

## 12. *Whole-farm factors affecting pasture consumption*

### **Learning outcomes:**

This chapter will help you to understand:

- The farm layout needed to achieve a high pasture consumption.
- The impact of stocking rate, calving pattern and timeliness of management decisions on pasture consumption.

In previous chapters we have discussed how pre-graze and post-graze points, species other than ryegrass, soil fertility, soil moisture, feed planning and fodder conservation affect pasture consumption.

There are often **whole-farm issues**, that cannot be changed readily, which **limit all the above management practices**, and therefore affect pasture consumption.

Common whole-farm limitations include farm layout, stocking rate, calving pattern, and management timeliness.

### 12.1 *Farm layout*

Achieving high pasture consumption requires the farm to be well set up. Any factor that limits the grazing manager's ability to present pasture to the herd at between the target leaf stage of regrowth at every grazing and to have the cows evenly graze the paddock to between 4 and 5 cm will compromise pasture consumption.

A whole-farm planning program is the most appropriate place to start with planning your farm layout, but we will deal with the grazing aspects here.

#### 12.1.1 *Fencing, lanes and gateways*

Good fencing, lanes and gateways, allow convenient grazing:

- Fences must be **stock proof**, so stock stay in their allocated area.
- On most farms **permanent electric fencing** is used, which is quick to install, cheap and makes setting up temporary strip fences easy.
- Farms without permanent electric fences will require **portable energiser units** to power the strip fences.

- Every paddock should have **access directly from a lane**. If cows have to walk through one paddock to reach another paddock, a considerable amount of treading damage and backgrazing will occur, reducing pasture consumption in the thoroughfare paddock.
- To minimise mastitis and feet problems, and save time, **lanes and gateways** should:
  - Be wide and well drained.
  - Be well maintained and **free of mud and stones**
  - Lanes are better running **across hills** rather than up and down them.
  - **Gateways** should be in the **corner nearest the dairy**.

### 12.1.2 *Drinking water supply*

Every paddock should have access to drinking water, preferably a water trough:

- If cows are allowed access to waterways and dams, water quality is compromised, as is herd health.
- If cows are required to walk out of the paddock to get water, they will rarely return to thoroughly graze the whole paddock.
- Each cow will drink up to 100 litres of water per day, so trough size, pipe diameter and water pressure must be adequate.
- Larger troughs, near the dairy exit and in the paddocks, act as a buffer of water supply when there is high demand on the pump and piping system.
- To allow flexibility with grazing management, troughs should be placed about one-third of the distance from the front of the paddock to the back and centred between the paddock sides.

### 12.1.3 *Paddock shape*

The best **paddock shape** is usually rectangular because:

- Rectangular paddocks make more efficient use of laneways.
- A rectangular paddock is easier to divide into more suitable square shapes, whereas a square paddock will divide into long, narrow shapes.
- Cows tend to walk up and down more in long, narrow grazing areas. The walking will cause more damage in wet winters; however, that is the time when rectangular paddocks will be divided into smaller grazing areas, which will tend to be squarer. A rule of thumb for an area to be grazed (paddock or strip) is that the length be no more than six times its width.

### 12.1.4 *Paddock size and number*

Most farms have 20 to 30 paddocks that vary in size. Any number of paddocks and any size can be grazed properly.

However, the following ideas might make grazing management easier, if you were planning a farm from scratch:

- **Equal sized paddocks** make for easier grazing management. Each paddock is divided into the same number of feeds whatever the rotation length.
- **The actual paddock area is almost irrelevant** because such varying allocations are made during a year of different rotations. If a paddock takes more than three days to graze it is getting a bit too big. If less than one feed is provided by a paddock then the paddock is too small.
- **30 to 40 paddocks**, rather than say 10, helps to reduce the amount of strip fencing needed.

## **12.2 Stocking rate**

Increasing stocking rate is often considered to be the quickest and easiest way to increase pasture consumption, but it may not be the quickest and easiest way to increase profitability. Making the decision about what stocking rate to carry is a very significant decision for a farm.

### **12.2.1 Setting the stocking rate too low**

A lower stocking rate means:

- Pasture growth will be surplus to cow requirements, particularly during spring.
- For much of the year, fodder conservation or topping will be needed to remove the surplus pasture.
- More fodder than is actually required by the herd later, will be conserved; this is expensive and time-consuming.
- If conservation or topping is not used adequately, after grazing, paddocks are more likely to be above the ideal post-graze point, with all the resulting short- and long-term problems.

A wasteful method to cope with a low stocking rate is to use fast grazing rotations. Grazing at less than 2 to 3 leaves will produce less pasture. Cows will probably then get the post-graze point low enough.

