

## 1-56 Return from Feeding Supplement in the Autumn

### Summary

1. **Cow condition and pasture cover targets must not be compromised** by milking on – do a feed budget
2. **Response rates** to supplements of **60-70 g MS/kg DM offered (purchased)** can only be achieved where:
  - The **rotation length is slowed** and lactation is extended i.e. **more days in milk**
  - Cows graze to a consistent, even grazing height – **7 clicks** on the rising plate meter (**1500 kg DM/ha** “clicks” x 140 +500)
  - Supplement **wastage is less than 20%**
  - Supplement **quality is 10.5 ME plus**
3. Response rates of 80 -90 g MS/kg DM offered (purchased) are only achieved when there is a very large feed deficit and there is great attention to detail (wastage 15% or less; supplement quality > 10.5 ME)
4. The rule of thumb of paying no more than **5% of payout for a kg DM offered** applies to most situations i.e. at **\$5.00 payout pay no more than 25 cents/kg DM**.
5. Calculate the return from feeding supplement for your farm using the worksheet attached.

### Response to Supplement Purchased – Autumn (before losses in storage & feeding out)

The following table shows the estimated response to supplement purchased under a range of conditions. The response rates allow for wastage of the supplement in storage and feeding out.

**Table 1 Response to Supplement Purchased – Autumn (before losses in storage and feeding out)**

Response to Feed Offered		Residuals & Average Pasture Cover (APC) <sup>2</sup>	Supplement	Other
g/kg DM <sup>1</sup>	g/MJME			
-ve- 30	-ve – 3.0	Leaving 9.5 clicks plus (1800 kg DM/ha); at or above APC	Quality < 10.5 ME; Wastage 30% plus (fed in wet weather; poor stack mgt)	Lactation not extended i.e. no increase in day in milk (DIM) per ha; loss pasture quality
40 – 50	3.5 – 4.5	8.0 - 9.5 clicks (1600-1800 kg DM/ha); stop feeding at target APC	Average quality 10.0-10.5 ME; Wastage 25% -30%	Little change to DIM/ha as rotation length not slowed down to build cover; grazing residuals too high
60 – 70	5.5 – 6.5	7.0 – 7.5 clicks (1500 - 1550 kg DM/ha) residuals	Good quality 10.5 - 11.0 ME; Wastage 20% or less	Rotation length slowed and increase in DIM/ha; cow condition and APC at calving targets met
80-90	7.0 – 8.0	Residuals less than 6 clicks (1350 kg DM/ha) if supplement not fed; When supplement fed residuals 7 clicks (1500 kg DM/ha); APC well below target	Good quality greater than 10.5 ME; Low wastage 15% or less (feeding maize or PKE in bins/on feed pad)	If supplement not fed cows dried off - significant increase DIM/ha. Cow condition & cover targets achieved

Note 1 g/kg DM based on 11.0 ME/kg DM

Note 2 Pasture cover based on winter formula on rising plate meter "clicks" x 140 +5600

Good responses to autumn fed supplement will only be achieved where:

1. Days in milk are increased
2. Pasture is not wasted i.e. pastures grazed to a consistent even height. For ryegrass/clover pastures this is a height of 7-8 clicks on the Rising Plate Meter (1500-1600 kg DM/ha on the winter formula, "clicks" x 140 +500).
3. Supplement quality is 10.5 ME plus
4. Supplement wastage in storage and at feeding out is minimised.

## Wastage of Supplement

Table 2 below gives an estimate of the wastage that occurs in storage and feeding out for grass, maize and cereal silage, PKE and concentrates.

**Table 2 Supplements – Estimates of % Wastage Rates In Storage and Feeding Out <sup>1/</sup>**

Supplement	Storage			Feeding Out Paddock <sup>2/</sup>			Feeding Out Bins <sup>3/</sup>	
	Excel-lent	Average	Poor	Excel-lent	Average	Poor	Very Good	Poor
Grass Silage	5%	10-15%	20-40%	10%	20%	40%	5-10%	25% <sup>4/</sup>
Maize & Cereal Silage	6%	10-15%	20-40%	15%	20-25%	40%	5-10%	25% <sup>4/</sup>
Palm Kernel	0	10-15%	20%	25%	30%	50%	10%	25%
Concentrates <sup>5/</sup>	0	5%	15%				5 %	25%

