

Horse Keeping on a Budget
Presentation Notes for Horse SA
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1. Introduction

Small properties can consume a lot of money, so landholders need to be careful and not waste money. Seeking appropriate advice to ensure activities are successful will, in the long run, save money.

For example applying fertilizer without firstly soil testing can be costly and perhaps unnecessary, not all pastures need to re-sown just because your neighbour suggest it should, and buying cheap hay is often a false economy.

2. Soil Testing (cost \$100 to \$130 per sample)

Why do a laboratory soil test?

Accurate determination of nutrient status and acidity of the soil.

Can monitor changes over time

Avoids wasting money (on wrong fertiliser or too much etc)

Avoids excessive fertilizer creating environmental damage.

How to take a soil sample?

Pick a uniform area

Use a soil sampler to take 30-40 core-samples, mix in a bucket, put in a bag.

Keep a sample

Send a sample to agent/agronomist

If soil pH is < 5.0 in CaCl₂, add lime

Example:

To raise pH by 0.5 unit (target 5.2). Lime rate = 0.5×3.25 (s/loam soil factor) = 1.6 t/ha

If target 5.5: Lime = $0.8 \times 3.25 = 2.6$ t/ha

Lime: \$15 to \$40/tonne (ex GST). Use low cost if no Magnesium required

Transport \$15 to \$20 per tonne of lime (ex GST).

Spreading \$15 per tonne (ex GST).

Hay making requirements

The nitrogen (nitrate test) can only be an indication since nitrogen is so mobile in the soil. As a general rule most established pastures will benefit from additions of nitrogen if cutting hay.

Potassium will also need to be replaced (10kg of potassium per tonne of hay is removed

when hay cutting). 10 to 20kg/ha of nitrogen could be applied approximately 8 weeks prior to

cutting hay. If using a hayboosta fertilizer (12:5:24:5), apply 80 to 160 kg/hectare. Note:

potassium and some phosphorus and sulphur will also be added.

3. Fertilizer Costs

Single Superphosphate (9% P) \$380/tonne.

Urea (46% N) \$580/tonne

Mono Ammonium Phosphate MAP (10%N, 22%P) \$800/tonne

Liquid Manganese/Copper (14.5/1.0%) \$375/200litres

4. Assessing Hay

Good quality hay should:

- be green in colour - not yellow
- be sweet smelling
- have good legume leaf (watch for too much stalk in lucerne)
- be free of weeds and weed seed heads
- be pliable but not brittle
- have pasture grass seed heads which are flowering not have advanced seed.
- should have the seeds at the watery ripe stage for cereal oaten hay.

5. Testing Hay

Visually assessing hay will eliminate very poor quality hays. However, if an accurate nutritional value is required hay must be tested in a laboratory.

The following laboratory will test hay.

FEEDTEST 260 Princes Hwy, Werribee VIC 3030

Phone: 1300 655 474 1300 655 474 (toll free) Fax: (03) 9742 3344

Email: feed.test@agrifood.com.au

Costs \$50 to \$80 per sample (1 to 3 days)

The following figures are average test results from 'FeedTest Company' 2010.

Grass legume hay (mainly grass): 10.4% c. protein; 62.3% DMD; 9.1ME MJ/KgDM

Cereal Hay (oaten): 6.3% crude protein; 59.9% DMD; 8.7ME MJ/KgDM

Once digestibility (DMD) declines below 65% for lactating stock and 55% for dry stock, then, no matter how much pasture is available, these stock are likely to experience unsatisfactory performance levels, i.e. increasing weight loss.

6. Improving pastures

Use a number of management techniques and *don't just rely on chemicals:*

- soil test & add fertilizer (and lime if soil acid) to encourage strong plants
- rotationally graze (12cms to 5cms)
- do not overgraze (avoid bare patches)
- oversow with grass & legume to thicken pastures rather than re-seed from scratch
- hardgraze in Spring to reduce seed set of annual grasses such as barley grass
- rotate hay paddocks to avoid a build up of annual grasses
- monitor weeds and pests, consider patch spraying only
- encourage predator insects
- use low toxicity insecticides and herbicides where possible

