

FEEDING PASTURES FOR PROFIT – A PRACTICAL APPROACH TO ACHIEVING PROFITABLE FEEDING

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Take home messages

- **Feeding Pastures for Profit is a very practical, science based method of achieving feeding profit.**

Feeding Pastures For Profit :

- 1. makes the most of your available resources.**
 - 2. provides the rules – the underpinning knowledge**
 - 3. helps you move into ‘the zone’ of profitable feeding, and stay there provides simple practical tools (Rotation Right, Body of Evidence)**
- **FPPF provides farmers with the skills, tools and confidence to adjust when conditions (either good or poor growing conditions, higher or lower supplement or milk price) change.**

Introduction

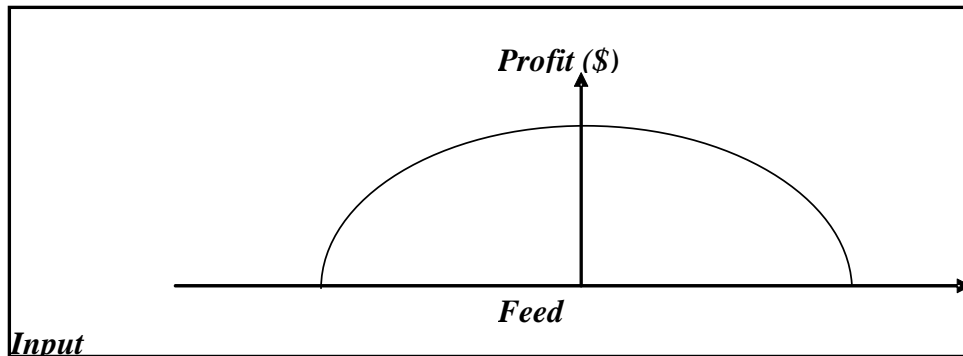
Profitable dairy farming is built on the understanding of how to efficiently convert feed to milk. There is always debate about what sources of feed are the cheapest, and what level of milk production is the ideal. All good operators know that feeding management is a crucial driver of profit on a dairy farm, but most farmers are still unsure whether cow efficiency or hectare efficiency is more important to profit. On one hand, many nutritionists emphasise cow efficiency and on the other many agronomists have emphasised pasture consumption. There are logical reasons why each group adopts its position. The fact is farmers ignore either cow efficiency or hectare efficiency at their peril. A profitable farm manager must understand both, and be able to make the appropriate compromise.

The underpinning principles, easy and practical decision making process, and the tools provided in the “Feeding Pasture For Profit”(FPPF) program help dairy farmers achieve a better balance of both efficiencies and significantly improve profitability as a result. It’s about “feeding the cows well, without breaking the pasture rules”.

1. FPPF delivers the underpinning knowledge required to understand how pasture grows, and how the feeding of supplements interacts with pasture consumption and cow feeding efficiency.
2. Feeding Pastures for Profit provides the Rotation Right tool, and a practical decision making process – the Body of Evidence - that allows farmers to move to a more profitable feeding position. Combined, these help the farmer to confidently answer two key questions:
 - a. How much pasture do I allocate today?
 - b. How much supplement do I offer today?
3. The method does not depend on measuring grass in kg DM with a plate meter, working out cow feed requirements, complex modelling or analysis, but it is technically correct and firmly based on the drivers of feeding profitability.

FPFP is a practical method to keep feeding in the profitable zone

On a daily basis there are three feeding levers that need to be set to achieve feeding profit. These levers are pasture grazing rotation length, the amount of supplement fed to cows, and pasture post-graze level. Radical movement of the levers is not required. Rather they are moved lightly, often, testing them, in an effort to move to a more profitable position. The aim is to be in the profitable “zone” because the most profitable feeding point cannot be known for sure.



