

Importance of Feed Testing

Before you Feed it, Test it!

How can you make an informed decision on how much to feed your stock if you don't know the quality?

***Simple –
You can't. It needs to be tested.***

Why Feed Test?

- You know what you're feeding, and what the energy requirements are or needed
- Calculate feed rations
- Budget for feed gaps
- You can make informed management decisions
- Utilise feed effectively

Important constituents to look at in your Feed Analysis...

- **Dry matter (DM %)** is the feed remaining after all the water has been removed. All other components of feed are expressed as a proportion of dry matter
- **Digestibility (%)** is the proportion of a feed which is not excreted as manure. It is one indicator of feed quality
- **Metabolisable energy (ME)** is the energy available from feed and used by the cow for maintenance, activity, milk production, pregnancy and weight gain
- **Crude protein (CP %)** includes both true protein (made up of amino acids) and non-protein nitrogen (NPN) which rumen microbes convert into protein.
- **Neutral detergent fibre (% NDF)** is a measure of dietary fibre. It includes indigestible and digestible fibre.

How much KG of dry matter is in a feed?

- Example –

16kg of wheat grain is fed out. It contains 11% moisture, and 89% DM.

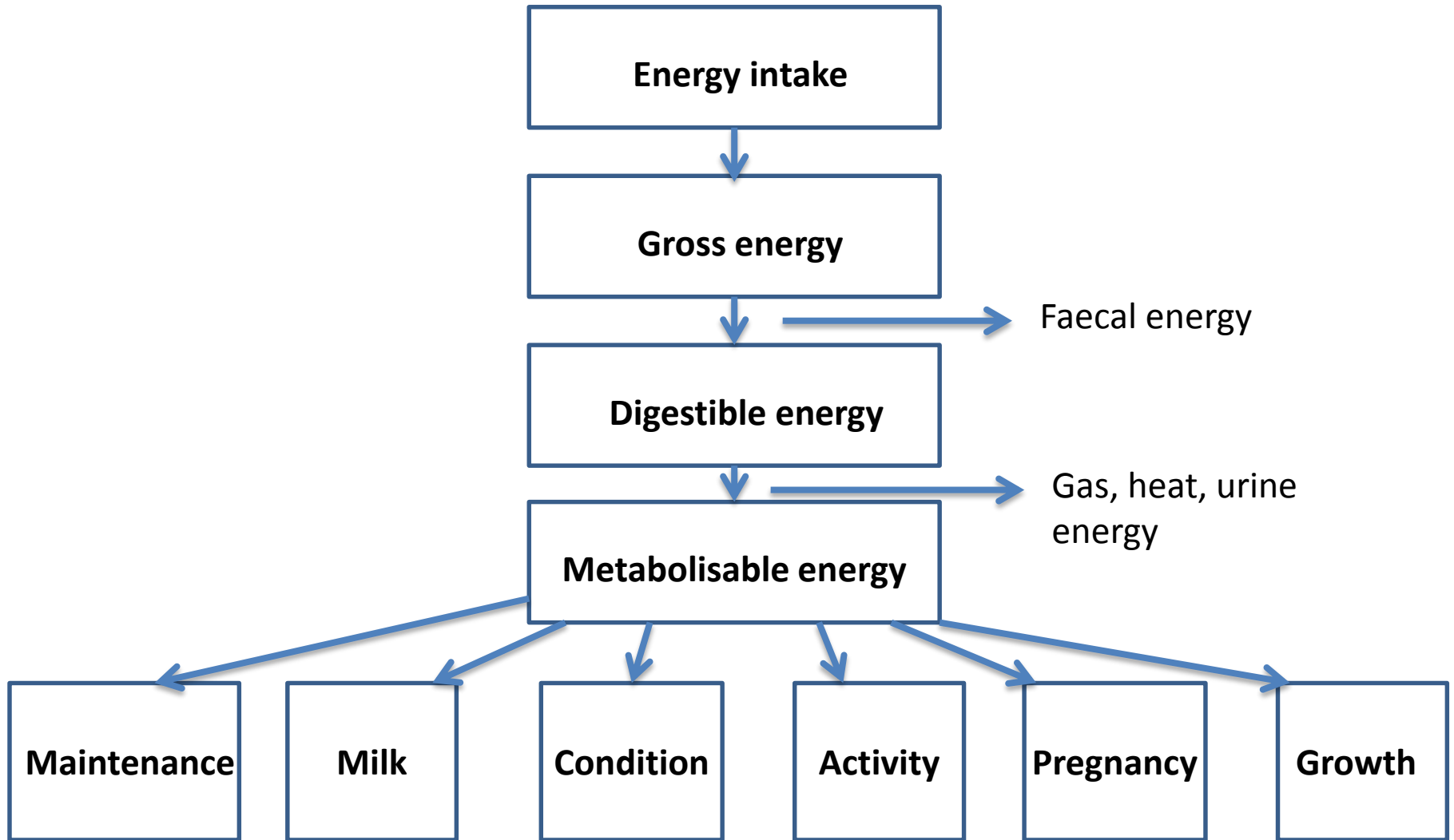
To calculate weight of DM in kg, multiply number of kg as-fed by the DM%:

