



Feed Planning

Back of the envelope feed budget

Feed budgeting is an essential planning tool for dairy farmers. With fodder and grain prices rising, it becomes even more important to complete a feed budget to calculate how much feed is needed in the coming months to meet milk production requirements.

This fact sheet uses a farm example to demonstrate how to calculate the amount of feed required. The final part of this fact sheet is a worksheet for you to work through for your farm. Completing the worksheet gives you the total herd feed requirements (dry matter [DM]) for the time period you choose e.g. 30 days, 60 days. You can then work out the feed you have on hand and calculate the feed deficit.

Table 1 is a worked example to determine the feed requirements for a 30-day period for the example farm.

Table 2 then calculates the amount of feed available and the feed deficit for the same farm and time period. Farm example: 250 cow herd of 550kg liveweight, calving in spring aiming to produce 500kg MS/cow. Liveweight target for 2 year old's is 550kg. Milking area is 120 hectares.

There is 20 tonne DM of conserved fodder and moderate amounts of grain/pellets are fed.

Key messages

- Feed budgeting is an essential planning tool
- Use this simple feed budget to calculate how much feed in tonnes of dry matter you need to purchase

Calculations are for a 30-day time period. Table 3 provides the daily requirements (kg DM/head) for each class of stock.

Table 4 & 5 provide the annual feed requirements (t DM/head) for each class of stock.

Herd feed requirements for 30-day time period

Table 1 Feed requirements

	Number of head	Daily requirement (kg DM/head)	No. of days	Total feed required (t DM)	
A Milkers	250	18	30	135	A = number × daily requirement × no. of days
B Dry cows		12			B = number × daily requirement × no. of days
C Heifers	50	8	30	12	C = number × daily requirement × no. of days
D Yearlings/calves	100	4	30	12	D = number × daily requirement × no. of days
E Others	-				E = number × daily requirement × no. of days
F Total (A + B + C + D + E)				159	F = (A+B+C+D+E)

Total feed available

To calculate the total feed available complete Table 2. Firstly provide an estimate of the total pasture yield available, fodder available and the grain/pellet tonnage fed out. Wastage is added in and the total feed deficit can be calculated.

Calculate the total pasture available by completing rows G to L. *Estimated pasture available* is what is available now. The *total pasture growth* is calculated by the growth rate per day × the number of days × the pasture area. Adding the growth to the currently available provides the total pasture available.

Table 2 Feed available

		Farm example		
G	Estimated pasture available	30	t DM	G
H	No. days	30	days	H
I	Pasture areas	120	hectares	I
J	Estimated growth/ha	25	kg DM/ha	J
K	Total pasture growth for time period	90	t DM	$K = (H \times I \times J)/1000$
L	Total pasture available	120	t DM	$L = (G + K)$
M	Number of cows	250	cows	
N	Normal grain/pellet feeding	4	kg DM/cow/day	
O	Normal grain/pellet feeding	30	t DM	$O = (M \times N \times H)/1000$
P	Conserved fodder*	20	t DM	
Q	Purchased fodder	0	t DM	
R	Fodder available	20	t DM	$R = (P + Q)$
S	Feed out wastage	20	%	S
T	Net fodder available	16		$T = (R - (S/100 \times R))$
U	Total feed available**	166	t DM	$U = (L + O + T)$

*Net fodder available takes into account the % wastage during feed out. See notes below.

**Total feed available is the addition of all sources of feeds.

Calculate the shortfall or surplus

The shortfall or surplus can be calculated by subtracting the total feed available (U from Table 2) from the total annual requirements (F from Table 1). A positive number means that feed needs to be purchased.

V	Shortfall/surplus	-7	t DM	$V = (F - U)$
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In this farm example there will be a surplus of 7 tonnes of DM at the end of the 30-day period if all the conserved fodder is available to be used.

Note: Be careful converting as fed figures to DM

- > grain – 90% DM
- > hay – 85% DM
- > silage 30–50% DM

Allow realistic wastage rates when feeding out fodder. Allow up to 30% if feeding on the ground. Allow up to 15% if feeding in troughs and hay rings. See the fact sheet *Reducing feed wastage costs* at feed.dairyaustralia.com.au for further information.