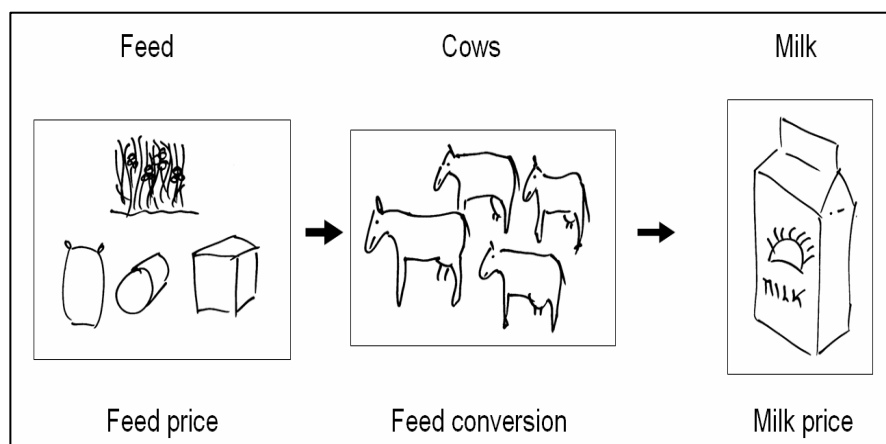
Even if the big picture, longer-term factors are possibly not in their best position (stocking rate, peak production level etc.), the day-to-day feed levers still warrant being set in their best position. And after a period of making the best day-to-day feeding decisions, powerful information appears, to inform the long term decisions.

Farmers starting the FPFP process may find they are some way from the profitable zone and significant short term investment is required before profit is regained. This investment may be in the form of extending the grazing rotation (or conserving surplus pasture), re-building cow body condition, building or reducing pasture residue. This may hurt short-term cash flow – but the investment is essential if long-term profit is to be improved.

The drivers of profitable feeding

The fundamentals of any business profitability are input price, the efficiency of conversion from input to output, and the output price. For the dairy feeding system this is shown in Figure 1.

Figure 1. The fundamentals of feeding profitability.



We need to understand the major drivers of this system, that is, what drives milk price, feed conversion, and feed price.

- Milk price (\$/kg MS). Usually if the milk price is higher more profit is made. However, on any one day, a farmer has limited opportunity to change this driver of feeding profit.
- Cow feed conversion efficiency (% feed converted to milk). Because this can range from 40% up to 70%, it is obviously a strong driver of feeding profitability. High cow efficiency dilutes the investment, the feed required for maintenance, and the non-feed running costs of the cow. It can be changed on a daily basis, as explained later.
- Feed price (\$/tonne). The price of the major input obviously affects profit. The two major methods of changing the feed price are:
 - A. Changing the proportion of pasture compared to purchased feed used, because the price of pasture is usually lower than purchased feed. The price of purchased feed is largely out of the control of the farmer.
 - B. Changing the price of pasture, which is controlled by the use and price of pasture inputs (P & K, N, water, fuel, fodder conservation) and the resulting pasture consumption per hectare.

A and B are both driven by high pasture consumption, that is hectare efficiency. High hectare efficiency dilutes the investment and input costs of the land. It can be changed on a daily basis, as explained later.

Figure 2. Efficiency indicators driving feeding profitability for three farms.

| | | Farm: | | |
|-----------------------|-------------------------------|---------|---------|---------|
| | | A | B | C |
| HECTARE EFFICIENCY | Pasture consumption (t/ha) | 13.8 | 10.5 | 12.1 |
| FEED PRICE | Purch feed price (\$/t) | \$222 | \$255 | \$222 |
| | Pasture price (\$/t) | \$36 | \$105 | \$54 |
| | All feed price (\$/t) | \$50 | \$187 | \$106 |
| FEED SOURCES | Purch feed/cow (t/cow) | 0.3 | 3.2 | 1.6 |
| | Pasture/cow(t/cow) | 3.9 | 2.6 | 3.6 |
| | All feed/cow (t/cow) | 4.2 | 5.8 | 5.2 |
| COW EFFICIENCY | Pasture proportion(%) | 93% | 45% | 69% |
| | Prop'n feed to milk solids(%) | 49% | 62% | 58% |
| | MS per cow(kg) | 314 | 530 | 479 |
| MILK PRICE | \$/kg MS | \$4.51 | \$4.49 | \$4.47 |
| FEEDING PROFITABILITY | MOAF per HECTARE | \$4,323 | \$5,189 | \$5,427 |
| | MOAF per COW | \$1,208 | \$1,297 | \$1,594 |

Figure 2 shows typical efficiency indicators driving feeding profitability for three farms. Farmer A achieved high hectare efficiency (pasture consumption 13.8 t DM/ha/yr), hence low average feed price (\$50/t DM), but low cow efficiency (49% proportion of feed to milk) affected feeding profitability (\$4,323 MOAF/ha).