A quick and effective increase in stocking rate can be achieved by keeping the young stock at home. For Johne's disease management, young stock must be kept on a separate area of the farm to the adult stock; so setting aside an area for the young stock reduces the grazing area for the milking herd and increases the stocking rate on this area.

### **12.2.2 *Setting the stocking rate too high***

A higher stocking rate means:

- For more of the year there will be a pasture deficit.
- More supplementary feed will be required.
- If more supplement is not supplied:
  - For much of the year, pastures will be grazed below the ideal post-graze point, with all the resulting short- and long-term problems.
  - Milk production will be lower, resulting in a greater proportion of the total feed being used on cow maintenance.
- A higher level of management will be required.
- The farm is more exposed to the risks of:
  - A low milk price.
  - A poor season, and the need for even more bought in supplements.
  - High priced supplements.

### **12.2.3 *Stocking rate and infrastructure***

In setting the stocking rate consider:

- Farm labour.
- Vat capacity.
- Dairy, yard and lane capacity.

If there is existing capacity to milk more cows, then this could be a viable option for the farm, and may assist in increasing pasture consumption.

If the farm's infrastructure is already at capacity, increases in pasture consumption can still be achieved without the need to build a bigger dairy, and employ more labour.

### **12.2.4 *Stocking rate and potential pasture consumption***

In setting the stocking rate consider the potential pasture consumption of the farm. A cow, depending upon her size and production and the quality of the pasture, can eat between 3 and 4 tonnes of pasture per year. If potential pasture consumption for the district is 12 tonnes of dry matter per hectare, then stocking rate could be set at between 3 and 4 cows per hectare. Figure 12-1 shows pasture-fed stocking rates based on potential pasture consumption for each region.

**Figure 12-1: Pasture-fed stocking rates based on potential pasture consumption for each region**

Region	Potential pasture consumption (t DM/ ha)	Pasture-fed stocking rate (cows/ ha)
South West	7	1.8 – 2.3
Northern Irrigation	12	3.0 – 4.0
North East	5	1.3 – 1.7
Gippsland (Rainfed)	9	2.3 – 3.0
Gippsland (Irrigation)	12	3.0 – 4.0

**12.2.5 Stocking rate and pasture quality**

It is easier to achieve high pasture consumption with high quality pasture at lower stocking rates.

Low pasture quality requires a higher stocking rate to achieve high pasture consumption. To illustrate:

- Some irrigation farms grow a lot of paspalum in summer, with the high growth rate of 60 kg DM/ ha/ day.
- The pasture is too high in fibre, so each cow might be able to consume only 10 kg DM per day.
- A stocking rate of 6 cows per hectare might be needed to apply enough grazing pressure to utilise the paspalum.
- Such a stocking rate is uncommonly high and would be very difficult to sustain all year.

**12.3 Calving pattern**

Calving pattern includes the start-of-calving date, how concentrated the calving is over time, and the drying-off pattern. Improving or changing a calving pattern takes considerable management and may need a couple of years to effect.

Cows reach peak intake at 10 to 12 weeks after calving. Therefore, changing the calving pattern shifts the herd's feed demand. This is shown in Chapter 11, Yearly feed planning.

Aligning the period of peak herd intake with the period of peak pasture growth in spring will increase pasture consumption.

**If calving date is too early and/ or the calving pattern is concentrated:**

- Pasture growth may not meet cow requirements in early lactation, and high supplement levels will be required.
- If not adequately supplemented, milk production will suffer, and pastures will be over grazed and regrowth will suffer. A pasture surplus will not be achieved until later in the season.

**If calving is too late, and / or the calving pattern is spread out:**

- Cows will not reach peak intake until after the spring peak in pasture growth, and will consume less feed in spring.

#### **12.4 *Management timeliness***

There's an old proverb, of particular relevance to grazing management:

**Q: "What 's the difference between a good farmer and a poor farmer?"**

**A: "About two weeks".**

Timing is a critical factor in pasture management. The following are a number of issues that compromise pasture growth and consumption if timing is poor:

- Changing rotation length.
- Beginning and increasing supplementary feeding.
- Reducing and stopping supplementary feeding.
- Applying irrigation water.
- Taking paddocks out of the grazing rotation for fodder conservation.
- Cutting, raking and baling fodder.
- Applying nitrogen fertiliser.
- Topping.
- Spraying out and paddock preparation for renovating pasture.
- Sowing new pasture seed.
- Booking and organising silage or hay contractors.
- Booking and organising pasture renovation contractors.
- Sourcing and purchasing supplementary feeds.

#### **12.5 *Summary***

Farm layout, stocking rate, calving pattern, and timeliness of management decisions all have an impact on pasture consumption.