SILAGE AS DROUGHT STORAGE

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Many areas of Australia have experienced drought over the last few years and these periods usually exhaust farms' reserves of fodder.

If the drought is prolonged, then farmers must resort to large purchases of fodder from outside suppliers. The cost of this extra fodder is generally very high, and its quality is often very poor, particularly as fodder supplies become short. Then there is the extra hassle of possible diseases and weeds coming onto the property with the hay.

Conversely there are also often periods of pasture growth which far exceeds the requirements of animals, refilling the hayshed, or excess to the silage supply. If not utilised by grazing or slashing, this feed will become ranker and its quality will deteriorate substantially. This should be the source of your next drought reserve. Rather than wasting it, put it into a clamp, pit or bales for the next long dry period or drought.

Although you may be pinched for $$$ after the fodder harvest, think carefully about the high cost you paid for extra hay of poor quality last drought. It will have cost you 1.5 to 3 times the cost of the pasture you may be allowing to go to waste. It was also probably hard to find money for extra drought fodder but, hopefully, you may soon be in a better position financially to put away silage reserves.

Why silage as a drought reserve? Why not hay? Unless your climate is suitable for making good quality hay and these hays are legume based, for example, lucerne, balansa or sub clover, the quality is usually average to poor.

Many hays made are well below about 8.5 megajoules of metabolisable energy per kilogram dry matter(MJ ME/kg DM) because the climate dictates that harvesting is done when the pastures are much more mature, ie, lower in quality. This is okay for maintaining animals or for low liveweight gains, but it is insufficient for high milk or meat production. Feeds to allow this level of production must be well above 9.5 MJ ME/kg DM, preferably above 10 MJ ME/kg DM.

Many farmers argue that poorer quality fodder is sufficient for drought feeding and they would rather have the increased bulk of feed than less feed of higher quality.

Alan Kaiser of the Wagga Wagga Agricultural Research Institute and others have estimated the total cost of conserving, storing and feeding out silages of different quality to feed 100 dry cows for six months so that both groups maintained liveweight. These costs also included an estimate for losses at all stages. The total costs of the silages with qualities of 7, 8.5 and 10 MJ ME/kg DM were $12688, $9990 and $8160 respectively.

Even when made with no weather damage and shedded, hay will lose 4 percent to 9 percent of its dry matter within the first 12 months, and a further 2 percent to 5 percent in the second year.

Its quality will also drop over several years, and this is not accounting for the substantial damage that can be caused by rodents, fire, leaking rooves, etc. Hay left in the open in will lose 25 to 30 percent of dry matter in moderate rainfall areas.

Silage has the potential to be of quite high quality (above 10.5 MJ ME/kg DM) if it is harvested early and quickly in the season, cut before seedheads start to emerge and sealed quickly and efficiently. Provided the stack or bales are not punctured during the storage period, its quality will be maintained for many years will little loss of dry matter.

Silage for drought storage can be stored as chopped silage in pits or stacks or in round or square baled form.

The **pit or stack silage** must be sealed airtight, preferably with plastic sheets and then covered with 300 to 450 mm of soil (See figure 1). Some farmers place a layer (approximately 150 mm depth) of straw/hay immediately above the plastic (See figure 2).

This makes it much easier to separate the soil from the plastic and avoids plastic contamination of the soil as it is removed.

It is possible to use soil on its own as the seal, but this may result in some contamination at the interface of the silage and the soil. Also if burrows or holes into the soil cover appear over time, a plastic seal may stop water seeping into the silage. Seepage has led to large quantities of rotten silage in silage stacks. Therefore, also make sure water is drained away from all sides of the stack.

To store round bales of silage, wrap them in four layers of plastic, place them in a pit in the ground and cover them with soil, as above. Unwrapped bales in a pit covered with plastic will store satisfactorily, but will sustain large losses if the topsoil cover is holed during the storage period. **Caution: there have been too many stacks of compost made storing round bales without plastic wrap!**

Once the stack of bales is uncovered for feeding out, air will move back between the bales and commence secondary fermentation and rapid decomposition. If storing unwrapped bales in a pit, stack enough bales for about six days feed in each group and seal each section completely airtight. Wrapping the individual bales greatly reduces any problems of air (and water) entering the stack at any stage.

Square baled silage is more suited to being stored in compartments in pits without the need for individual wrapping of the bales. This is due to their density and shape, which allows tighter stacking, ie less air intrusion between bales. The number of bales needed for up to 10 to 12 days feed may be included in each group. However the drought storage should still be covered with soil to protect the plastic from ultra violet light break down.

Finally, if your drought storage site is not obvious, mark where it is located. During the last drought many farmers, or new farm owners lost track of where their drought storage reserves were located.