

Managing quality and supply risks when buying feed

After major or catastrophic environmental events (e.g. floods, bushfires, droughts), when pasture may be limited or absent and fodder supplies are reduced, many farms will be highly reliant on bought-in fodder and other feeds for several months.

For these farms, managing quality and supply risks when buying feed will be very important.

Use your senses and experience first

When assessing a particular feed to buy, firstly check its physical quality, making sure that you have a representative sample. Things to look for:

- An unusual appearance or consistency
- Material too wet or too dry
- Any contaminants or foreign materials which may reduce nutritional value or cause digestive problems
- Signs of mould, which can increase the risk of mycotoxins (fungal toxins).

The feed's physical characteristics should be compared with the applicable feed purchasing standards.

Use feed testing to look beyond the price tag

It's not what you pay for your feed, it's what you get for your money that counts. Use feed analysis to see how each feed stacks up in terms of its relative cost per unit energy and protein and use feeds that offer the best value. Be clear about whether you are buying a particular type of feed for energy, protein or some other specific purpose.

Key messages

Focus on securing your fodder requirements first

Check feed thoroughly before buying and at delivery for quality

Use feed analysis to see how each feed stacks up in terms of its relative cost per unit energy and protein

Take the time required to collect a truly representative sample. Don't take short cuts

Ensure your feed sample gets to the laboratory ASAP with minimal deterioration

Confirm verbal agreements with feed suppliers in writing

Ensure that the feed delivered to your farm is as specified

Consider whether your farm's feed storage facilities will be adequate

The calculations are straightforward:

Value per unit dry matter (DM)

$$\frac{\text{\$/tonne as fed}}{\% \text{ DM}} \times 10 = \text{\$/kg DM}$$

Value per unit metabolisable energy (ME)

$$\frac{\text{\$/kg DM}}{\text{MJ ME/kg}} = \text{\$/MJ ME}$$

Value per unit crude protein (CP)

$$\frac{\text{\$/kg DM}}{\% \text{ CP}} = \text{\$/kg CP}$$

Example

You can buy a concentrate for \$440/tonne with the following specs: 90 per cent dry matter, 12.5 MJ ME/kg DM and 15 per cent crude protein (DM).

Value per unit dry matter (DM)

$$\frac{\$440}{\$/\text{tonne as fed}} \times 10 \div \frac{90}{\% \text{ DM}} = \frac{49}{\$/\text{kg DM}}$$

Value per unit metabolisable energy (ME)

$$\frac{49}{\$/\text{kg DM}} \div \frac{12.5}{\text{MJ ME/kg}} = \frac{3.92}{\$/\text{MJ ME}}$$

Value per unit crude protein (CP)

$$\frac{49}{\$/\text{kg DM}} \div \frac{15}{\% \text{ CP}} = \frac{\$3.27}{\$/\text{kg CP}}$$

Which one would you buy?

1 FOR SALE

Good pasture hay 5 x 4 rolls \$59 each plus GST.
Phone 1234 5678

2 FOR SALE

Quality pasture hay 5 x 4 rolls \$75 each inc. GST.
Phone 8765 4321

If you were looking to buy 250 bales of pasture hay and saw these two advertisements, which one would you buy?

Having visually assessed the physical quality of the two hays, you get each seller to run a truckload of bales over their local weighbridge. It turns out that Hay 1 bales weigh 50kg less than the Hay 2 bales (330kg/bale vs 380kg/bale). You work out that while Hay 2 is \$10 extra per bale, including GST, it is actually the same price per tonne:

- Hay 1 = \$65/bale x 1000 divided by 330 = \$197/tonne.
- Hay 2 = \$75/bale x 1000 divided by 380 = \$197/tonne.

You obtain feed lab reports on representative samples of each hay. Here are the results:

Hay 1	Hay 2
86% DM	89% DM
9 MJ ME/kg	10.5 MJ ME/kg
11.5% CP	15% CP

Using these lab results, and the calculation methods on the previous page, you do some quick calculations to compare their value per unit dry matter, energy and protein. This is what you discover:

Hay 1	Hay 2
\$197/tonne as fed	\$197/tonne as fed
22.9 cents/kg DM	22.1 cents/kg DM
2.54 cents/MJ ME	2.11 cents/MJ ME
\$1.99/kg CP	\$1.48/kg CP

So, on a value per unit DM, ME and CP, Hay 2 turned out to be the far better buy, even though it had a similar price per tonne to Hay 1.

