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FEEDING FOR PERFORMANCE

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EXCESS PROTEIN
IS IT ADDING SECONDS TO
YOUR HORSES TIME?

OVER 90% OF PERFORMANCE HORSES
ARE UNDERPERFORMING DUE TO
THEIR DIET - ARE YOURS?

THE SIGNS OF
IMPROPER
NUTRITION ARE
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THEY'RE
NORMAL



MAKE FEED YOUR ADVANTAGE FOR IMPROVED PERFORMANCE

FEEDING FOR PERFORMANCE

The purpose of this brochure is to assist trainers in improving the mental and physical health and wellbeing of their horses. This results in improved performance. This brochure will outline common illnesses and diseases and the signs that indicate a nutritional problem in the diet.

CLINICAL SIGNS OF IMPROPER NUTRITION

Unfortunately, the clinical signs of improper nutrition and management are so common that they are deemed normal or in many cases they are dismissed. In reality, improper nutrition and management can reduce performance by producing the signs listed below.

- Poor doer / poor feed conversion
- Poor hoof quality
- Poor coat
- Decreased resistance to infection
- Nervous / excitable behaviour
- Reduced performance
- Anaemic
- Picky eater
- Suppressed / reduced appetite
- Eating hay in preference to hard feed
- Eating bedding, dirt, timber
- Cribbing
- Windsucking
- Weaving
- Training off
- Aggression at feed time
- Teeth grinding
- White sweat
- Strong ammonia smelling urine

TEN COMMON FEEDING PRACTICES THAT ARE PROVEN TO REDUCE PERFORMANCE

1. Inadequate forage supply

It has been argued that forage provides a weight handicap to racehorses and that forage should be decreased leading up to race day. The basis of this argument was from a study of four thoroughbred type geldings in light to moderate work that resulted in an average body weight of 10kg more on the forage diet (diet A) compared to the 50% forage 50% concentrate diet (Ellis et al 2002) (diet B). More recently, a study of twelve adult standardbred horses in training concluded that the small increase in bodyweight on diet A compared to diet B diminished with feed deprivation overnight and that high

energy forage diets could be used as an alternative to high grain diets for athletic horses (Connysson et al 2010). Research has also shown that racehorses fed 100% forage diets had comparable performance but lower blood lactate and higher venous pH after exercise than horses fed a cereal and forage diet (Jansson et al 2012). This shows that the horses were able to perform aerobically which means it takes longer to fatigue and reduces stress and recovery. Feeding bicarbonate (milkshakes) to counteract acidosis has been a common practice and this study shows that this effect can be achieved naturally by feeding a forage diet. Low quality (mature and stemmy forage) has been shown to increase the heart rate in exercising

horses and also holds more water, resulting in a weight disadvantage and impairs performance (Ellis et al 2002). No such negative relationship has been found when feeding a high quality forage. Leafy forage is more digestible, has higher protein, holds less water and helps to replenish muscle and glycogen reserves (Connysson et al 2010). Studies into feeding leafy high quality forage have reported no significant rise in body weight or heart rate during exercise (Jansson et al 2012). Further to this, horses that have reduced forage intake triple their risk of colic (Hudson et al., 2001). In conclusion, high performance trainers should be looking at forage as the primary carbohydrate source for horses

in training and should be feeding concentrates only when required. Selecting a quality forage source is key. The grass species is less important than the stage of growth. Any appropriate seed or meadow hay that has been well conserved with a high proportion of leaf to stem is best. Further to this, inadequate forage has been directly linked to gastric ulcers and acidosis.

2. Incorrect forage selection

Selecting lucerne or alfalfa products as the primary forage source may cause two issues that reduce performance: excess protein and an unbalanced calcium:phosphorus ratio that may result in enteroliths. Grassy forage high in lignin also reduces digestibility and nutritional value. Choose forage that is less mature and soft to touch. Choose a hay with up to 50% lucerne/alfalfa content in preference to a 100% lucerne/alfalfa forage.