$$16 \times (89/100) = 14.24\text{kg DM consumed.}$$

How Energy is measured

- Two measures of energy are digestibility and metabolisable energy.
- Digestibility relates to the portion of food which is not excreted in the faeces and so is available for use by the cow.
- The higher the digestibility the higher the metabolisable energy.
- The energy in a feed that a cow can actually use for its metabolic activities (i.e. maintenance, activity, pregnancy, milk production, and gain in body condition) is called metabolisable energy.

Flow of Energy



The link between fibre and energy

- A low-fibre feed is digested very quickly and the rumen is cleared quickly, allowing the cow to eat more.
- Ideal fibre content is about 35% neutral detergent fibre.
- If the fibre is higher, the energy level is usually lower, and vice versa.
- The fibre and energy level in a feed combine powerfully to affect total energy intake and therefore milk production.

Sampling pasture/standing crops

1. Is my pasture good enough to feed my stock?
2. Is my pasture as good as I am budgeting?
3. Should I silage paddock 1 or Paddock 2?
4. Will this paddock make poor, average or very good hay/silage?

You can only really make these decisions if you have the right information.

Collecting a representative sample

- Hay – use a corer, sample more than 10 bales. Take one core from each selected bale throughout the stack.
- Silage – use a long coring probe to reach into pit/bunker or using a hay corer for wrapped silage. Or gather handfuls from 10 random areas across a newly cut face.
- Grain – gather sample from 5 or more random locations from front to rear of trailer load. Running sample is required from a silo, randomly drawing 5 or more samples.

Core vs. Grab

CORE



- Uniform stalk length
- Representative of bale & paddock
- Reduce processing time by more than half
- Results accurate & meaningful

GRAB



- No uniformity
- Not representative
- Increases processing time
- Results less accurate

Supplements

A number of supplements can be fed to dairy cattle. The decision to use a certain supplement is determined by a combination of factors, including:

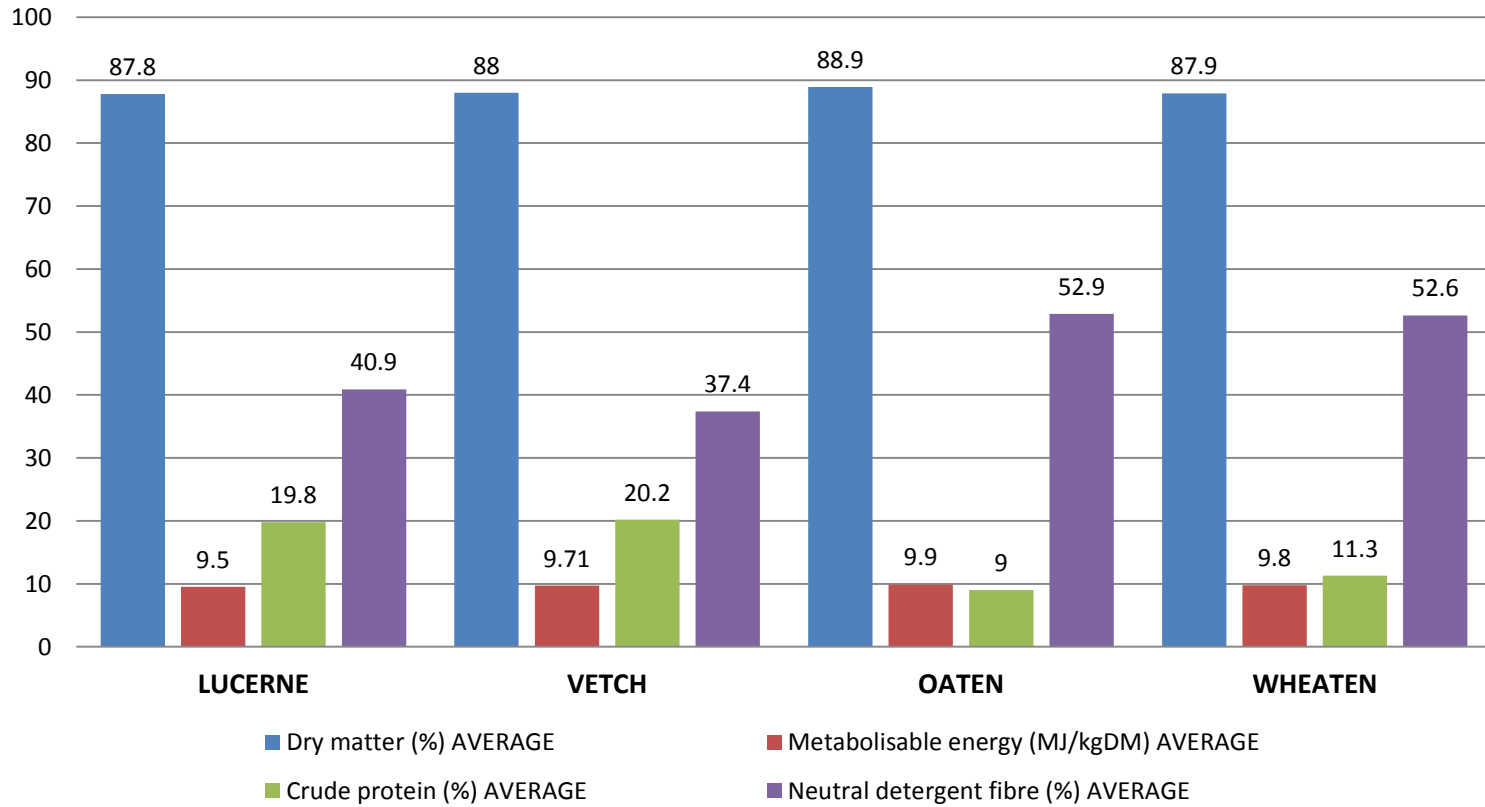
- What is the limiting nutrient; energy, protein, fibre, or a combination of all three due to low pasture intake?
- What supplements are available?
- What is their nutritive composition?
- What are the relative costs?

