

Pasture/TMR Comparison

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TMR is Totally Mixed Ration in USA called TMF in UK which is Totally Mixed Feed.

They are accurately balanced mixes of all the feeds and minerals being fed. TMR increases animal production by about 15% compared with feeding items separately. Grain fed on its own, especially on an empty stomach, is not well digested and can cause acidosis. If feeding it with pasture, do so after pasture has been eaten, not on an empty stomach. This may mean feeding some pasture before milking.

Some TMR, mixer wagon and concentrate promoters criticise grazing, in that they say we don't know what the animal is getting, so don't know what to supplement. What they conveniently forget is that a lot of TMRs are based on pasture, pasture silage and pasture hay.

Farmers know that pastures are not complete feeds, but with correct fertilising and a good soluble mineral mix (SMM) can be made so, and are then both better and cost less than any other feeding system. Several farmers in New Zealand went bankrupt in the 60s trying confinement, zero grazing, tower silos, mixed rations and high grain rations. Animal health was no better than when animals were on pasture fertilised with slow release balanced fertilisers and a good SMM.

If the critics analysed a good mixed New Zealand pasture they would see just how good pasture can be.

A 650 kg North American milking cow (NZ ones are smaller) requires -

Ca	CP	Mg	K
0.16%	0.09%	0.06%	0.3%

19 kg DM of good 75% ryegrass 25% white clover pasture (which a 650 kg cow could eat) at 2,800 kg DM/ha would supply -

Ca	CP	Mg	K
0.15%	0.1%	0.05%	0.5%

These are very close and show that K is higher than necessary on most farms, that Mg needs supplementing and that pasture is a much better feed than some sales people of concentrates and TMR wagons would like you to believe. Some minor elements have to be added to TMR and pasture.

Outside of New Zealand most pastures have very few legumes and in NZ, clovers are reducing because of wrong fertiliser advice. See Pastures > Legumes > Clovers. White clover is the most popular and the best by far for grazing. Its mineral content is far better than any grass and it is liked by most grazing animals so they eat more clover-based pasture. High animal production from pastures is obtained by getting animals to eat more which means growing 75% perennial ryegrass and 25% white clover (or the nearest equivalent in your climate), fertilising it correctly and grazing it at the optimum height of about 20 cm (8 inches) which in dry matter is about 2,800 kg/ha (2,500 lbs/acre).

Most pastures cut for TMRs consist of mostly grasses cut at up to 4,000 kg/ha (3,600lbs/a) 40 cm (16 inches) tall, with very little if any clover, because they don't survive in long harvested grasses.

Analysing pasture tissue (what the animal is actually eating) overcomes the criticisms and

allows fertilisers and trace elements to be applied and minerals to be fed to correct the mineral levels.

Pasture energy can be lower if pasture is too short and sappy and protein can be too low if pasture is too long (old).



These cows have rough coats from a lack of minerals and from grazing sick pasture that lacks lime, phosphorus and trace elements.



These cows on my client's (the late Bill Chynoweth, Pukeroro) farm are grazing balanced pastures and getting soluble minerals.

This small amount of older pasture in the bottom centre is not a problem and doesn't need topping (clipping). Cows will eat it if they need more energy or roughage and less protein, and when dry weather slows or stops growth.

Client Bill Chynoweth had 108 Friesian cows peak at 2.2 kg MS, produce 493 kg MS and 1,020 kg MS/ha rearing 110 calves and with 8 to 10 bulls on 52.5 ha on pasture and maize silage when required, with Solminix in the drinking water. They never ate soil. In fast pasture growth periods it could be pre-wilted - cutting it in the afternoon when energy was the highest.

Roscoe Amy averaged 5.97% fat and 4% protein.

Drainage, liming, fertilising, grazing and milking management were superb.

Many top Holstein/Friesian cows in New Zealand fully fed on pasture and a bit of maize silage as required, but no bought feed, produce 8,700 litres (19,000 lb) of milk and 690 kg of milk solids (1,500 lb of protein and fat) in about 300 days and calve every year for more than ten years.

Below is an ideal balanced pasture mix of perennial ryegrass and white clover that is ready for grazing.



If grazed when shorter it would be too lush (cause scouring), be too high in moisture (fill animals up with water) and would require grazing too close to the ground causing soil to be consumed which adversely affects the animals mineral balance.

Obtaining all the above requires seasonal calving, buying and selling animals to match the pasture growth, using pasture wedges to carry pasture forward to lean periods, conserving enough silage and/or hay to

keep pastures at the optimum stage for grazing and to feed during slow pasture growth periods, and/or growing forage crops for dry summers and cold winters.



This is ready for silage. It should be cut when dry in the afternoon and be lacerated or get a little wilting.

These farmers are in a discussion group I consulted for in Atiamuri in the centre of the North Island of NZ. The pasture had improved immensely on what it was after liming and correct fertilising.

So pasture can be a good TMR if it's leaves are analysed for minerals and if it and animals are fed correctly.