3. Inadequate or imbalanced mineral supply (including electrolytes)

A broad spectrum mineral and electrolyte supplement is critical for performance horses. A broad spectrum supplement is preferable to adding several supplements as often there is an overlap in minerals which can change the balance and affect the absorption of other minerals. Whilst ensuring that a horse receives adequate levels of minerals is very important, the balance between these minerals is also an important aspect of mineral supplementation. Analysis of an individual mineral in the diet may indicate adequate levels are being achieved. However, if it is not correctly balanced with the other minerals in the diet it can result in a relative deficiency. Minerals are

grouped into two categories - macro minerals (required in grams per day) and trace minerals (required in milligrams per day). Macro minerals include phosphorus, sulphur and the electrolytes calcium, sodium, potassium, magnesium and chloride. Trace minerals include cobalt, copper, zinc, manganese, iron, iodine and selenium. Feeding a broad spectrum mineral and electrolyte supplement that has balanced ratios of these minerals takes out the guesswork associated with homemade mineral blends and avoids any crossovers when supplementing with more than one product.

Research shows that over 90% of performance horses suffer from ulcers and of these, less than 50% show clinical signs

4. Inadequate Vitamin supply

Whilst only required in small amounts, vitamins are vital for many bodily functions including vision, immunity, growth, bone development, blood clotting etc. Vitamins are classified into two categories; fat soluble (A, E, D & K) and water soluble (C, B Complex).

Fat soluble vitamins are stored in the body and transported in blood. Vitamin D is obtained from sun cured forages and from access to direct sunlight for as little as 20 minutes per day. Vitamin D is stored in the body. Horses that have access to paddocks and direct sunlight during spelling periods will store the excess Vitamin D obtained over these periods for use when access to direct sunlight is limited. Vitamin A may require supplementation particularly when green pasture is unavailable. Vitamin E is an antioxidant and recommended to be added to the diet along with selenium. Vitamin

K is manufactured in the gut. Symptoms of Vitamin K deficiency have appeared in horses that have eaten mouldy sweet clover hay and horses that are given warfarin for therapeutic purposes.

Water soluble vitamins dissolve easily in water and need to be supplied daily. Unlike humans that require Vitamin C supplementation, horses synthesise Vitamin C in their liver. B group vitamins need to be supplied regularly and are produced by microbial synthesis in the large intestine. A disruption to the large intestine (inappropriate diet, high starch diet etc.) can affect the production of B group vitamins. Most horses in light work do not require supplementation with B group vitamins or vitamin C. Horses in hard work may require supplementation of Folic Acid and Vitamin B1. Horses on a poor diet of high concentrate and low forage levels may require supplementation with other B group vitamins due to the reduced function of the gut. It is likely horses in this situation would also be suffering from other clinical signs including poor feed conversion, poor hoof quality, decreased resistance to infection, nervous or excitable behaviour, finicky appetite, reduced appetite or reluctance to eat hard feed in preference to eating forage or stable bedding. Choosing a vitamin supplement that has Vitamin A, E, B1 and Folic Acid is important to achieve optimal performance.

5. Over Supplementation

This issue is prevalent amongst high performance horses as owners often add supplements and extras in the feed. Over supplementation is the result of adding incompatible feeds and/or supplements where overlaps occur resulting in excessive intake of one or more nutrients.

All horses have six basic nutritional requirements. These are: water, carbohydrates, fats & oils, protein, minerals and vitamins. Table 1

shows how each nutrient can be provided through a variety of products including a high performance racing mix, forage, chaff, pasture, cereal grains, oil, protein meal and a variety of supplements.

As table 1 illustrates by adding a supplement to the high performance racing mix it can result in over supplementation as the ingredients are duplicated. This table also shows the overlap of supplements that target specific areas of the horse, for example feeding a hoof supplement and calmer is duplicating magnesium and zinc. If you were to feed an electrolyte, a hoof supplement and a blood building supplement there would be duplication in phosphorus, magnesium, Folic Acid and Vitamin B12.

In reviewing table 1 it is clear to see why high performance racing mixes are so prevalent in the racing industry. They provide carbohydrate, fats & oils, protein, a range of macro and trace minerals, electrolytes, salt and vitamins.