Nutritive characteristics of common forage supplements

(data from Feed Tests done 14/15 season)

	Dry matter (%)		Metabolisable energy (MJ/kgDM)		Crude protein (%)		Neutral detergent fibre (%)	
	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE
LUCERNE	87.8	36.2 - 96.1	9.5	7.4 - 10.7	19.8	12.7 - 28.8	40.9	34 - 50.6
VETCH	88	42.5 - 93.8	9.71	8.9 - 10.6	20.2	16.7 - 25.4	37.4	27.6 - 49.1
OATEN	88.9	40.2 - 94.4	9.9	8.8 - 10.8	9	6 - 12.7	52.9	43 - 60.6
WHEATEN	87.9	46.8 - 95.1	9.8	9 - 10.6	11.3	7.9 - 16.2	52.6	43.4 - 61.4
MAIZE SILAGE	37.6	27.7 - 49.9	11.5	10.9 - 12.3	8.2	7 - 10.4	41.2	29.4 - 49.9
PASTURE SILAGE	55	26.8 - 89.5	9.9	8.9 - 10.4	15.7	11.5 - 20.3	50.4	35.9 - 63.1

HAY COMPARISON



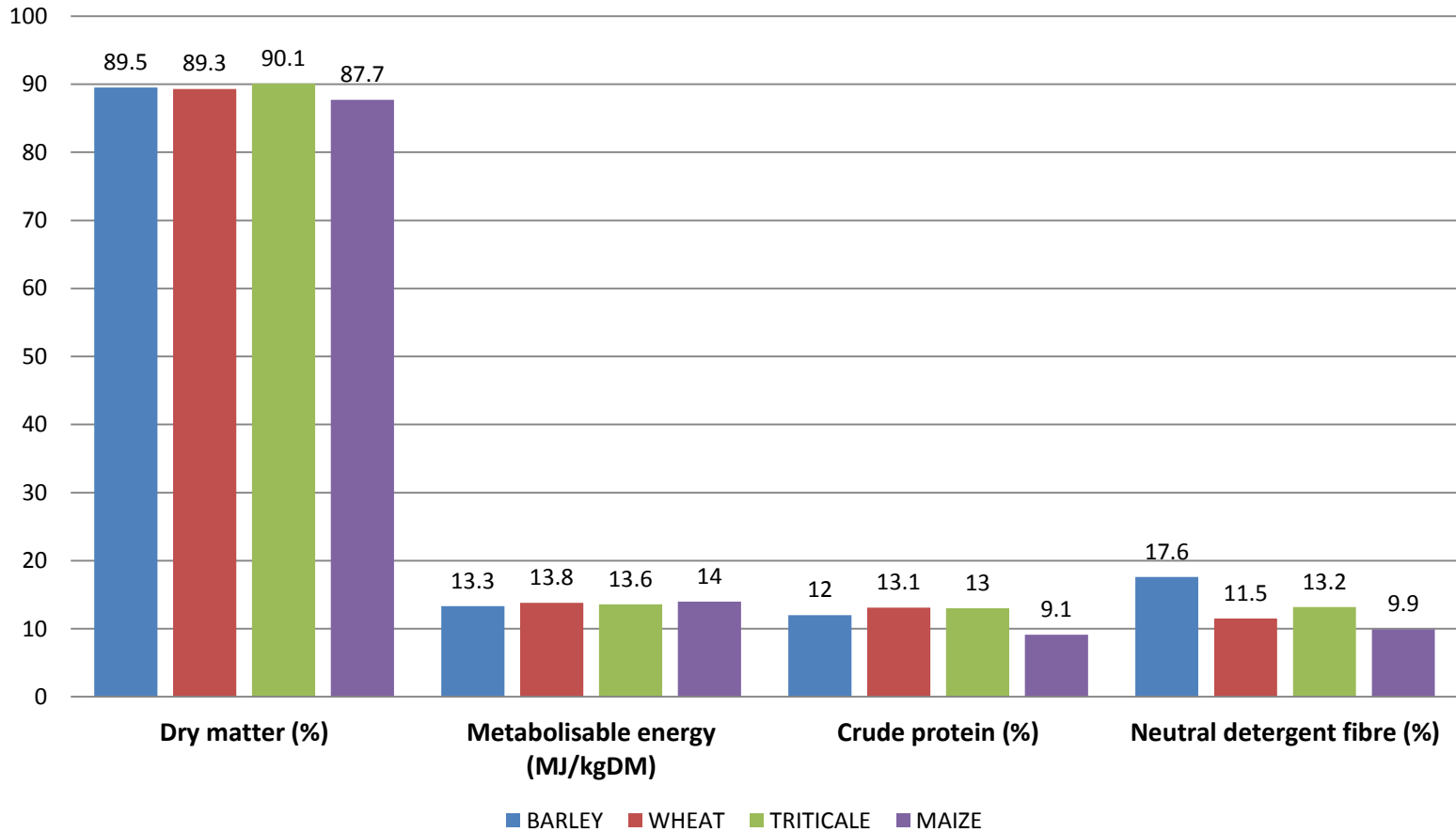
Note: Values obtained from Feed Central database of samples tested from 14/15 season

Grain Comparison

(data from Feed Tests done 14/15 season)

	Dry matter (%)		Metabolisable energy (MJ/kgDM)		Crude protein (%)		Neutral detergent fibre (%)	
