



## Quicker the wilt, better the silage

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The longer a mown crop takes to reach its target dry matter content for stack or baled silage to ensure it undergoes the most efficient fermentation, the larger the losses.

Very low losses in quality (energy and protein) and dry matter (DM) occur if the wilted crop is in the pit or bale within 24 to 48 hours after mowing. Losses increase substantially after this, and an extended wilting period increases the risk of the next shower of rain, resulting in even higher losses.

In wet years, soils in many areas will be wet and might remain so well into the harvest season. If so, even light showers may cause severe trafficable problems for harvesting machinery, particularly heavy foragers, loader wagons, transport carts and combibalers.

To maintain pastures in a high-quality state throughout much of spring, pastures will need to be grazed well, pre- or post-graze topped or cut for silage. This needs to start early in the season, and any silage made this early will be very high quality.

Ideally, pastures should be cut at or near when they should be grazed. This encourages quicker regrowth and maintains pressure on the remaining grazing area. This means cutting pastures much shorter than most contractors are used to, but they could charge more to go across the paddock more times.

Harvesting high quality crops successfully early in the season can be achieved by:-

- cutting lighter crops, typically in early season
- allowing the dew to lift before mowing and before carrying out any subsequent operations
- tedding (spreading) the mown crop immediately after mowing, probably re-tedding at least the next morning, once the dew has lifted, and possibly a third tedding for baling
- mowing with a flail or tyned-type mower conditioner (pastures and similar crops)
- mowing with a mower conditioner but leaving the swath as wide as possible (75 – 90 per cent of mower width)
- applying a silage additive at the pick up as the crop most likely will be slightly wetter than usual

Plant leaves contain thousands of holes (stomata) per square centimeter through which moisture moves in/out during respiration. These stomata close within one to two hours of mowing. The warmer the weather, the faster they close. Once this occurs, the rate of wilting is substantially reduced and although wilting still occurs, it becomes extended.

Using a tedder ( Figure 1) to spread the forage as thinly as possible straight after mowing, while the stomata are still open, will greatly increase (+50% – 80%) the rate of moisture loss via stomata for a few extra hours.

The tedding action will leave the plants in a fluffed-up state which will allow airflow to remove evaporating moisture and encourage further wilting. Some bruising of leaves and stems will also occur at the same time, promoting faster wilting.



**Figure 1 Tedder spreading mown swaths**

**Mower conditioners** have a wide range of conditioning techniques. The tyned (Figure 2) and flail types are most suited to pastures, younger lucernes, clovers and vegetative cereal crops, while the roller types are more suited to the stemmier type crops such as cereals cut with a seed head, summer forages (eg. sorghum) and mature lucerne.

However the operator's experience, the speed of the operation, the correct clearance settings and maintenance of the equipment, width of swath, etc. can all markedly affect the rate of wilting.



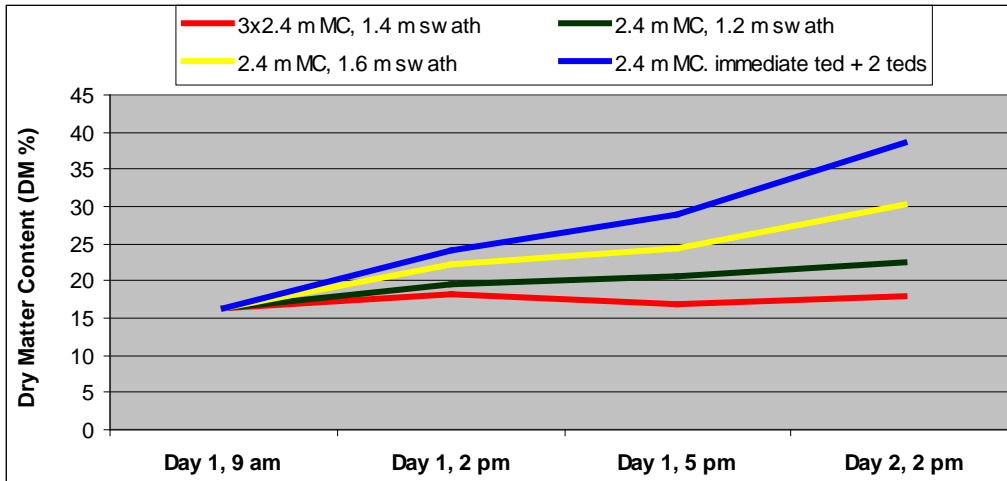
**Figure 2 Tyned mower conditioner**

An experiment in Ireland compared different types of swath and conditioning or spreading treatments compared to no-drying treatment. A perennial ryegrass crop, very wet at mowing (16.4 per cent DM) and 29.4 tonne fresh weight per hectare (about 4.8 kg DM/ha), was harvested under good conditions, for Ireland.

The control was three windrows of a 2.4m wide mower-conditioner raked into a single large narrow windrow (1.4m wide). The treatments were the same 2.4m wide mower-conditioner leaving a swath of 1.2m (50 per cent of mown width), 2.4m mower-conditioner with swath boards out to leave a 1.6 m swath (67per cent), and treatment mown with 2.4m mower-conditioner, tilled immediately after mowing then again at six and 24 hours later.

The dry matter content of each windrow was measured 2 and 5 pm on day 1, and again before harvest on day 2 at 2 pm (Figure 3). Even opening the swath boards out increased the drying rate, but tedding/spreading was most effective, albeit with three teddings.

Under the usually better drying conditions in Australia I would estimate that each of the below treatments would have reached higher DM contents at each stage, the upper two being substantially higher. Narrow windrows, even in light crops dry significantly slower.



**Figure 3. Effect of swath treatments on wilting rate of pasture**

Regardless of the climatic conditions, crop size, etc. many other experiments have verified the above order of increase in drying rate for pastures using tedders and mower-conditioners. Although all machines have their pros and cons, I feel for dairy farmers, the tedder is the one piece of equipment they should own for both silage and hay harvesting. The crop can be spread whenever and as often as needed, even more so if rains catches you out. Tedders are relatively cheap compared to mower-conditioner and require much less horsepower to operate them.