Farmer B, on the other hand, achieved high cow efficiency (62% proportion of feed to milk), but lower hectare efficiency (pasture consumption 10.5 t DM/ha/yr) contributed

to a higher average feed price (\$187/t DM), so affecting feeding profitability (\$5,189 MOAF/ha).

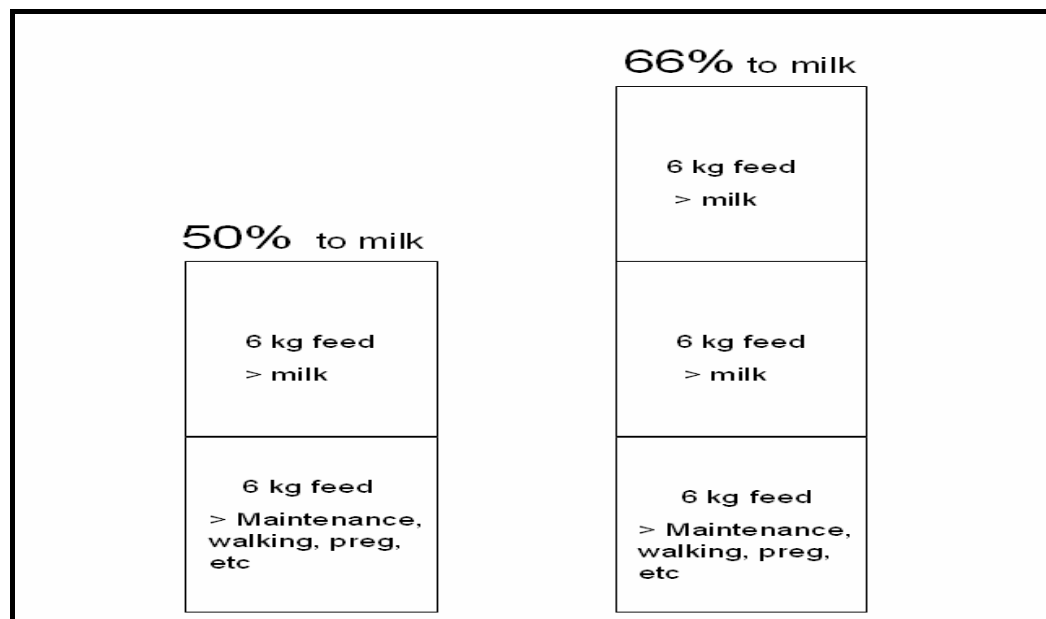
Farmer C achieved reasonable, but not the highest, cow efficiency (58% proportion of feed to milk) and achieved reasonable, but not the highest, hectare efficiency (pasture consumption 12.1 t DM/ha/yr), and was the most profitable (\$5,427 MOAF/ha)

So, both cow efficiency and hectare efficiency are the major drivers of feeding profitability. But what drives these two efficiencies?

The driver of cow efficiency

A cow uses feed for maintenance, walking, pregnancy, body condition, and milk. The first three are more or less unchangeable, in the short term. The major driver of maintaining or improving cow efficiency, on a daily basis, is to ensure each cow has a high intake of quality feed. This dilutes the amount of feed needed for maintenance, walking, and pregnancy, as shown in Figure 3. A cow with a high intake of energy is a high milk producer, so high milk production is a convenient guide to cow efficiency.

Figure 3. The impact of feeding level on cow feed efficiency.



To ensure a cow has a high intake of quality feed:

- She must be offered a lot of quality feed. Even if offered a lot of quality pasture some higher quality purchased supplements are necessary to improve energy density.
- She must have been fed well in the past, because her current ability to eat depends on her level of milk production, which is the result of previous feeding.