The inherent weakness of products with fixed nutrient ratios means that in feeding the recommended quantity, a horse may receive an over or undersupply of nutrients. Adjusting the feeding ration to suit one nutrient will alter the intake of the other nutrients. Incorrect levels of protein, excess starch, type of energy source, inadequate minerals and vitamins can all lead to decreased performance. The alternative to a high performance mix is to provide a meal of straights with a supplement like Equilibrium or LexveT. This allows complete customisation of each horses feed, giving trainers the ultimate control over their horses feed. As Table 1 illustrates forage provides all groups of nutrients. Cereal grains can be used to top up carbohydrates, oil is used to provide extra fat, and full fat soybean meal tops up protein, Equilibrium and LexveT supplements provides a broad range of macro and trace minerals as well as selected vitamins. When

horses are fed a forage based diet with minimal concentrates they are able to produce their own B group vitamins, Vitamin K and Vitamin C.

6. Excess Protein

For high performance horses, an optimal amount of protein needs to be fed. Inadequate protein reduces performance as does overfeeding protein. Research shows that excess protein increases race times (slows horses), with every 1kg of excess crude protein in the diet adding 1 – 3 seconds to the race time (Glade, 1983). Research in other performance horses indicates excess protein should be avoided because of the effects on water intake, urea and ammonia metabolism (Meyer, 1987).

Protein is vital for life and has numerous functions. It consists of chains of amino acids that are classified into two groups essential (required in the diet) and non essential (synthesised by the horse). Protein digestion begins in the stomach and there is further digestion and absorption in the small intestine.

Excess protein in the diet is characterised by a strong ammonia smelling urine and/or a thick lathery white sweat. All performance horse trainers should aim for clear watery sweat and clear low smelling urine.

Soybean meal and alfalfa are good quality protein sources for horses, as both contain good levels of essential amino acids. Keep in mind that young growing performance horses will benefit from a higher percentage of protein in their diet than mature performance horses.

Prepared feed mixes can be inappropriate due to the fixed ratios of protein, energy, vitamins and minerals. Feeding less than recommended levels reduces vitamin and mineral intake which is undesirable and can impact performance.

7. Excess Starch

Research by McLean in 2000 indicated that a maximum

starch level of 2g/kg body weight per meal was tolerated by horses. In 2008 research by Vervuet halved the maximum starch level to 1g/kg body weight per meal. What should we make of this? The way a horse digests and utilises its feed has remained the same - it is our knowledge and understanding that is improving over time. The research in 2009 indicates that a 500kg horse should receive a maximum of 1.2kg of oats, or 900g of barley, or 700g of corn per meal. See table 2 with specific reference to body weight and maximum starch intake. Excess starch is linked to ulcers, acidosis, laminitis and tying up.

8. Inappropriate energy source selection

Energy requirements for a horse in very hard work is up to 90% higher than that of a horse resting. Stayers have higher total energy demands than sprinters. Sprint races are mostly run anaerobically and for this the horse uses glucose and muscle glycogen as fuel. Stayers run longer distances and use a combination of aerobic and anaerobic energy. Energy sources include fibre, starch, fats and oils. Grass, hay and sugar beet pulp are all high in dietary fibre and are the most suitable energy sources for horses. Starch is a carbohydrate source found in many plants. High levels of starch are found in cereal grains (40-70%) and horses can only digest limited amounts in the small intestine. Excess starch travels to the large intestine causing digestive disturbance resulting in various conditions including colic, acidosis and laminitis. Horses fed more than 2.5kg of concentrates per day are five times more likely to experience colic than horses on 100% forage diets (Tinker et al., 1997). See table 2 for maximum starch levels per feed. As research has indicated feeding forage that is metabolised aerobically can increase time to fatigue and allow a horse to gallop longer (Jansson et al 2012). The