Notes:

1. As research on wastage of supplements is limited the above are based on best estimates from scientists and industry experts.
2. Includes losses at the stack face and when loading the wagon.
3. Bins = Feed trough for PKE fed in the paddock or feed pad for forages or in-shed feeding for concentrates.
4. Excludes refusal in the bin for rotten silage.
5. There are additional losses feeding concentrates e.g. small grain losses up to 40% as grains are undigested by the cow. Also losses when grains are digested whole, studies showing that where wheat is fed whole losses were 30% compared with the rolled barley.

## Return from Feeding Supplement in the Autumn

The rule of thumb of paying no more than 5% of payout for a kg DM offered applies to most situations i.e. at \$5.00 payout pay no more than 25 cents/kg DM. Providing that the cows have sufficient time and there is the feed on hand to reach the condition score and pasture cover targets at calving use the worksheets on pages 4-5 (example pages 6-7) to calculate the profitability of purchasing supplement to extend lactation.

To work out the return for feeding supplement on your farm you need to:

1. Do a feed budget to ensure the target cow condition score and pasture cover at calving can be met. When budgeting for cow condition allow no more than ½ a condition score gain per month with cows gaining no weight a month before calving.
2. Estimate the wastage of the supplement being fed using Table 2 above.
3. Use Table 1 to estimate the response from the supplement you are going to feed based on the wastage and feed quality of the supplement you are going to feed and your grazing management.
4. Use the worksheet attached to calculate the profit from feeding the supplement on your farm.

## Response Rates to Supplement from Trial Work

Responses from trial work feeding supplements in the autumn range from 58 – 177 g MS/kg DM measured into bins<sup>1</sup> (177 g achieved where the control herd was dried off early autumn) with average responses of 8.5 – 10.5 g MS/kg DM at 10.5 MJME/kg DM.

The response from supplement comes from 3 sources:

- The immediate milksolids response
- Cow condition and
- Spared pasture that is not eaten when the supplement is fed (substitution) that is eaten at a later time providing that it is not lost (rot and dies; loss of pasture quality)

From the trial at No2 Dairy, 80% of the response came from extra days in milk, not a lift in daily per cow production. Therefore in the autumn to capture the response from the improved cow condition and spared pasture, cows need to graze to 7-8 clicks on the rising plate meter (1500-1600 kg DM/ha on the winter formula) and lactation length extended i.e. more days in milk.

Note<sup>1</sup> that the trial results are based on the amount of feed that is weighed into bins and therefore these results do not take into account losses of supplement in storage, ensiling, stack management or feeding out. These losses are detailed in Table 2.

## Condition Score at Calving

After calving rate, condition score at calving is the most important factor for reproductive success. Cow condition of 5.0 at calving for 90% of the herd must be achieved for the ongoing sustainability of seasonal calving. The impact of poor cow condition at calving can last two or more seasons due to the flow on effect of a slow calving rate. To achieve condition score targets cows require good feeding and most importantly time.

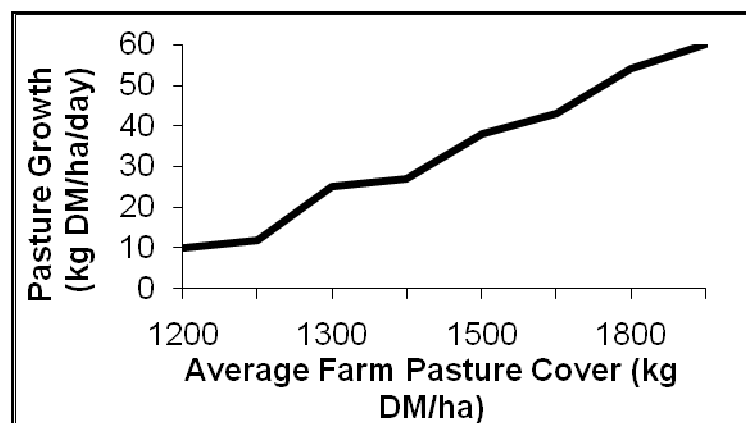
## Pasture Cover at Calving

Feed budgeting is essential to determine pasture cover targets for April through to calving to base drying off decisions on. Feeding cows well on pasture from start of calving, as always, is a critical part of a pasture based system.