7. Chemical Costs

(a) Wetters

Pulse 5L = \$250

Chemwet 5L = \$60

(b) Herbicides

Tigrex 5L = \$170

Kamba M (Dicamba and MCPA) 5L = \$92

Roundup (glyphosate) 5L \$80

Garlon 600 5L = \$250

Jaguar 20L = \$630

Tigrex 20L = \$425

Brushoff 200g = \$40

(c) Fungicides

Mancozeb 20kg \$195

8. Grazing Principles

Calculate a suitable stocking rate for the property

Rotationally graze from paddock to paddock

Graze pastures when 12cms high

Rest when 5cms in height

With semi-intensive systems use a day yard or stable to restrict grazing time. This is especially so if paddocks are small (i.e. 0.4 to 0.8 hectares).

9. Nutritional Values of Hays and Grain

Feed	Dry Matter %	Energy (MJ/kg DM)	Protein % (of dry matter)
Barley grain	90	12.5	10
Oats grain	90	10.0	8
Lupins grain	90	12.5	30
Faba beans grain	90	12.5	23
Oaten hay	90	9.0	6.0
Pasture hay (grass dominant)	90	9.5	10.0
Pasture hay (clover dominant)	90	9.0	14
Lucerne hay	90	8.5	15 to 25
Wheat straw	90	6.0	3.5
Silage (good)	40	10.0	18

10. Livestock Feed Requirements

General Livestock Energy and Protein Requirements

Class of Animal	Energy Needed (MJ per day)	Protein %	% of Live weight (kg) can eat/day
Adult dry sheep (60kg)	5.0	8	2.0
Pregnant ewes (last 6 weeks)	8.5	13	2.8
Lactating ewes (1 st 2 months)	14.5	14	4.2
Weaner sheep (< 35 kg)	5.5	15	3.8
Dry Cows	41	8	1.8
Lactating cows (1 st 3 months)	97	14	3.5
Lactating & pregnant cows (4-7 months)	105	14	3.5
Weaned calves	50	15	2.5

11. How Much to Feed

Energy requirements for horses at various levels of work

Weight (kg):	400	500	600
Energy (MJ) required for maintenance per day:	58	68	79
Additional energy (MJ) required per hour for:			
Walking	0.84	1.05	1.26
Slow trotting, some cantering	8.4	10.5	12.6
Fast trotting, cantering, some jumping	21.0	26.2	31.4
Cantering, galloping, jumping	38.5	48.1	57.8
Strenuous activity (polo, racing at full speed)	65.3	81.6	97.9

Example 1: One 400 kg horse

Average to good quality hay (9.8 MJ/kg, 10% crude protein, 90% dry matter)
Energy needs are 58.0MJ per day

Calculation

$$58.0\text{MJ} \div 9.8\text{MJ/kg} = 5.92\text{kg}$$

To allow for only 90% dry matter in the hay

$$5.92\text{kg} \times 100 \div 90 = 6.58\text{kg per day of good quality hay.}$$

Feed required 6.58kg/day

Example 2: One 400kg horse

Poor quality hay (7.0 MJ/kg, 7% crude protein, 90% dry matter)
Energy needs are 58.0MJ per day

Calculation

$$58.0\text{MJ} \div 7.0\text{MJ/kg} = 8.29\text{kg}$$

To allow for only 90% dry matter in the hay

$$8.29\text{kg} \times 100 \div 90 = 9.2\text{kg per day of poor quality hay.}$$

Note: Horses will not necessarily eat this amount of hay due to the poor digestibility of the feed.

Feed required 9.2kg/day

Note: Horses require about 8.0 to 10.0% protein in their feed.

12. Hay Prices August 2010

Figures are \$ per tonne delivered (ex GST)

Region	Lucerne	Vetch/ oats	Medic/ clover	Cereal Hay	Cereal Straw	Pea Straw	Ryegrass hay
Adelaide Hills	310-400	160-195	170-210	190-225	125-145	130-165	170-210
Fleurieu Peninsula	290-400	140-180	160-215	185-210	120-135	130-155	170-220

13. Calculating costs per unit of energy and per unit of protein

Example 1: Lucerne hay (90% dry matter)

Cost per tonne \$350 (i.e. 38.9cents per kg)

