

Benchmarking the High Performance Pasture system with producers

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What are High Performance Pastures (HPP)?

HPP's have evolved over the past ten years in the New England and other favourable areas in NSW and Qld. The best description or definition I have seen to describe them is: "HPP's are a special purpose pasture with potential to replace the traditional winter fodder crops (oats) in the high rainfall New England".

The pastures effectively fill the winter feed gap and allow livestock to continue to gain in weight during a period when they have traditionally only maintained or even lost weight on unsupplemented pastures. The pastures include a combination of ryegrasses, clovers and herbs including chicory and plantain.

With this definition in mind, HPP's have developed over time with the introduction of new cultivars and new species during the past ten years. The initial HPP's were based on an Italian ryegrass (Conquest, Concord or Eclipse), Perennial ryegrass (cultivar depending on environment), White clover (predominantly Haifa), Red Clover (USA red), and Puna chicory.

Currently with the introduction of many new cultivars the HPP has changed to using many of the new cultivars:

| | |
|-----------------------|------------------------------|
| Italian ryegrasses: | Conquest, Concord, Eclipse |
| Hybrid ryegrasses: | Maverick, Marbella, Galaxy |
| Perennial ryegrasses: | Lincoln, Samson, Fitzroy |
| White clover: | Haifa, Huia, Nusiral |
| Red clover: | USA, Hamua, Astred |
| Herbs: | Puna chicory, Tonic plantain |

Why all the different cultivars?

The objective of an HPP is to produce weight gain on 365 days per year! Gone are the days of accepting weight loss from June to September due to quality (protein & digestibility) and quantity (dry matter supply) being inadequate, and poor weight gains in December and January due to poor quality (protein & digestibility) (Figure 1).

Work carried out by Ayres and Dicker, NSW Agriculture Glen Innes (Beef CRC), showed some encouraging results to enable the feed deficit in winter to be overcome by using grass species in preference to supplements. This was supported by the practical experience being gained by graziers in the New England at the same time.

The use of this mix of pasture species and cultivars has enabled weight gain to be realised year round (see Prograze Manual Appendix 4, Page 4).

What does year round production mean to a grazier?

There are some major benefits in weight gain year round:

- 1) Stock finished earlier
- 2) Cash flow improved
- 3) Meeting specifications
- 4) Value adding the enterprise(s)
- 5) Option to outsource stock

- 6) Increase breeder numbers
- 7) Self satisfaction
- 8) Flexibility to unload stock(sell)

Figure 1 outlines an example of a “traditional” system in the New England compared to the HPP system using the simplest comparison, namely a beef weaner operation (the most commonly used HPP system). If we go through each of these points they will reveal the real success of the HPP system.

As can be seen by this example, the options available to the grazier under the HPP system are far greater. There is increased cashflow as the cattle can be sold into more markets faster. If the stock are sold earlier there are further opportunities to increase breeder numbers or outsource stock to finish.

Figure 1. HPP vs Traditional Pathways - weaner steer 250 kg liveweight in May

| High Performance System | | Traditional System | |
|-------------------------|--|--|---|
| | ↓ May to August 120 days Weight gain 0.5 kg/hd/day | | ↓ May to August 120 days Weight gain 0kg/hd/day |
| Domestic ⇐ | ↓ Steer 310 kg | ↓ Steer 250 kg | ⇒ Store |
| | ↓ September to November 90 days 1.5 kg/hd/day | ↓ September to November 90 days 1 kg/hd/day | |
| Feeder Korea Hotel ⇐ | ↓ Steer 445 kg | ↓ Steer 340 kg | ⇒ Domestic |
| Hotel EU Jap Ox ⇐ | ↓ December to February 90 days 1 kg/hd/day | ↓ December to February 90 days 0.5 kg/hd/day | ⇒ Domestic |
| Hotel EU Jap Ox ⇐ | ↓ Steer 535 kg | ↓ Steer 385 kg | ⇒ Feeder Korea Hotel |
| Jap Ox ⇐ | ↓ Steer 625 kg | ↓ Steer 490 kg | ⇒ Hotel |
| | ↓ Finish other stock 90 days | ↓ Carry over winter – no gain. Discount on age. | |

What are the costs involved in the HPP system?

Table 1. Establishment costs (based on contract)

| Preparation (Direct Drill) | Maintenance Year 1 | Maintenance Year 2 (3 & 4) |
|---------------------------------|-----------------------|----------------------------|
| Herbicide/Insecticide = \$48/ha | Fertiliser = \$124/ha | Fertiliser = \$185/ha |
| Contract Spraying = \$30/ha | | |

Direct Drilling = \$62/ha
 Seed = \$110/ha
 Starter fertiliser = \$67/ha
 Total = \$320

Table 2. Fertiliser Applied to HPP systems (vary depending on soil tests)

| | Nitrogen kg/ha | Phosphorus kg/ha | Potassium kg/ha | Sulfur kg/ha |
|-------------------------|-------------------|---------------------|------------------------|-----------------|
| Sowing | 18 | 15 | 0 (unless required) | 15 |
| Maintenance (Year 1) | 58 | 14 | 12 | 8 |
| Maintenance (Year 2) | 90★ | 21● | 18● | 12● |

★ Depending on clover composition

● Assuming P,K & S levels are satisfactory & stocking rate = 20 DSE/ha

Why Benchmark the HPP system with producers?

- 1) As inputs and maintenance costs are high (usually 25 – 50% higher than traditional pasture establishment) it is important to monitor and assess the system.
- 2) Benchmarking helps producers to gain valuable experience and expertise in managing the system to ultimately make higher profits and meet market specifications.

What production is possible from the HPP system?

Experience to date has shown that the following results have been achieved:

750mm rainfall – 750 kg/ha/year of beef

1250mm rainfall – 1250 kg/ha/year of beef

OR

100 kg/ha/100mm rainfall

Usually the HPP system can produce 3 times the production (kg/ha beef) of the traditional pasture system.

It is important to understand that by simply planting HPP does not ensure that these results can be realised. Management (establishment, nutrient, grazing & stock selection) is critical to ensure the results can be achieved.

References

PROGRAZE manual (2000), Fifth edition, NSW Agriculture.