

Start early and finish well for high quality silage

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Making silage depends on science, good forward planning and a crystal ball to predict the weather doesn't hurt. Always aim to produce high quality silage because many things may and often do, occur, so its quality will be lower than targeted. Remember the last two to three springs with wet winters or long wet spells in mid-spring, just when quality pastures were ready to be harvested for high quality silage?.

Before making any silage remember two things; (i) never underfeed cows just to ensure that the pit is full or number of bales silage is made and (ii) it costs nearly twice as much per tonne of dry matter (t DM) to produce and feed-back silage compared to direct grazing of that same pasture.

Many farmers, having attended a Dairy Australia/DEPI funded *Feeding Pastures for Profit* program can now identify when surplus pasture starts to occur much earlier than in the past and have seen the importance of high quality silage to produce milk. They are now achieving this, by cutting early, notwithstanding the poor harvesting conditions mentioned above.

So let's aim for the best possible scenario, acknowledging that pugged paddocks, inclement weather, machinery break downs, late arrival of contractors, poor planning, etc. will occur resulting in poorer quality silage to varying degrees, some of which can be avoided/minimized and some which cannot.

How do we get and keep high quality silage?

1. Cut early in the season when pastures are at or near canopy closure which is the optimum stage of growth for grazing in spring. If conditions do suit and will depend on soil type, and if the entire harvesting job is done well, a pasture ensiled at or slightly past grazing height, will produce only marginally less milk than if that same pasture had been grazed by the cows.

Yes, yields will be low and more paddocks may need to be harvested but this is maintaining pasture quality in these cut areas and remaining areas of the farm. Yes, the contractors will squeal because crops will be much lighter than most contractors (and many farmers) will be used to, but the contractors will be in their rights to charge a bit more money to harvest light crops, to cover their costs. However, farmers win out because the high quality silage will produce more milk than before and, if cut early enough when the surplus is being recognized, these paddocks should not miss a rotation and regrowth will be faster, thicker and of better quality.

2. Wilt and harvest as quickly as possible and have the forage in the pit or bale within 24 – 48 hours, if possible though it isn't always possible. The longer a mown crop takes

to reach its target dry matter content to ensure it undergoes the most efficient fermentation, the larger the quality and DM losses. Also an extended wilting period increases the risk of the next rainfall occurring, resulting in even higher losses.

So, early in the season, when the ground is damp, there's little heat in the sun and you need to reach the target DM contents as quickly as possible, how can we do this? Often, this is NOT easily achieved but with a few management tips and appropriate equipment, is worth the punt and can be achieved by:-

- allowing the dew to lift before mowing
- tedding (Figure 1) i.e. spreading the mown crop as soon as possible after mowing, probably re-tedding at least the next morning, once the dew has lifted, and sometimes a third tedding for baling OR
- mowing pastures, clovers and young Lucerne stands with a flail or tyned type mower-conditioner (Figure 2) and crops such as cereals cut at soft dough stage, summer forages and mature lucerne using a roller type mower-conditioner and leaving the swath as wide as possible (75 – 90 per cent of mower width)
- applying a fermentation enhancing silage additive is strongly recommended to encourage a desirable fermentation as the forage will most likely be slightly wetter than ideal. Each dollar spent on additive should ensure at least a three to four dollar benefit, often more, occasionally less.



Figure 1 Tedder spreading mown windrows



Figure 2 Tyned mower conditioner

3. Compact stacks and bales as densely as possible. The poorer the compaction, the greater the amount of air trapped in the stack or bale and greater the DM and quality losses. For bulk stacks, chop material short and spread it in layers no thicker than about 150 mm. Roll slowly to allow the tractor weight to compact the forage. Baling slightly slower will increase bale density so set bale density as dense as possible on the baler. Chopping balers will increase density by 8 – 15 per cent.

4. Seal airtight as soon as possible after harvesting. Seal stacks, don't just cover them. Try to complete rolling immediately after harvest is completed. Avoid rolling the next morning as this just "pumps" more oxygen into the stack. Rolling should have been keeping up with forage delivery from the paddock. The plastic sheets along the stack edges must be sealed airtight and even a double row of tyres around the perimeter does not achieve this. Gravel bags, filled with pea gravel or washed sand, are ideal for this job and along bunker walls and stack surface (Figure 3).



Figure 3. Gravel socks sealing stack front, edges and surface

Another recent innovation for sealing stacks is the use of a see-through 45 micron thick oxygen barrier (OB) film, it is not UV heat stabilized and is more than twenty times less susceptible to oxygen permeation than normal 125 micron black/white (B/W) plastic sheets. It can be incorporated (co-extruded) between the black and white layers of the B/W sheets (one step system) or placed on the stack and covered by either a heavy UV stabilized woven net or normal B/W film (two step). Research has shown a saving of silage of at least 10 per cent on tops and shoulders of stacks compared to the normal B/W sheets, if sealed well. It does cost extra but after experiencing its benefits many farmers are swinging to the two step system.

Individually stretch wrapped bales must have at least four layers of film applied over all the bale and six layers if the forage or stubble on which it is sitting is stalky. Experience by many operators using most continuous in-line and large square bales wrappers has resulted in them now applying six layers to ensure a reliable and robust seal. If a white/grey mould is present In your silage, air has been or is present and must be prevented in future.

5. Repair holes immediately using specific silage patching tape. Ensure the area to be patched is clean, cool and dry and repair tape of similar colour to the holed plastic is used to minimize the difference in contracting and expanding in hot/cool conditions, resulting in the seal leaking.