You buy the 250 rolls you need from hay seller 2.

Table 1 Methods for collecting the most representative feed sample possible

Grain/ concentrates and co-products	Supplied in semi loads <ul style="list-style-type: none"> • Collect several samples from at least 6 locations from the front to the rear • Use a slotted grain probe that is long enough to penetrate at least ¾ the depth of the load
Grain/ concentrates and other feed ingredients	Supplied in bags <ul style="list-style-type: none"> • 1–10 bags – sample all bags, collecting at least five probes • 11 or more bags – sample 10 bags at random • Stand each bag upright, insert the probe into the top corner and move diagonally through the bag to the bottom corner opposite the top corner and withdraw sample
Hay	Small square hay bales <ul style="list-style-type: none"> • Sample 10–20 bales, selected at random, using a probe or corer (grab samples are not good enough). • Take one core from each bale, near the centre of the 'butt' end, at right angles to the surface. • Ensure that the corer doesn't get too hot. Large round or square bales <ul style="list-style-type: none"> • Sample 10 bales, selected at random, using a probe or corer (grab samples are not good enough). • Take one core from the middle of the curved surface of each round bale taken through the middle of the bale. • Take one core from each side of each square bale, at right angles to the surface and at different heights. Hay cubes or pellets <ul style="list-style-type: none"> • Select a handful of cubes or pellets from at least 6 locations or bags.
Silage	Bunkers and pits <ul style="list-style-type: none"> • Ideally, collect a sample before opening the bunker or pit, using a long coring device that extends deeply into the pit or bunker. • Alternatively, take random handfuls from at least 10 locations across a freshly cut face of the bunker or pit (understanding that the silage face represents only a small proportion of the silage in the bunker or pit, so it may not provide a good representative sample). Wrapped bales <ul style="list-style-type: none"> • Sample 10 large bales, selected at random, using a coring device as for large round hay bales. Take great care to immediately reseal the holes made in the plastic by the corer.

Collect a truly representative feed sample for testing

Feed sampling method is the greatest potential source of variation in feed lab results, so take the time required to collect a truly representative sample. Don't take short cuts. It's much harder to get a representative sample of some feeds (especially hays) than others such as grains, so pay particular attention to the sampling methods suggested in Table 1. A hay corer is essential for sampling hay and silage bales.

Prepare feed sample and get it to lab safe and sound

Combine sub-samples collected, mix thoroughly to obtain a final sample size no greater than 500 grams for submission to the feed lab. If you have collected much more than 500 grams, use the 'quartering' method to get the required amount:

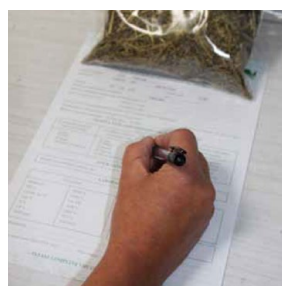
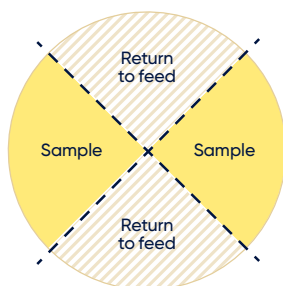
- Mix the entire sample thoroughly.
- Pour it onto a clean sheet of plastic or paper to form an even layer.
- Mark into quarters.
- Take two opposite quarters, mix and repeat until the two quarters selected give the desired sample size.

Note

- Do not quarter hay samples to reduce sample size, as leaf loss can make the sample unrepresentative.
- Be sure to label all samples as you prepare them, marking them clearly with a description and date.
- Keeping a duplicate sample on-farm gives you the option of doing further testing later on if you wish.