This is illustrated in Figure 4. In scenario A, the two cows are fed the same. Then, in scenario B, pasture becomes limited, and one cow's intake is maintained with higher priced feed; she nets more money than the cow allowed to fall in intake. In scenario B, the pasture becomes available again. The high intake cow is then even more

profitable, as the price of feed falls again, whereas the low intake cow is unlikely to respond.

Figure 4. The impact of maintaining intake on efficiency and feed margin

| A | | | | | | | | | | | | | | | | |
|--|--------------|-------|--------------|-------|--------------|-------|-----------------|-------------------|--------------|--------------------------------|--------------|---------------------|-------------------|------------|-------------|--------|
| Plenty of pasture, both cows fed the same | | | | | | | | | | | | | | | | |
| | Pasture | | Silage | | Grain | | \$ in | | | Cow converting feed efficiency | | | | \$ out | | Nett |
| | Kg used /cow | Price | Kg used /cow | Price | Kg used /cow | Price | Total feed used | Avg price of feed | Cost of feed | Feed to maint | Feed to milk | Prop'n feed to milk | Milk (litres) | Milk price | Milk income | NETT |
| LOW MILK PRODUCER | 16 | \$60 | 0 | \$120 | 4 | \$250 | 20 | \$98 | \$1.96 | 7 | 13 | 65% | 26 | \$0.33 | \$8.58 | \$6.62 |
| HIGH MILK PRODUCER | 16 | \$60 | 0 | \$120 | 4 | \$250 | 20 | \$98 | \$1.96 | 7 | 13 | 65% | 26 | \$0.33 | \$8.58 | \$6.62 |
| 1.0 times feed price | | | | | | | | | | | | | 1.0 times the net | | | |
| B | | | | | | | | | | | | | | | | |
| Pasture limited, one still fed well, the other not | | | | | | | | | | | | | | | | |
| | Pasture | | Silage | | Grain | | \$ in | | | Cow converting feed efficiency | | | | \$ out | | Nett |
| | Kg used /cow | Price | Kg used /cow | Price | Kg used /cow | Price | Total feed used | Avg price of feed | Cost of feed | Feed to maint | Feed to milk | Prop'n feed to milk | Milk (litres) | Milk price | Milk income | NETT |
| LOW MILK PRODUCER | 3 | \$60 | 6 | \$120 | 4 | \$250 | 13 | \$146 | \$1.90 | 7 | 6 | 46% | 12 | \$0.33 | \$3.96 | \$2.06 |
| HIGH MILK PRODUCER | 3 | \$60 | 6 | \$120 | 10 | \$250 | 19 | \$179 | \$3.40 | 7 | 12 | 63% | 24 | \$0.33 | \$7.92 | \$4.52 |
| 1.2 times feed price | | | | | | | | | | | | | 2.2 times the net | | | |
| C | | | | | | | | | | | | | | | | |
| Pasture becomes available again for both cows | | | | | | | | | | | | | | | | |
| | Pasture | | Silage | | Grain | | \$ in | | | Cow converting feed efficiency | | | | \$ out | | Nett |
| | Kg used /cow | Price | Kg used /cow | Price | Kg used /cow | Price | Total feed used | Avg price of feed | Cost of feed | Feed to maint | Feed to milk | Prop'n feed to milk | Milk (litres) | Milk price | Milk income | NETT |
| LOW MILK PRODUCER | 10.2 | \$60 | 0 | \$120 | 2.8 | \$250 | 13 | \$101 | \$1.31 | 7 | 6 | 46% | 12 | \$0.33 | \$3.96 | \$2.65 |
| HIGH MILK PRODUCER | 15 | \$60 | 0 | \$120 | 4 | \$250 | 19 | \$100 | \$1.90 | 7 | 12 | 63% | 24 | \$0.33 | \$7.92 | \$6.02 |
| 1.0 times feed price | | | | | | | | | | | | | 2.3 times the net | | | |

If a cow is more efficient when her intake of energy is high, we must endeavour to maintain that intake and be able assess when she showing signs that could intake more, or more simply, ask the question, “Is she hungry”?

