

Quality hay, how to get it

Making good quality hay in a year where above average rainfall is predicted for most of Victoria over spring will be a challenge. But sticking to some principles, it still should be possible, says David Shambrook Dairy Extension Officer from Agriculture Victoria in Gippsland.

The quality of hay is directly related to the stage of growth at cutting, the amount of leaf retention, diligent use of the right equipment at the right time and avoiding bad weather. Obviously cutting as early as possible in the season, weather permitting, will gain farmers the most in producing higher quality hay.

David says that it is inevitable that some quality will be lost during the curing and harvesting process. So, what can be done about reducing the losses and improving the hay quality?

Growing plants contain approximately 75–80 per cent water at the time of harvest. When the plant is cut, it continues to respire or breathe until water content is reduced to about 40 per cent, i.e. 60 per cent dry matter (DM). Some losses of dry matter and quality has already occurred. Below 40 per cent moisture, the leaves dry at a much faster rate than stems because they are very thin and have a large surface area to mass ratio compared to stems. Because of the cell make up and surface wax layer of stems, drying occurs quite slowly. By the time the stem reaches proper moisture content for baling, the leaves may be too dry and therefore easily shattered.

Once the decision to cut has been made, increasing the rate of drying of the entire crop, particularly the stems, is the key to reducing losses and avoiding the risk of rain damage.

1. Wait for any dew to lift before mowing

There could be one to three tonnes of moisture trapped between the plants if mown with dew on them, moisture which must be dried off before the plants start to cure. Mowing in the rain would have a similar effect.

2. Use a mower-conditioner or conditioner

The most common method of enhancing stem drying is by mechanical conditioning which uses a set of intermeshing, counter-rotating rollers. These are designed to crush, bend or break stems allowing moisture to escape more easily. Conditioners also result in reduced leaf shatter during raking and baling because the leaves tend to dry at about the same rate as stems. Proper roller clearance adjustment is important, especially for roller-type conditioners. Don't have them set too wide. The roller spacings used for the thick-stemmed crops are often not adequate for the finer-stemmed crops.

The flail or tynd-type of mower conditioners are more suited to pastures than the roller type. They do a better job of the crimping, abrading, etc. and tend to leave the windrows 'fluffier', which is more conducive to quicker drying.

In both cases, leaving the swath boards out as wide as possible, to leave wider windrows, will greatly increase the drying rate.

3. Tedding straight after mowing

Although this technique is recommended for silage, tedding (spreading) will reduce the curing time of hay by about 30–40 per cent, if used within a few short hours after mowing. Some farmers use the tedder the day after mowing, but the curing rate would benefit greatly if done soon after mowing.

Some farmers worry about bleaching by using these machines. The tedding will allow far more even and quicker drying, so bleaching should be minimal. In any case, bleaching itself does not greatly affect hay quality but it does reduce the carotene level where bleached. Also, the reduced risk of rain and its effect of reduced quality is reason enough to consider using a tedder.

4. Raking

Raking is used to enhance uniform drying. The most common type of rake rolls and fluffs the windrow, bringing the bottom layer to the top. The rolling action exposes more of the stems while protecting the leafy portion of the plant. Hay should be raked at moisture content above 30 per cent to minimise leaf shatter. Leaf loss can be further reduced by raking during early morning or late evening after the leaves absorb moisture from the air. As much as 15 per cent dry matter can be lost if legumes such as lucerne are raked at the wrong time. Pastures losses would be less than this.

5. When to bale

Optimum moisture content for baling hay for conserved feed depends on bale size and density. For small rectangular bales, the moisture content should be no higher than 18 per cent. The upper limit for large round bales should be about 14–16 per cent and large square bales 12–14 per cent. Over 80 per cent of fires have been in the large square bales which have often been baled at the correct moisture content, but their high density doesn't allow breathing. That is, there is no room for error with these large, very densely packed bales.

David Shambrook, Dairy Extension Officer, Leongatha

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