

## The role of forages in the Australian Sheep meat industry

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### PRESENTATION OVERVIEW

*Blair's presentation will explain the role forages play in the sheep meat industry along with what is currently used in the Australian marketplace. With many farming systems, there are a wide range of options including alternative forages to maximise meat production. The Corriedale's breed brings versatility to the farming system and Blair will discuss a wide range of forage options and management associated to maximise production and productivity to a sheep meat farming enterprise.*

Australia is the world's largest exporter of sheep meat, which is achieved from more than 30,000 farms and businesses (MLA, 2017). One important factor that a sheep meat producer can manage is the forage/feeding system, which can have a significant effect on productivity and profitability.

The presentation will focus on the role forages plays to maximise meat production, using examples of specific forages and the role they are used in Australian farming systems, with a focus of a lamb production.

There are many factors that affect the quality and growth of the meat from sheep including the age, type, weight and sex to name a few. However, the most significant factor affecting growth and lamb meat is the forage/feeding system. (Agvic, 2018)

The feeding system can affect the animal in many ways, with the presentation focussing on the effect of daily weight gain and farm management to increase daily live weight gain along with increasing stocking rate. So getting an appropriate feeding system to finish lambs is important for optimising the growth rate, and in turn increasing the potential return to the producer. (Agvic, 2018)

For producers, there are many ways to increase productivity and improving the value of the sheep enterprise. Through forage selection and management, forages can provide a higher value meat product, increase the amount of meat per hectare and for the animals to meet market specifications earlier.

### Species fit

In Australia, there are a wide range of forage options available but the success is dependent on many factors which include geographic region, rainfall, soil type and farming system. Over many years sheep have been grazing on ryegrass based pastures which includes perennial (*Lolium perenne*), Italian and annual (*Lolium multiflorum*) ryegrasses.

Just as important in medium to lower rainfall grazing zones of Australia are perennial grasses such as Phalaris (*Phalaris aquatica*) and Cocksfoot (*Dactylis glomerata*). Other forages that provide valuable feed also include Lucerne (*Medicago sativa*), Clovers (*Trifolium spp.*), Forage brassicas (*Brassica napus*) and specialist forages such as Chicory (*Cichorium intybus*) and Plantain (*Plantago lanceolata*).

The presentation will break down each forage and explain the benefits to the producer through maximising productivity and efficiency in the farming system.

Animal performance from perennial ryegrass can vary due to cultivar selection alone. Historically, the cultivar Victorian ryegrass was a large part of grazing farms in southern Australia. More recently

there has been a shift away from traditional type perennial ryegrasses to newer, bred perennial ryegrasses.



Figure 1. Lamb finishing system using different perennial ryegrass. PGGWrightson Seeds, Ballarat, Victoria (photo taken: December 2015)

Figure 1 shows two perennial ryegrasses under a lamb finishing system. On the left is Victorian ryegrass and on the right is a late heading, North West Spanish germplasm derived perennial ryegrass. Live weight gain over three years is being measured and results will be discussed.

The use of clover in mixed pasture swards is also widely used in Australian grazing systems. Legumes not only increase the quality of the forage on offer through the clover itself, it also provides Nitrogen to the other species in the pasture mix, increasing growth.

Other forage species that are well suited and adapted to Australian conditions are Phalaris, Lucerne and forage brassicas.

Phalaris is an excellent deep-rooted perennial grass for sheep enterprises of southern Australia. There is between 2.7-4.5 million hectares of phalaris based pasture Australia-wide. It has high autumn-winter-spring production and excellent drought survival, making it important and well suited to Australian conditions.

Lucerne is a very popular and well suited species to Australia. Many farming systems use Lucerne to finish lambs on, due to producing high animal growth rates during spring and summer periods. Lucerne is a deep rooted perennial legume suited to dryland and irrigation systems on a range of soil types across variable climatic conditions. It is high quality, very digestible forage which is drought tolerant, however it will not persist well on acid or very wet soils.

Forage brassicas have increased in areas sown over the last 10 years. They provide high quality, valuable feed with high digestibility, energy, and protein. The metabolisable energy content ranges from 11-14MJ ME/kg Dry Matter. Forage brassicas can produce excellent livestock weight gains, for example in the range of 150- 300 grams/head/day, under best practice management.

When spring sown in southern Australia, forage brassicas are actively growing during the summer months when most other pasture paddocks have dried off and are providing little to no amount of feed other than animal maintenance at times.

The management of the forages is important to maximise production from stocking rate and maximising feed intake through grazing.

### **Feed quality**

One main limiting factor to lamb growth is feed quality. Increasing the speed and reliability of lamb growth rates can be achieved by using specialist crops such as red clover, chicory, lucerne and plantain.

Rapid live weight gain for lambs to meet target weights is a key driver of increasing profitability for many grazing farming systems. While the amount of feed consumed is important in meeting these target weights, feed quality is the main limitation to rapid live weight gain. Farmers want to maximise the live weight gain of lambs from birth to sale.

Some farmers can grow lambs at 300 grams/head/day or more on specialist feeds like red clover, chicory, Lucerne or plantain. Pasture feed lambs can achieve 200 grams/head/day growth but most only achieve average gains of 100 grams/head/day post-weaning. The low post-weaning lamb growth rates are often caused by a lack of feed quality of ryegrass over summer.

Feed quality usually refers to the ME (Metabolisable Energy), how much energy (MJ of metabolisable energy) is provided by 1 kg (dry matter) of a given feed. Feed quality has two main effects; firstly it determines how much energy an animal obtains from the amount of total feed eaten, and secondly it determines the maximum amount of feed lambs can eat each day as low quality feed is harder to digest and takes longer to pass through the rumen reducing intake. The animal cannot eat as much per day regardless of the amount offered. Protein is also important for meat growth, and can be limiting in grass in summer and autumn.

The use of specialist crops is a method of maximising live weight gain more reliably. All of these crops have a much higher feed quality than ryegrass over the important summer period.

One alternate forage species used to maximise lamb live weight gain is the use of pure stand plantain. Specifically bred plantain (such as Tonic) has been proven to lift the live weight gain of lambs and ewes, post lambing in order to achieve higher weaning weights. Tonic passes through the rumen of animals faster to increase the total amount of feed eaten per day, thus increasing the live-weight gain of animals grazing Tonic. Milking ewes grazing Tonic produce more milk when compared to ewes grazing ryegrass, increasing lamb live-weight gain.

Chicory is another species classified as a perennial herb. Lambs have been achieving higher growth rates compared to ryegrass and the main reason is due to the herbs (chicory and plantain's) ability to break down the forage consumed in the rumen quicker. Meaning that the animal is being more efficient in the rumen, to consume more feed, quicker, to then turn into meat.

In summary, there are many forages available and used under a grazing system in Australian and they all can have a fit within a particular farming system. Phalaris (with clover) and Lucerne are well suited to Australian conditions as a perennial long term pastures, whilst specialist crops such as Chicory and Plantain can provide rapid live weight gain for lambs.. A key driver behind many sheep meat farming systems is to produce more meat per hectare, and doing so in a timely manner to increase efficiency and productivity.

## **Resources**

(PGW, 2018) Mason, Derek- PGGWrightson Seeds Research agronomist animal live weight gain trial

(MLA, 2017) [https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/fast-facts--maps/mla\\_sheep-fast-facts-2017\\_final.pdf](https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/fast-facts--maps/mla_sheep-fast-facts-2017_final.pdf)

(Agvic, 2018) Specialist Forages Lamb Finishing Guidelines

<http://agriculture.vic.gov.au/agriculture/livestock/sheep/specialist-forages-lamb-finishing-guidelines>