The driver of hectare efficiency

Hectare efficiency is measured by pasture consumption. If it is assumed that pasture composition, soil moisture, and soil nutrients are either well managed or unchangeable in the short term, the main method of improving pasture consumption, on a daily basis, is good grazing management. Good grazing involves two aspects: rotation length and post-graze level.

Leaf stage rotation length. Using the principles of leaf stage, decay of lower leaves, root growth after 1 leaf regrown, and sugars stored after 2 leaves regrown, in most circumstances, a grazing rotation length that allows the ryegrass to regrow three full leaves will deliver optimum pasture quantity and quality. In some circumstance it is best to graze at less than three leaves, when seed heads are present, canopy closure occurring, paspalum present, rust occurring, and when the extra feed cannot be used.

Figure 5 shows a ryegrass tiller with 2.3 leaves. The second leaf is bigger than the first, and the third on the way to becoming bigger than the second, all three taking the same time to grow, and all high quality.

Figure 5. A ryegrass tiller.



Post-graze level. Using the principles of sugar storage in the lower 4 cm and light requirement for tiller budding, the ideal post-graze level is a stubble of about 5 cm (see Figure 6). This will deliver optimum pasture quantity and quality at the next grazing, and long term pasture density.

Figure 6. Regrowth quantity (after 24 hours) from 2 and 5cm stubble.



The cow efficiency and hectare efficiency balance

So, cows with high levels of energy intake achieve cow efficiency, and pastures grazed on a leaf stage rotation with a residue of about 5cm, achieve hectare efficiency. Supplements play a large role here. Sometimes feeding more supplement improves both efficiencies, for example by maintaining cow intake while moving to a longer rotation, or by leaving more pasture in the paddock to reduce overgrazing.

Sometimes however, feeding more supplements to achieve higher cow efficiency reduces hectare efficiency. An example is when pasture feed is poorer quality, possibly because of seedheads, or poorer quality species, or higher stubbles. Supplements could be reduced to ensure the cows eat the pasture so maintaining hectare efficiency, or supplements could be increased to maintain cow efficiency.

The only place the cow efficiency and hectare efficiency interaction can be assessed is in the paddock, on the farm in question, and only the human eye and brain can do it. No satellite technology, analysis software, or predictive “black box” can make this judgment.

"Feeding Pastures for Profit" achieves the best balance of both feeding cow efficiency and hectare efficiency, although it never measures them. FPPF is not only technically well founded but is more easily understood, accepted, and able to be applied by farmers than most other techniques of setting feed decisions, such as weekly plate metering, feed budgeting, using predictive models and analytical methods.

FPPF involves the day-to-day practical observation of pasture quantity and quality in the paddock, and whether cows would benefit from more supplement. FPPF is about making good short term decisions at the margin. Success is far more likely when profitable decisions are made often, depending on the current situation, rather than setting yearly targets such as “feed 1.5 tonne per cow”, “grow 10 tonne of pasture,” or “produce 7,000 litres” and holding to these targets, come what may.

How to achieve the best balance of hectare and cow efficiency

What does FPPF deliver?

Feeding Pastures For Profit provides 3 main elements

- Underpinning knowledge
- The Rotation Right tool
- The Body of Evidence

It is the combination of these 3 elements that allows the participating farmers to confidently make 2 of the most important daily decisions:

- Where do I put the fence today (how much pasture do I allocate?)
- How much supplement do I offer the herd today?

Most participants in the program comment that in mastering these 2 key skills, they quickly come to realise the importance and role of many of the other key profit ‘levers’ including stocking rate, pasture composition, irrigation management, supplement type choice etc. FPPF is the launching pad for truly understanding the feeding system.

Underpinning knowledge

The underpinning knowledge draws from years of research, and establishes the ‘rules’ for getting the balance between hectare efficiency and cow efficiency.

The grazing rules are based around the knowledge required to grow and offer pasture that is at the optimum balance between quality and quantity. The focus is on managing ryegrass (the most common grazed species), but the FFPF program caters for management of the wide range of pasture types that are grazed.