Energy value = 8.5MJ/kg dry matter

Cost per MJ = $38.9\text{c} \div 8.5\text{MJ} = 4.6\text{cents/MJ}$

Protein value = 17% crude protein

Cost per kg protein = $\$0.389 \div 0.17 = \$2.29/\text{kg}$ of crude protein

Example 2: Oaten hay (90% dry matter)

Cost per tonne \$190 (i.e. 21.1cents per kg)

Energy value = 9.3MJ/kg of dry matter

Cost per MJ = $21.1\text{c} \div 9.3\text{MJ} = 2.27\text{cents/MJ}$

Protein value = 5.8% crude protein

Cost per kg protein = $\$0.211 \div 0.058 = \$3.64/\text{kg}$ of crude protein

14. Establishing New Pastures

Assess the quality of pasture before deciding to re-seed.

Year 1

Control weeds / soil test in Summer (lime in Autumn if needed)

Year 2

Graze down pasture to 3cms in Autumn/glyphosate and re-seed after opening rains/control red-legged earth mites/avoid overgrazing/let grasses seed before grazing

Do NOT cut hay in first year of a permanent pasture

15. Indicative Costs of Establishing a New Pasture

Example: 10 hectares, non irrigated perennial pasture (650+mm p.a.) with dense guildford grass and capeweed.

Spraying

Tigrex + contractor rate \$125/hr	= \$440
Brushoff + contractor rate \$125/hr	= \$250
Glyphosate + contractor rate \$125/hr	= \$425

Liming

Lime 3t/ha @\$60/t spread	=\$1,800
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Seeding

Seed \$12/kg @25kg/ha	=\$3,000
Contractor rates \$100/hr	=\$1,000

Fertilizer

150kg/ha superphosphate (\$380/t)	=\$570
Contractor spreading costs \$25/ha	=\$250

<i>Soil test</i>	=\$110
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Total	=\$7,845
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Total/ha	=\$785
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16. Seed Costs

Balansa clover \$4.00

Medic \$6.00

Subterranean clover \$5 to \$7.50

Lucerne \$10.00

Kikuyu \$66.00

Cocksfoot \$16.00

Perennial ryegrass \$7.00

Annual ryegrass \$2.20

17. Pasture Mixes (350 to 450mm p.a.)

Short term Italian Ryegrasses are commonly sown with a medic where perennial pastures are not successful.

The following are examples used by farmers in cereal growing areas of SA :

Example 1 (Hay mix)

Oats – Wallaroo 40kg/ha

Tetrone ryegrass – 17kg/ha

Medics (Parabinga, Parragio and Caliph) – 5kg/ha

Example 2 (Hay mix)

Tetrone ryegrass – 17kg/ha

Clover –Balansa – 3kg/ha

Example 3 (Hay mix)

Tetrone ryegrass – 10 to 15kg/ha

Medics (Cavalier, Parabinga, Parragio or Caliph) – 5kg/ha

Lucerne – 2kg/ha

Example 4 (self regenerating annual ryegrass no ARG)

Safeguard ryegrass – 10 to 15kg/ha

Medics (Cavalier, Parabinga, Parragio or Caliph) – 5kg/ha

Lucerne – 2kg/ha

18. Pasture Mixes (Low rainfall with some irrigation)

Kikuyu is a perennial prostrate grass which spreads by runners.

Late Spring, Summer and Early Autumn are the main growing season. Will dry grow with 700mm per annum, but irrigation during Summer encourages good cover.

Will tolerate a range of soil types (both alkaline and acid).

Best established by seed sown in Spring.

Sowing rate: *Kikuyu* (Whittet variety) 1 to 2 kg/ha

Can also sow with balansa clover or strawberry clover 3kg/ha

19. High Rainfall (>650mm p.a.)

Example: Non Irrigated Perennial Pasture (650+mm p.a.)

On heavier soils such as loams or clay loams, a mixture of perennial ryegrass and subterranean clover is traditionally used.

The following pasture is suitable for high rainfall areas of the Mt Lofty Ranges.

Perennial ryegrass @ 15kg/ha (Ausvic 20%, Bronsyn AR1 20%, Avalon AR1 20%).
Subterranean clover @ 10kg/ha (Goulburn 10%, Trikkala 10%, Denmark 10% and Seaton Park 10%).

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