-30% bloom) can be used as a guide without harm to the lucerne.

In spring and autumn, new crown shoots often appear before flowers, but in summer, flowers usually appear before crown shoots, due to moisture stress and high temperature.

Cutting of immature lucerne is detrimental to the lucerne and is not recommended.

Cutting a new stand for the first time

Young lucerne plants should be allowed to become well established before taking the first cut and they should be encouraged to grow actively during the establishment period by supplying adequate water and fertilisers.

The first cut should not be taken until the lucerne is about 400 mm tall, has several stems per plant and appears bushy. The leaves should be a deep green, some flowers should have appeared, and there should be new shoots coming from the crown. Cutting young lucerne at an immature stage to try and force it to stool out will retard establishment.

Making lucerne hay

High quality lucerne hay is green, leafy, soft to feel, sweet smelling, and free from mould, dust, weeds, and other foreign material.

The quality of hay is reduced by any of the following factors:

- Presence of weeds
- Cutting the lucerne at too late a stage of growth
- Overdrying in the windrows, causing leaf shattering, brittle stems, and loss of green colour
- Weather damage, leading to loss of colour and leaching out of nutrients due to rain or heavy dews

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- Baling uncured or damp hay, causing heating, mustiness, and mouldiness
- Baling or raking at the wrong time of the day, causing leaf and stem shatter

The operations of cutting, conditioning, raking, and baling should be done with care to minimise these losses.

Height of cutting

Lucerne is best cut at a height of about 50 mm above ground level.

Cutting and conditioning

Leaves dry out more rapidly than stems. Using a conditioner to fracture the stem will make the stem dry out more rapidly, allowing easier drying of stems.

Thus, conditioning has the advantage of:

- Reducing leaf loss caused by overdrying of the leaves while waiting for the stems to dry
- Reducing the drying time and therefore the risk of weather damage.

Lucerne is normally cut and conditioned in the one operation.

The roller pressure of the conditioner should be adjusted to split the stems without damaging the leaves.

Lucerne is generally windrowed by the mower conditioner. Windrowing increases drying time slightly but is done to assist raking, and to reduce exposure of the hay to dew and sunlight and therefore minimise bleaching of the hay.

Conditioned lucerne normally takes 3-4 full drying days to cure during summer and up to seven days for early and late season cuts.

Chemical drying of lucerne

Spraying with potassium carbonate at cutting can assist with the curing of lucerne. The chemical breaks down the waxy surface of the stem, allowing moisture to escape.

This reduces the risk of weather damage by reducing the time between cutting and baling, especially in the early spring and autumn.

Potassium carbonate is somewhat corrosive; therefore machinery must be cleaned after use.

Raking

Raking is necessary to accelerate curing of the hay and to reduce the number of machinery passes over the lucerne during baling and haycarting.

Ideally, raking will move the hay the shortest distance possible in order to avoid excessive leaf shatter. The rake should be adjusted so that the hay is not contaminated by ground litter.

Baling

Correct baling of lucerne is a skill developed with practice and experience. Baling should be done at an average moisture content of between 18 and 20%. Below 15% moisture, the leaves and stems become brittle and severe shattering occurs. At moisture contents greater than 25% the hay will go mouldy and may catch fire due to spontaneous combustion.

The most reliable guide to check whether lucerne is ready for baling is to scratch some stems taken from the underside of the windrow. The lucerne is cured sufficiently when no moisture shows on scratching the stems. Once this stage is reached, baling should proceed only at a time of the day when the hay has lost its brittleness and leaves do not shatter. For this reason, lucerne hay is often baled at night or early morning.

One should take care not to bale the hay if it is wet with dew.

Once baled, the hay should be removed from the paddock without delay to avoid loss of quality.

Lucerne management during autumn and winter

For maximum yields of lucerne hay, correct autumn and winter management is important. Regular cutting of irrigated lucerne, even at the optimum stage, will result in some decline of food reserves in the roots in autumn.

Grazing during autumn and early winter is not recommended for lucerne that has been regularly irrigated and cut through the summer. A rest period after the last cut of eight to 10 weeks allows lucerne root reserves to build up again and will result in better hay yields over the next summer.