	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE
BARLEY	89.5	88.1 - 91.3	13.3	13 - 13.6	12	7 - 15.2	17.6	14.5 - 20.2
WHEAT	89.3	88.6 - 90.3	13.8	13.1 - 14.7	13.1	7.8 - 18	11.5	9.4 - 16.5
TRITICALE	90.1	89.6 - 90.7	13.6	13.4 - 13.7	13	11.1 - 15.4	13.2	12.5 - 14
MAIZE	87.7	72.7 - 90.6	14	13.4 - 14.5	9.1	7.4 - 11.2	9.9	8.1 - 15.4

GRAIN COMPARISON



Note: Values obtained from Feed Central database of samples tested from 14/15 season

Nutritive characteristics of common non-forage supplements

FEED	Dry matter (%)		Metabolisable energy (MJ/kgDM)		Crude protein (%)		Neutral detergent fibre (%)	
CANOLA MEAL	90.5	87.4-93.5	12.1	9.8 -15.8	37.5	27.4 -42.1	30.5	26.7 -35.2
CITRUS PULP	14.3	10.6-17.3	12.9	9.6 -14.5	8.6	6.0 -11.9	25.1	17.9 -34.1
DDG	90		12.8		22.9		31.2	
SOYABEAN MEAL	85.4	11.9 -93.7	14.9	13.3 -16.2	43.5	29.3 -53.7	31.5	21.7 -47.7
COTTONSEED MEAL	89.8	87.5-95.3	11.1	9.6 -12.7	43.5	39.5 -48.0	30.9	21.0 -38.7
BREWERS GRAIN	28.2	13.9-60.6	10.8	8.3 -14.0	21.6	9.8 -28.8	55.1	41.6 -61.6