The grazing rules have been mentioned earlier. The ryegrass grazing principles are based on the research carried out by Danny Donoghue. They are about use of the leaf principle for stage of grazing, and leaving the right residual behind after a grazing event (4-6cm). By following the grazing rules you will:

- grow and offer pasture that is at the optimum stage
- optimise pasture persistence through daughter tillering

Cow efficiency is about ensuring each cow has a high intake of quality feed. This efficiency dilutes the cost of the feed required for maintenance, and the non-feed running costs of the cow. The key challenge is to get cows to eat as much quality pasture as possible – without compromising the cow efficiency. We want to control feed wastage – either as pasture or as supplement.

The Rotation Right tool

The Rotation Right tool puts farmers in control of achieving 2 key goals:

- Implementing the right rotation length that achieves the best balance between the quantity and quality of feed that can be offered to the herd
- Offering as close as practical to a consistent amount of pasture to the herd on a feed-to-feed basis.

With ryegrass dominant pastures, knowing the right rotation is about knowing what leaf stage you want to graze at. Lets say that you want to graze at the 3 leaf stage, and the pasture is currently taking 30 days to achieve this stage of growth, then the rotation length needs to be 30 days. If we do know the right rotation length, the maths is simple:

$$\begin{array}{rclcl} \text{Pasture area} & \div & \text{desired rotation length} & = & \text{Area to be offered each day} \\ \\ 30 \text{ ha} & \div & 30 \text{ days} & = & 1\text{ha per day (0.5 ha per feed)} \end{array}$$

This 1 hectare per day then needs to be converted to an area per feed (am and PM grazing). If the next paddock is 1 hectare, you can simply divide it in half, but it is rarely this simple. As the farm manager you need to contend with:

- a range of paddock sizes
- a range of quality and quantity of feed in each paddock
- different rotation lengths

In most cases we need to decide wether we are going to offer the herd ‘a bit more’ or ‘a bit less’. Consider the example below where, at different rotation lengths it is not as easy as simply splitting the paddock into 2 feeds:

Pasture area ÷ desired rotation length = Area to be offered each day
 30 ha ÷ 20 days = 1.5 ha per day (0.75 ha per feed)
 30 ha ÷ 30 days = 1 ha per day (0.5 ha per feed)
 30 ha ÷ 40 days = 0.75 ha per day (0.375 ha per feed)

and then on top of this we have to account for the difference in the quality and quantity of feed in this paddock in relation to all the other paddocks on the farm.

In most cases we need to decide if we should offer the herd ‘a bit more’ or ‘a bit less’. A further complication is that if we offer a bit more, we increase the area being offered each feed, and so we are actually shortening the rotation over time. Other complications include managing paddocks that may have been taken out of rotation for renovation or other reasons.

The rotation right tool is a very simple but effective way of dealing with this range of complexity. A ‘snapshot’ of the tool is provided below, and the FPPF program clearly explains how the tool deals with the complexity. In reality all you need to know is:

- Your paddock areas
- Your paddock ratings (relative estimate of quality and quantity of feed)

It is also highly recommended that you have between 15 and 25 grazing areas in the Rotation Right tool for optimum flexibility with pasture allocation.