To ensure your feed sample is sent to the laboratory as quickly as possible with minimal deterioration:

- Immediately after sampling, place the final feed sample in a press-seal plastic bag, remove the air by squeezing the bag and seal. Double bag feed material if it is stalky and there is a risk of puncturing the bag.
- Store sample in a cool place immediately, such as an insulated cooler. Never leave the sample in a vehicle, especially on a hot day. It will deteriorate quickly if allowed to heat during storage and transport.
- Unless you can get the sample to the laboratory within 24–48 hours, refrigerate or freeze it to ensure dry matter is measured accurately and aerobic spoilage is minimised (this is especially important for high moisture feeds during hot weather). Follow the feed lab's guidelines.
- Post samples early in the week, using an express courier service. Avoid mail delays over the weekend.
- Label samples accurately.



Interpret results

On the feed test report for the sample submitted, assess values given for key nutritional parameters. These are reported on a dry matter basis.

Table 2 Key nutritional parameters

Grains/ concentrates	Dry matter, metabolisable energy, crude protein, starch, sugars, fat
Protein sources	Dry matter, metabolisable energy, crude protein
Standing forages	Dry matter, metabolisable energy, crude protein, ADF, NDF, NDFD
Conserved forages	As per standing forages plus: <ul style="list-style-type: none"> • pH (indicates extent of fermentation during ensiling) • ammonia-N as % total silage N (indicates quality of fermentation during ensiling) • ADICP
By-products	Dry matter, metabolisable energy, crude protein, starch, sugars, fat, ADF, NDF, NDFD, pH, ADICP

ADF = Acid detergent fibre = cellulose, lignin, silica and insoluble forms of nitrogen; NDF = Neutral detergent fibre = ADF plus hemicellulose; NDFD = Neutral detergent fibre digestibility = % of NDF content of a feed digested in a given time period; ADICP = Acid detergent insoluble crude protein = % of crude protein in forage heat damaged and indigestible

Increasing certainty of feed supply

Increase certainty of feed supply and predictability of feed costs by confirming verbal agreements with feed suppliers in writing i.e. by mail or email. The key points you need to cover are:

- quantity
- quality
- price (remember to account for delivery costs)
- delivery period
- delivery location
- payment terms.

It is good practice to convert a verbal purchase agreement to writing in some form, so that if later clarification is required there is documentation to refer to, rather than having to rely on memory. It protects both parties from the risk of unnecessary disputes down the track.

A proforma that covers all these key points is the Grain Trade Australia (GTA) Contract Confirmation, which can be used for any feed, not just grain.

Managing feed deliveries to your farm

Ensure that the quality and quantity of each load of feed delivered to your farm is as specified in the purchase agreement. If not, you have the right to reject it.

In case a dispute arises weeks after delivery regarding feed quality, it is good practice to collect a small, representative sample of each load of feed as you receive it, put it in a press-seal plastic bag and store for at least 2–3 months in a cool, dry place protected from vermin.

Feed deliveries must be managed. Consider whether you have the time and expertise to carry out these tasks:

- Arrange pick-up, trucking schedule and ensure necessary equipment (e.g. auger) is available
- Perform feed tests
- Weigh loads and get weight certificate
- Communicate regularly with supplier during season
- Arrange payment schedules for supply, freight and storage
- Monitor risk in the event of a major price/supply shift.

It may be good value for money to pay a local agent \$5–10/tonne to manage these tasks for you.

Remember that when you buy feed from a stockfeed company or a grain or fodder merchant or trader, all these tasks are performed for you and are included in the price.

Feed storage facilities on your farm

Feeds are too valuable to waste through poor storage. Consider whether your farm's feed storage facilities will be adequate for the volumes and types of feeds you will be using in the coming months. Dry meals will need to be kept dry and are subject to wind loss. Flies may be a problem if buying wet protein meals and by-products. Review your insurance cover for hay and other feeds.

FOR FURTHER INFORMATION

Please visit dairyaustralia.com.au

Disclaimer

The content of this publication is provided for general information only and has not been prepared to address your specific circumstances. We do not guarantee the completeness, accuracy or timeliness of the information.

Acknowledgement

Dairy Australia acknowledges the funding contribution of the Commonwealth Government for eligible research and development activities.

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