

**Waipa Advance Party
Silage Quality Analysis Project
July 2017**

Background

Many farms in our Advance Party make use of silage or baleage as a substantial proportion of the diet used to maintain hinds over the winter.

We have been calculating feed requirements on a simple dry matter basis, but recognize the limitation of this in that it assumes the feed is of a certain energy level and quality. For example a simple rule of thumb is that maintenance is equivalent to 2% of LW – assuming a 10.5MJME feed (See below for a definition of this). If the feed on offer is substantially different from 10.5MJME, the dry matter requirement changes. In cases where the energy content is insufficient, a small amount of another high-energy feed may need to be added to the diet to prevent weight loss.

Members of our group submitted samples of their silage/baleage for basic feed quality analysis to better understand the energy content and other feed quality parameters in what they were offering their stock.

Metabolisable Energy (ME)

Metabolisable energy (ME) is a measure of how much energy a feed provides to the animal after it has been digested. ME is expressed as megajoules of metabolizable energy per kg of feed (MJME/Kg).

Typical ME values for feed can be as low as 7 MJME/kg and can range up to around 13 or 14 MJME/kg. As a general rule anything under about 9.5MJME is of poor quality and likely to be unsuitable for maintenance if fed as a sole diet.

ME is the most important measure of feed quality in a supplement because in most if not all of our deer systems, the major constraint to production is simply an inadequate supply of energy.

Cost-effective supplement purchase decisions should be made on the basis of least cost per megajoule of ME.

Crude protein (CP)

Crude Protein is a measure of the protein level in feed. Young growing animals require higher protein levels in their diet than adults. As a rule of thumb the diet of young animals should have a

minimum crude protein level of 16%. As an example, calf starter mixes typically have crude protein level of 18-22%.

Hinds on maintenance in winter can manage on feed with CP% as low as 12%.

Neutral detergent fibre (NDF)

NDF is a measure of the 'useful' fibre in a feed. NDF levels of 28-32% are considered ideal for high performance without unduly slowing passage of feed through the gut.

Digestibility

The proportion of the feed which the animal can actually digest.

How to take silage samples:

The sample needs to be taken from within the stack or bale, not the edge. A proper silage auger is a steel tube with a cutting edge that is pushed 800mm into the stack to take a core. These are available from Hill Laboratories for \$250.00.

In the absence of an auger, use the same principle when taking your sample – at least 800mm into the stack (to the end of your arm) and discard any bits that have been in contact with air.

Collect at least 1kg of wet silage. Seal in an airtight bag – squeeze all the air out and seal well. Keep it in the fridge, and transport to the lab with a chilly pack.

Farm	Paddock	ME	CP (%)	NDF (%)	Dig. (%)	Comments - grass	Comments - handling
PKE typical		12	14	70	50	For comparison	
Templeton	Maize	11	6.8	34	70	For comparison	
Clarke		11	20.2	43	70	Cut at approx 2500kgDM/ha.	Sprayed prior to cutting. Yearling hinds are doing very well on it, notice they don't need as much.
Shabor		11	20.7	44	68	Hill country pasture. Just starting to seed. Only about 15cm high.	Cut day 1 afternoon, baled day 2 morning. Baleage.
Wellington	Swamp	11	16.6	45	70		Cut at end of October (would have preferred earlier - try to cut at 3000kgDM/ha). Salt added. Pit.
Wellington	Waterfall	10	12	50.9	65	Same paddock as Swamp, second cut, visually more mature.	Cut early Dec, got wet, had to be turned, was down for longer. Salt added. Pit.
Chick		10	13.9	46	62	Permanent pasture	
Raroa	2015	9.7	12.7	50	60		Double plastic wrap, cut 2 weeks earlier. Baleage.
3 Rivers	Asset	9.2	16.6	52	57	Asset - Italian ryegrass with AR37. Was starting to seed.	Mowed Monday, not baled till Weds PM. Chopped. Hinds seem to be doing OK on it. Baleage.
Pinewood	Tama	9.1	13	52	57	Cut at earlier growth stage, ex-maize	Cut in afternoon D1, baled min-morning D2, fine weather. Used salt and inoculant. Samples were taken at approx. 40cm depth. Hinds appear to be holding LW. Pit.
Blackburn		9	13.5			Cut at high yield	Salt added, pretty well compacted but steers popped cover early on. Pit.
Pinewood	Field	8.8	14.4	49	55	Two good paddocks, 2 more hay-like paddocks	Cut in afternoon D1, baled min-morning D2, fine weather. Used salt and inoculant. Samples were taken at approx. 40cm depth. Hinds appear to be holding LW. Pit.
Raroa	2016	8.7	12.4	54	54	Newer grass paddock.	Shut up for 8 weeks. Was quite dry. Wrapped with netting. Baleage.
Templeton	Bale	8.7	14.5	48	54	2 year old silage	Cut late evening, bale once dew off next morning.

Templeton	Pit	8.5	14.8	56	53	3 year old silage! Permanent pasture. Quite seedy - trying to maximise yield.	Cut late evening, bale once dew off next morning.
Hunter		8.3	10.8	52	52	Cut from home farm	Cut 1st week December, cut D1, baled D2. Sample came out of bale on wagon, not deep core. Baleage.

Take-home messages

- Factors that contribute to improved silage quality in this comparison:
 - Cutting early in the season
 - Cutting at lower yield (3000kgDM/ha or less)
 - Taking sample at correct depth (800mm)
- For more comprehensive information on making good pasture silage see Dairy NZ Factsheet

<https://www.dairynz.co.nz/news/latest-news/pasture-silage-maximising-the-return-on-your-investment/>



P2P

Advance Party