Lactation can only be extended through supplements where there is sufficient autumn pasture built up to feed with the supplement and where pasture cover at calving can be achieved. This requires slowing the rotation length in autumn to push grass forward to be able to milk for more days.

Where pasture cover at calving is not achieved there is a risk that average pasture cover will drop lower than 1800 kg DM/ha in the spring, compromising pasture growth rates as shown in Figure 1 below. The impact of very low pasture covers in spring can last to Christmas.

**Figure 1 Impact of Average Pasture Cover In Spring on Spring Growth Rates**



## Profitability of Purchasing Feed to Extend Lactation

### WorkSheet 1 - Extra Milksolids from Purchased Feed

#### Wastage

##### **Silage**

###### Storage & Stack Management

Excellent (inoculant, bunker, no loose silage at face)	5%	
Average (well compacted & covered, no loose silage at face)	10-15%	
Poor	20-40%	

###### Feeding Out Silage Paddocks

Excellent (dry conditions grass silage)	10%	
Excellent (dry conditions maize silage, side delivery)	15%	
Average (good conditions minimal spillage loading wagon)	20-25%	
Poor (wet conditions, losses loading wagon, dumped in padk)	40%	

###### Feeding Out Silage Bins

Very good (attention to detail no silage left in bins)	5-10%	
Poor (Spillage/overfilled, 2° fermentation, silage left in bins)	25%	

##### **Palm Kernel (PKE)**

###### Storage & Stack Management

Average (concrete & covered; minimal wastage loading)	10-15%	
Poor (not in proper bunker)	20%	

###### Feeding Out PKE Paddocks

Average (dry conditions fed on top of other feed)	25-30%	
Poor (wet conditions fed onto pasture)	50%	

###### Feeding Out PKE Bins

Very good (bins not overfilled)	10%	
Poor (Spillage/overfilled, trailers)	25%	

##### **Concentrates**

###### Storage

Average (fresh feed, good facilities)	5%	
Poor	15%	

###### Feeding Out Concentrates In Shed

Very good (all conc. eaten each feed good facilities)	5%	
Poor (spillage, small grain, whole grain)	25%	

##### **Other**

##### **Total Wastage**

#### Milksolids Response From Supplement

Total Supplement Purchased kg wet Kg wet A

Dry Matter % (Maize silage bought on DM basis use 100%; PKE 90%) B

Total Supplement Purchased kg DM A X B = C

##### **Kg Milksolids from Supplement Purchased**

Refer to Table 1 FarmFact 1-56 g MS/kg DM D

- Based on above wastage and grazing management

**Extra Milksolids kg MS** C X D/1000 = E

**Profitability of Purchasing Feed to Extend Lactation**

**Worksheet 2 - Return from Purchased Supplement**

Extra Milksolids kg MS (from Worksheet 1)

E

**Extra Income**

Milksolids payout

F

Extra Income Extra MS X Payout

$E \times F = G$

**Costs**

Supplement

H

Electricity & Shed Expenses

I

(approx 0.15 cents/cow/day)

Feeding out costs

Extra Labour (include extra relief milking)

J

Tractor running costs

K

(2-3 cents/kg DM silage; 1-2 cent PKE)

R&M - tractor/feedout wagon/bins etc

L

(incl mishaps; wear & tear races etc)

Depreciation - tractor/feedout wagon/bins etc

M

(2-3 cents/kg DM silage; 1 cent PKE/in shed feeding)

Interest on Additional Shares

Extra Shares a

Cost/Share b

Interest Rate c

$a \times b \times c = N$

Other (impact on capacity adjustmt charge 09/10)

O

**Total Costs**

Sum H...O = P

**RETURN FROM SUPPLEMENT**

I - P

**Other Considerations**

*Will the cows have sufficient time to reach the target condition at calving - allow 1/2 CS gain per month*

*Will feed cover be high enough to sustain milking on & reach target cover at calving - need to slow the rotation*