| Area in Current Rotation | | | | | | Desired Rotation Length (days) | | | |
|--|------|----------------|---------------|-----------|------|--------------------------------|------|------------------------------|---|
| 56.0 Hectares | | | | | | 30 | | 40 | |
| Cow number 168.0 Feed per Ha 1800 | | | | | | 0.93 | | 0.70 | |
| Area to be offered each grazing (d) - Hectares | | | | | | 20.0 | | 15.0 | |
| No of grazings per day 2 | | | | | | Estimated Feeds (e)/(d) | | Estimated Feeds (e)/(d) | |
| Paddock Name and Type | | | | | | Number of feeds from paddock | | Number of feeds from paddock | |
| Paddock Area Details (e) | | Paddock Rating | | | | | | | |
| Identification | Type | Area (ha) | Area in rot'n | Average=5 | | | | | |
| a | PP | 2.0 | 2.0 | 6 | 6 | 2.1 | 2 | 2.9 | 3 |
| b | PP | 2.0 | 2.0 | 5 | 5 | 2.1 | 2 | 2.9 | 3 |
| c | PP | 2.0 | 2.0 | 4 | 4 | 2.1 | 2 | 2.9 | 2 |
| d | PP | 2.0 | 2.0 | 6 | 6 | 2.1 | 2 | 2.9 | 3 |
| e | PP | 3.0 | 3.0 | 6 | 6 | 3.2 | 4 | 4.3 | 5 |
| f | PP | 3.0 | 3.0 | 5 | 5 | 3.2 | 3 | 4.3 | 4 |
| g | PP | 3.0 | 3.0 | 4 | 4 | 3.2 | 2 | 4.3 | 3 |
| h | PP | 3.0 | 3.0 | 6 | 6 | 3.2 | 4 | 4.3 | 5 |
| i | PP | 4.0 | 4.0 | 5 | 5 | 4.3 | 4 | 5.7 | 6 |
| j | PP | 4.0 | 4.0 | 5 | 5 | 4.3 | 4 | 5.7 | 6 |
| k | PP | 4.0 | 4.0 | 4 | 4 | 4.3 | 3 | 5.7 | 4 |
| l | PP | 4.0 | 4.0 | 6 | 6 | 4.3 | 5 | 5.7 | 7 |
| m | PP | 5.0 | 5.0 | 6 | 6 | 5.4 | 6 | 7.1 | 8 |
| n | PP | 5.0 | 5.0 | 5 | 5 | 5.4 | 5 | 7.1 | 7 |
| o | PP | 5.0 | 5.0 | 4 | 4 | 5.4 | 4 | 7.1 | 6 |
| p | PP | 5.0 | 5.0 | 6 | 6 | 5.4 | 6 | 7.1 | 8 |
| | | | | | | 0.0 | 0 | 0.0 | 0 |
| | | | | | | | | | |
| | | 56.0 | 5.17857 | 60.0 | 58.0 | 80.0 | 80.0 | | |

The decision as to when to change the rotation is based on visual observation of the next paddock to be grazed, combined with an understanding of the likely weather conditions over the next few weeks. It is all about making small adjustments as required, rather than trying to make big decision when you are in trouble.

Once built, the Rotation Right tool allows you to confidently stay in control of the rotation length by showing you how many feeds to allocate from each paddock on the farm. The end result is:

- Achieving the right rotation more often (delivering quality feed to the herd)
- Allocating as close as practical to a consistent amount of pasture on a feed to feed basis.

The Rotation Right tool can also be used to manage other grazing issues such as:

- A range of crop types to be grazed on the one farm
- The spring surplus – how much surplus, and how to stay in control of quality

The Body of Evidence

The Body of Evidence puts the farmer in control of selecting the right amount of supplement to achieve the profitable balance between hectare efficiency and cow efficiency. The decision process is based on the use of the Rotation Right tool to get pasture allocation as close as practical to a consistent on a feed to feed basis.

The starting point is to check the rotation length. If the farmer is using the Rotation Right tool and monitoring pasture growth, the current paddock (the next best feed) will be at the ideal stage for grazing, the right leaf stage.

The farmer then makes a series of observations to decide on the need to change supplement level in order to balance hectare efficiency and cow efficiency. A ‘snapshot’ of the Body of Evidence tool is provided below:

| | More likely to increase feeding level | | More likely to decrease feeding level |
|---|---|---|---|
| Rotation length–Feed offered | | Are you offering the cows less or more pasture | |
| Pasture residual-Clumpology | | Not the number of clumps! | |
| Between the clumps | | Target 4-6cm Where did they graze to last time? | |
| Into the sides of the clumps | | Sharp shoulder or rounded? | |
| The tops of the clumps | | Eaten or not? | |
| Supplement use | | | |
| Are they wasting any supplement being offered? | | What is the Quality of the other feed(s) on offer? | |
| Production and condition | | | |
| Milk Production level | | Decreasing, stable or Increasing? (Any sudden changes in herd size?) | |
| Is condition generally increasing or decreasing? | | Decreasing, stable or Increasing? | |
| Cow behaviour | | | |
| What do the cows do when you enter the paddock? | | Run over and bellow or graze quietly? | |
| Do they rush home to the dairy for other feeds (concentrate)? | | Rush home, or slowly walk home | |

Farmers draw on the underpinning knowledge delivered in the Feeding Pastures For Profit program (eg understanding fibre and energy density of feeds, the concept of

milking feed, body condition) and use this to work through the Body of Evidence. Ultimately the farmer can decide to increase or decrease supplement level.

