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More on Silage Quality

An issue I neglected to mention last month while discussing the chopping of baled silage was the cost. From a contractor's perspective, chopping takes longer and bale through-put is reduced. Operating knives on a baler also consumes more diesel. Obviously there has to be a higher cost per bale if chopping is to be done.

If we took a nominal figure of $22/bale to bale and wrap then added an additional $2/bale to chop as well. Assuming we gain 20% increased density in a chopped bale, for every five un-chopped bales we'll have only four chopped bales. Five un-chopped and wrapped bales cost $110. Four chopped and wrapped bales will cost $96. It is actually $14 cheaper over four chopped and wrapped bales than five un-chopped and wrapped.

The reduction of one bale for both baling and wrapping far out-weights the extra $2 per bale for chopping. Obviously, if we get the same material in four chopped bales as five un-chopped, we have reduced oxygen in the chopped bales considerably.

The return in milk dollars on chopped silage I covered in last month's article, but basically it is; reduced mould problems which equal palatability/intake/reduced wastage costs, improved fermentation, rapid decrease in pH minimises dry matter losses and more lactic acid production increases intake through sweeter silage which equates to higher feed conversion efficiency and profit.

Another decrease in silage quality has come about with the advent of the disc mower. The mower itself is not the problem, but the way we use them. We cut ryegrass too low; why? Because we can! This is a fact verified by the ash (dirt) contents revealed in NIR feed tests and it has increased dramatically as sicklebar mowers were replaced with disc mowers.

There are several consequences of cutting too low, not the least of which is reduced lifespan of ryegrass stands. Regrowth is severely retarded by low cutting heights also. When we consider we grow 60% of our pasture is six to eight weeks over spring, how we manage this growth potential period has major impacts on total grass tonnes harvested over the year, and of course, farm profit.

Regrowth is directly affected by leaf surface area; ryegrass's solar panels – no solar panels no absorption of energy from sunlight – no growth. Add to this, a grass plant relies on nutrients stored in the bottom of the stem (as opposed to tap root plants e.g. lucerne) for regrowth. Cutting short for higher yield, like leaving a paddock a few extra weeks to "bulk-up", temptations we can't resist, has a cost – we "rob Peter to pay Paul".

Most farmers are aware mud in silage affects fermentation apart from the wastage of silage contaminated with mud. But even in drier conditions, the scalping of soil in uneven paddocks adds soil to the windrow and then the bale. Soil contains bacteria that are not conducive to fermentation. A three inch (75 cm) stubble height is recommended for rapid regrowth, stand persistence and unsoiled silage.

Perhaps the most dramatic demonstration of this problem has been in our attempts to bale sorghum over recent years, although the problem may or may not be due to low cutting, but certainly added to be low cutting. Sorghum is usually cut while soil is very dry, and the dirt content in bales has been astounding, with very high wastage at feed-out and very poor fermentations. In the case of sorghum, most of this dirt is picked up when raking.

Experienced maize growers are well aware of the cost of cutting maize too low. Digestibility decreases due to an increase in ADF% (Acid Detergent Fibre – indigestible fibre). The mature fibre at the base of a plant is necessary to keep it standing up. Obviously if we include lower ryegrass stalk in our silage we experience the same reduced digestibility and sugars for silage fermentation. Another interesting issues is that second cut silage has lower digestibility than first cut, so graze regrowth for best conversion efficiency.

Feed conversion efficiency is a term I use in respect to individual feeds. For example; grain has very high feed conversion efficiency. Hay has very low feed conversion efficiency. Silage falls somewhere (?) in between. It's on a continuum between grain and hay. We have power as managers to determine largely where silage will be on that continuum. As elaborated on in last month's article, maturity of pasture at cutting is the critical issue. Will it be silage made from lush spring pasture with high feed conversion efficiency, or moist hay wrapped in plastic? The choice is yours. Silage made from mature grass reduces intake multiplied by indigestibility limitations and is lower in energy and protein.

The decline in milk production per kg of dry matter, which equals feed conversion efficiency, is a rapid downward spiral. We all know what good grazing quality pasture looks like, it's the same as good quality pasture for cutting to ensile. Forget bales per ha as a measure of a good silage cut; measure energy per ha over spring in bales and regrazing to determine good (profitable) management. Bales don't make milk; only energy does. Beyond underfeeding, nothing else directly impacts milk production and profit as much as forage quality.