*Impact on cashflow of milking on*

*Staff, time to feedout, other jobs, holidays*

*Milk quality*

*If extra shares need to be purchased consider cashflow and benefits of extra shares*

**Risk** *to achieve milksolids response - wet autumn/wastage of supplement; skill; attention to detail*

**Profitability of Purchasing Feed to Extend Lactation**

**WorkSheet 1 - Extra Milksolids from Purchased Feed**

**Wastage**

**Silage**

**EXAMPLE**

Storage & Stack Management

Excellent (inoculant, bunker, no loose silage at face)	5%	
Average (well compacted & covered, no loose silage at face)	10-15%	10%
Poor	20-40%	

Feeding Out Silage Paddocks

Excellent (dry conditions grass silage)	10%	
Excellent (dry conditions maize silage, side delivery)	15%	15%
Average (good conditions minimal spillage loading wagon)	20-25%	
Poor (wet conditions, losses loading wagon, dumped in padk)	40%	

Feeding Out Silage Bins

Very good (attention to detail no silage left in bins)	5-10%	
Poor (Spillage/overfilled, 2° fermentation, silage left in bins)	25%	

**Palm Kernel (PKE)**

Storage & Stack Management

Average (concrete & covered; minimal wastage loading)	10-15%	
Poor (not in proper bunker)	20%	

Feeding Out PKE Paddocks

Average (dry conditions fed on top of other feed)	25-30%	
Poor (wet conditions fed onto pasture)	50%	

Feeding Out PKE Bins

Very good (bins not overfilled)	10%	
Poor (Spillage/overfilled, trailers)	25%	

**Concentrates**

Storage

Average (fresh feed, good facilities)	5%	
Poor	15%	

Feeding Out Concentrates In Shed

Very good (all conc. eaten each feed good facilities)	5%	
Poor (spillage, small grain, whole grain)	25%	

**Other**

**Total Wastage**

	25%
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**Milksolids Response From Supplement**

Total Supplement Purchased kg wet Kg wet A 

	100,000
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Dry Matter % (Maize silage bought on DM basis use 100%; PKE 90%) B 

	100%
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Total Supplement Purchased kg DM A X B = C 

	100,000
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**Kg Milksolids from Supplement Purchased**

Refer to Table 1 FarmFact 1-56 g MS/kg DM D 

	60
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- Based on above wastage and grazing management

**Extra Milksolids kg MS** C X D/1000 = E 

	6000
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**Profitability of Purchasing Feed to Extend Lactation**

**Worksheet 2 - Return from Purchased Supplement**

**EXAMPLE**

Extra Milksolids kg MS (from Worksheet 1) E 

6000
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**Extra Income**

Milksolids payout F 

\$5.00
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Extra Income Extra MS X Payout E x F = G 

\$30,000
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**Costs**

Supplement H 

\$22,000
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Electricity & Shed Expenses I 

\$1,000
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(approx 0.15 cents/cow/day)

Feeding out costs

Extra Labour (include extra relief milking) J 

\$200
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Tractor running costs K 

\$2,000
---------

2-3 cents/kg DM silage; 1-2 cent PKE

R&M - tractor/feedout wagon/bins etc L 

\$500
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- incl mishaps; wear & tear races etc

Depreciation - tractor/feedout wagon/bins etc M 

\$2,500
---------

2-3 cents/kg DM silage; 1 cent PKE/in shed feeding

Interest on Additional Shares

Extra Shares a 

0
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Cost/Share b 

\$5.57
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Interest Rate c 

0.00%
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a x b x c = N 

\$0
-----

Other (impact on capacity adjustmt charge 09/10) O 

\$0
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**Total Costs**

Sum H...O = P 

\$28,200
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**RETURN FROM SUPPLEMENT**

I - P 

\$1,800
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**Other Considerations**

*Will the cows have sufficient time to reach the target condition at calving - allow 1/2 CS gain per month*

*Will feed cover be high enough to sustain milking on & reach target cover at calving - need to slow the rotation*

*Impact on cashflow of milking on*

*Staff, time to feedout, other jobs, holidays*

*Milk quality*

*If extra shares need to be purchased, consider cashflow and the benefits of extra shares*

**Risk** *to achieve milksolids response - wet autumn/wastage of supplement; skill; attention to detail*