Table 3 Daily feed requirements for different classes of stock (kg DM/head)

Class of stock	Daily requirements (kg DM/herd)
Milkers	18
Dry cows	12
Heifers	8
Yearlings/calves	4

Table 4 Total annual feed requirements (t DM/head) for calves, yearlings and heifers at two different target liveweights

	Age (months)	450kg*	550kg*
		kg DM/day	kg DM/day
Calves yearlings	3–6	3	3.4
	6–9	3.8	4.6
	9–12	4.7	5.8
Annual total (t DM)		1	1.2
Heifers	12–15	5.6	7.2
	15–18	6.6	8.3
	18–21	7.6	10.4
	21–24	11.6	13.7
Annual total (t DM)		2.8	3.6

*Target liveweight as a 2 year old

Table 5 Annual intake in tonnes of DM/cow @ 11 MJ ME/kg DM

Production		Liveweight (kg)					
(kg MS/cow)	litres/cow	400	450	500	550	600	650
300	3,529	3.5	3.6	3.8	3.9	4.0	4.1
350	4,216	3.8	4.0	4.1	4.2	4.3	4.5
400	4,942	4.2	4.3	4.4	4.6	4.7	4.8
450	5,713	4.5	4.6	4.8	4.9	5.0	5.1
500	6,536	4.8	5.0	5.1	5.2	5.4	5.5
550	7,418	5.2	5.3	5.5	5.6	5.7	5.8
600	8,370	5.5	5.7	5.8	5.9	6.1	6.2
650	9,401	5.9	6.0	6.2	6.3	6.4	6.6
700	10,526	6.3	6.4	6.6	6.7	6.8	6.9

Bold cells are unlikely production target

Dry cow requirements vary between 10–15kg DM per cow per day over the dry period. For example, if cows are dry for 65 days, 65 days x 15 kg DM = 975 kg DM/cow is required for the dry period. Add the relevant numbers of dry cows and requirements to your own worksheet.

Complete your own worksheet on the following page using either Table 2 for daily requirements or Table 3 and 4 for or annual feed requirements. Complete the sections for pasture, fodder and grain and calculate the feed surplus or deficit. Use your own knowledge of pasture and crop growth, or speak to an advisor to get assistance.

This fact and worksheet will help do quick calculations to estimate the amount of feed that will be required this year. Dairy Australia Feed Tools and the Dairy Australia feed budget spreadsheet that can be found at feed.dairyaustralia.com.au will provide a more detailed feed budget.

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Feed budget calculator

Your own worksheet

Complete your own feed budget worksheet using Table 3 or Table 4 and 5 to determine the total feed required for the herd. Estimate the pasture available and the pasture that will be grown in the time period. Remember to calculate the net fodder available by taking into account the wastage during feed out.

	Number of head	Daily requirement (kg DM/head)	No. of days	Total feed required (t DM)
A	Milkers			$A = \text{number} \times \text{daily requirement} \times \text{no. of days}$
B	Dry cows			$B = \text{number} \times \text{daily requirement} \times \text{no. of days}$
C	Heifers			$C = \text{number} \times \text{daily requirement} \times \text{no. of days}$
D	Yearlings/calves			$D = \text{number} \times \text{daily requirement} \times \text{no. of days}$
E	Others			$E = \text{number} \times \text{daily requirement} \times \text{no. of days}$
F	Total (A + B + C + D + E)			$F = (A+B+C+D+E)$
G	Estimated pasture available	t DM		G
H	No. days	days		H
I	Pasture areas	hectares		I
J	Estimated growth/ha	kg DM/ha		J
K	Total pasture growth for time period	t DM		$K = (H \times I \times J)/1000$
L	Total pasture available	t DM		$L = (G + K)$
M	Number of cows	cows		
N	Normal grain/pellet feeding	kg DM/cow/day		
O	Normal grain/pellet feeding	t DM for X days		$O = (M \times N \times H)/1000$
P	Conserved fodder	t DM		
Q	Purchased fodder	t DM		
R	Fodder available	t DM		$R = (P + Q)$
S	Feed out wastage	%		S
T	Net fodder available			$T = (R - (S/100 \times R))$
U	Total feed available	t DM		$U = (L + O + T)$
V	Shortfall/surplus	t DM		$V = (F - U)$

*Be careful converting as fed figures to DM: grain – 90% DM; hay – 85% DM; silage 30–50% DM.

You should allow for wastage (particularly with fodder)

If feeding on the ground up to 30% wastage; feed troughs and hay rings will still result in at least 15% wastage. Shortfall/surplus \times fodder cost \$/t = cost of feed for time period (\$).