Dairy Australia

Calculating feed budgets

How much feed do you actually need to buy?

Guesstimates aren't good enough. You need to do a feed budget to ensure that you know what quantities of each feed you need to buy each month to produce the monthly volumes of milk you require to generate budgeted milk income and profit.

There are a number of feed budgeting methods and tools available (paper and software based) and many dairy advisers who can readily assist you.

Whether done under normal conditions or after major or catastrophic environmental events (e.g. floods, bushfires, droughts), doing a feed budget involves the same three steps.

Key messages

Develop a month-by-month feed budget

Make realistic allowances for feed wastage based on your feeding system.

Revise your feed budget when circumstances change

It may be well worth getting an adviser to help you do your feed budget, or to at least double check it.

1 Calculate your monthly feed demand

a	Count how many animals there are to feed, and milk production/growth targets.
b	Calculate the daily metabolisable energy (ME) requirements of each class of stock milkers, dry cows, yearlings and calves.
c	Calculate tonnes of dry matter (DM) required for all stock each month, based on animals' daily ME requirements and stock numbers.

2 Calculate your total feed deficit for each month

a	Calculate tonnes of home-grown DM available each month (pasture, other standing crops, silage and hay on hand).
b	Subtract tonnes of home-grown DM from tonnes of DM required for all stock each month.

3 Calculate quantities of each bought-in feed you require each month

a	Describe what feeds you intend to buy to fill the feed deficit for each month.
b	Formulate diets for each class of stock – milkers, dry cows, yearlings and calves.
c	Using these diets and the stock numbers from Step 1, calculate the total tonnes of each feed that need to be bought each month.

Here is a more detailed description of the feed budgeting process using an example (normal conditions).

1 Calculate your monthly feed demand

a Count how many mouths there are to feed month-to-month.

Example:

Start by counting your milkers and monthly production targets.

Cow production	Nov	Dec	Jan	Feb	Mar	Apr
Milking cows	400	400	400	400	380	360
Litres per cow	23.0	21.5	20.0	18.5	17.0	15.5
Fat %	3.90	3.90	3.95	4.00	4.10	4.20
Protein %	3.20	3.30	3.35	3.35	3.50	3.50
Average liveweight of milkers (kg)			500			
Farm production						
Litres	276,000	266,000	248,000	207,200	200,260	167,400
Fat	10,746	10,397	9,796	8,288	8,211	7,031
Protein	8,832	8,798	8,308	6,941	7,009	5,859
Dry stock on-farm						
Dry cows	0	0	0	0	0	0
Yearlings	120	120	120	120	120	120
Calves	150	150	150	150	150	150

Now add all the other stock on the farm. Be sure to do an accurate head count.

b Calculate each animal's daily ME requirements, month-to-month.

Example:

Be realistic about the ME requirements of different classes of stock. See top of the next page. For milkers, adjust ME requirements for expected liveweight gain or loss, depending on stage of lactation.

Energy requirements (MJ ME/day)	Nov	Dec	Jan	Feb	Mar	Apr
Milking cows	200	195	190	185	180	180
Dry cows	–	–	–	–	–	–
Yearlings	82	85	87	90	92	94
Calves	43	46	50	53	56	59

c Calculate tonnes of DM required for all stock each month.

Example:

Each of these numbers is calculated as follows:

Number of animals (from 'a' above) x daily ME requirement (from 'b' above) x number of days in month ÷ 11 MJ (assuming each kg DM = 11MJ ME) ÷ 1000

DM requirements (t DM/month)	Nov	Dec	Jan	Feb	Mar	Apr
Milking cows	218	220	214	188	193	176
Dry cows	0	0	0	0	0	0
Yearlings	27	29	29	28	31	31
Calves	18	19	21	20	24	24
Total	**263**	**268**	**264**	**236**	**248**	**231**

Daily ME requirements for different classes of stock

Milking cows	**Calves** depending on size	**Dry cows** 550kg, no liveweight change	**Bulls** 700kg, no liveweight gain
70–90 MJ ME for maintenance (depending on liveweight) plus 5–5.5 MJ ME per litre milk*	40–80 MJ M day	90–100 MJ ME	90–100 MJ ME
	Yearlings depending on size		
	80–100 MJ ME		

*Additional energy is required for walking activity and to cope with adverse weather conditions.

2 Calculate your total feed deficit for each month

Example:

This is the animals' DM requirement (from step 1) less the amount of home-grown DM available (pasture, other standing crops, silage and hay on-hand).

If necessary, seek help from an adviser to estimate quantities of pasture and other home-grown feeds on-hand.

	Nov	Dec	Jan	Feb	Mar	Apr
Irrigated pasture (ha)	**85**	**85**	**85**	**85**	**85**	**85**
MJ/kg DM	10.3	9.9	9.7	9.7	10.2	10.5
Kg/ha/day	70	65	55	50	45	40
Total pasture available at 11 MJ (t)	**167**	**154**	**178**	**105**	**109**	**97**
Developed dry land (ha)	**0**	**0**	**0**	**0**	**0**	**0**
MJ/kg DM	10.1	9.3	8.6	8.0	9.3	11.0
Kg/ha/DM	50	20	5	0	5	30
Total pasture available at 11 MJ (t)	**0**	**0**	**0**	**0**	**0**	**0**
Homegrown silage, hay, crops at 11 MJ (t)	**40**	**50**	**55**	**55**	**40**	**40**
Feed deficit						
Dry matter deficit at 11 MJ (t)	56	64	81	76	99	94

3 Calculate quantities of each bought-in feed you require each month

a Describe what feeds you intend to buy to fill each month's feed deficit.

What are the dry matter, metabolisable energy (ME), crude protein (CP) and neutral detergent fibre (NDF) contents of the grains or concentrates, hay, silage and co-products you intend to buy?

b Formulate diets for each class of stock – milkers, dry cows, yearlings and calves.

Example:

Ensure formulated diets are nutritionally well-balanced, and will maintain sound rumen function and feed conversion efficiency. If necessary, seek help from a nutrition specialist.

Milker diet (kg DM/cow/day)	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**
Pasture	11.5	10	8.5	7.5	7	6
Homegrown hay	2.5	3	2	1	0	0
Homegrown silage	0	0	1.5	2	2	2
Grain/concentrate	4.5	5	6	5	5	5
Bought-in hay	0	0	0	1.5	3	3
Bought-in silage	0	0	0	0	0	0
Bought-in co-products	0	0	0	0	0	0

c Using these diets and the stock numbers from step 1 calculate the total tonnes of each feed that needs to be bought each month.

Example:

Make realistic allowances for feed wastage based on your feeding system (see fact sheet 'From price taker to price maker').

Revise your feed budget when circumstances change (e.g. available feeds, number of animals to be fed).

Bought-in feed requirements (t DM/month)	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**
Grain/concentrate	56	64	81	60	62	59
Bought-in hay	0	0	0	16	37	35
Bought-in silage	0	0	0	0	0	0
Bought-in co-products	0	0	0	0	0	0

For further information

Please visit **dairyaustralia.com.au/feeding-and-farm-systems**

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