By using this method we never know, nor need to know, the kilograms of feed cow's need or kilograms of pasture on offer. The cows (they may be high producing and high appetite cows, or vice versa) and pasture (it may offer plenty of quantity and quality, or vice versa) interact on the day and both simply show us which way to move.

The Body of Evidence provides the farmer with the best guide to estimating the marginal response to a change in supplement use. The farmer can then check the profitability of the response by making the change. The proof is then provided. The change either improved profit or it didn't (usually indicated by checking the difference between the change in milk income and supplement price).

It must be remembered that the Body of Evidence on its own – without the use of the Rotation Right tool – can be misleading. The Rotation Right tool is working hectare efficiency by ensuring that you are growing and offering the herd as much high quality pasture as your farm can deliver, and it is delivering as close as practical to a consistent amount of pasture on a feed to feed basis. Without these, feeding profit can be compromised in two main ways. Firstly the rotation may not be effective in delivering optimum pasture performance (rotation too short –compromising quantity grown and persistence, rotation too long - compromising quality and persistence) and this will result in a lower hectare efficiency. Secondly if the amount of pasture on offer is varying significantly from feed to feed, we will find it difficult to decide on the right amount of supplement. If pasture is varying significantly from feed to feed, then it will be hard to confidently decide on the real response to the marginal unit of supplement.

For grass quantity and quality into the future the post-graze height must also be considered as part of the Body of Evidence. This observation and decision is made in the paddock that has just been grazed. We do this by observing the tiller height between the clumps, and the proportion of the paddock with clumps of tillers taller than about 5 cm. The underpinning knowledge – the pasture rules – suggest that the post graze height should be kept at 4-6 cm between clumps.

There are always a number of options to correct the post-graze level, all interacting with the rotation length and supplementary feeding decisions. The use of supplements can control the post graze level. Cows may be leaving milking (quality) feed behind, so there is no value feeding more supplement for cow efficiency but if that milking feed is below 5cm there is value for ha efficiency to feed even more supplement. There is often the temptation to use cows remove poor quality feed that is above 5 cm, and this may require less supplement to the cows. Sometimes followers (eg. dry cows or young stock) might be used to remove grass above 5 cm, but is usually not a good option because they will eat below 5 cm between the clumps and probably stay in the paddock long enough to backgraze the recently emerged leaves.

Removing grass by mowing is always an option and often the best method. When the proportion of the paddock above 5cm warrants a number of paddocks might be removed from grazing to make silage.

Summary

Feeding Pastures For profit is a very practical, science based method of achieving feeding profit.

Feeding Pastures For Profit :

- makes the most of your available resources.
- provides the rules – the underpinning knowledge
- helps you move into ‘the zone’ of profitable feeding, and stay there
- provides simple practical tools (Rotation Right, Body of Evidence)

FPPF provides farmers with the skills, tools and confidence to adjust when conditions (either good or poor growing conditions, higher or lower supplement or milk price) change.

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Phil Shannon grew up on a dairy farm in Northern Victoria before completing a degree in Agricultural Science. After a few years of travelling and working (around Australia and overseas) in a range of job areas, he returned home to help on the family dairy farm for several years. During that time the farm expanded and started a rotary dairy.

Phil joined the Department of Primary Industries in 1996 and over the last 10 years has gained expertise in farming systems. A large part of his work has been the development and improvement of the Feeding Pastures For Profit Program. Phil is currently a senior dairy extension officer with the Victorian DPI and leads the Feedbase team.



Frank Tyndall has been closely involved in Victoria's dairy industry for over 20 years, as a dairy farmer in Waaia, a teacher at McMillan College in Sale and the Manager of the dairy industry's email discussion group (VicDaily-L). Recently he left publically funded dairy education and extension to become a Dairy Consultant.

His main expertises are pastures, grazing, feeding dairy cows and farm business/financial management.