Table 1 - Over Supplementation Guidelines

	High Performance Racing Mix	Combination of straights satisfying requirements						Targeted Supplementation				
		Roughage, Chaff, Pasture	Cereal Grain	Oil	Full Fat Soybean Meal	Equilibrium LexveT	Horse produces	Calmer	Blood Building	Hoof	Electrolyte	
Carbohydrate	✓	✓	✓									
Fats & Oils	✓	✓	Limited	✓	✓							
Protein (Amino Acids)	✓	✓	Limited		✓					✓	✓	
Minerals												
Calcium	✓	Variable depending on weather conditions, stage of growth, soil content, pasture type etc.	Imbalanced Ca:P ratio			✓					✓	
Phosphorus	✓					✓			✓			✓
Magnesium	✓		Limited considering quantities required to reach recommended dietary intake			✓		✓			✓	✓
Sodium	✓					✓						✓
Chloride	✓					✓						✓
Potassium	✓					✓						✓
Iron	✓					✓				✓		
Manganese	✓					✓						
Zinc	✓					✓			✓			✓
Copper	✓					✓						
Selenium	✓					✓						
Cobalt	✓					✓						
Iodine	✓					✓						
Vitamins												
Vitamin A	✓	↑ when green				✓						
Vitamin E	✓					✓		✓			✓	
Folic Acid	✓	Variable				✓	✓		✓		✓	
Vitamin B1	✓					✓	✓	✓			✓	
Vitamin B2	✓						✓	✓	✓		✓	
Vitamin B6	✓						✓	✓			✓	
Vitamin B7 (biotin)	✓						✓			✓		
Vitamin B12	✓						✓		✓		✓	
Vitamin D	✓	✓ sun-cured forage					✓					
Vitamin K							✓					
Vitamin C							✓					

Table 2 - Starch Maximum Levels per Meal

Body Weight (kg)	Maximum kg per meal if no other grain, concentrate or prepared feed fed			Mixed Grain Ration - Maximum kg per meal if fed in the ratios below when no other grain, concentrate or prepared feed is fed			
	Oats 40% Starch	Barley 55% Starch	Maize/Corn 70% Starch	50 :50 Oats & Corn Ration	50:50 Oats & Barley Ration	50:50 Barley & Corn	1 Oats : 1 Barley : 1 Corn
				Oats + Corn	Oats + Barley	Barley + Corn	Oats + Barley + Corn
400	1.0	0.7	0.5	0.50 + 0.25	0.50 + 0.35	0.35 + 0.25	0.33 + 0.23 + 0.17
420	1.0	0.7	0.6	0.50 + 0.30	0.50 + 0.35	0.35 + 0.30	0.33 + 0.23 + 0.20
440	1.1	0.8	0.6	0.55 + 0.30	0.55 + 0.40	0.40 + 0.30	0.37 + 0.27 + 0.20
460	1.1	0.8	0.6	0.55 + 0.30	0.55 + 0.40	0.40 + 0.30	0.37 + 0.27 + 0.20
480	1.2	0.8	0.6	0.60 + 0.30	0.60 + 0.40	0.40 + 0.30	0.40 + 0.27 + 0.20
500	1.2	0.9	0.7	0.60 + 0.35	0.60 + 0.45	0.45 + 0.35	0.40 + 0.30 + 0.23
520	1.3	0.9	0.7	0.65 + 0.35	0.65 + 0.45	0.45 + 0.35	0.43 + 0.30 + 0.23
540	1.3	0.9	0.7	0.65 + 0.35	0.65 + 0.45	0.45 + 0.35	0.43 + 0.30 + 0.23
560	1.4	1.0	0.8	0.70 + 0.40	0.70 + 0.50	0.50 + 0.40	0.47 + 0.33 + 0.27
580	1.4	1.0	0.8	0.70 + 0.40	0.70 + 0.50	0.50 + 0.40	0.47 + 0.33 + 0.27
600	1.5	1.0	0.8	0.75 + 0.40	0.75 + 0.50	0.50 + 0.40	0.50 + 0.33 + 0.27

TABLE 3 - Common Feeds Explained

	Product	DE (MJ/kg)	NSC %	Protein %	Advantages	Disadvantages	General	Feed Guidelines
Roughage	Alfalfa	11	av. 9.72 WSC max 10.3	21.25	• Good quality protein and energy source	• Excess can reduce performance and cause enteroliths. • Non Structural Carbohydrate (NSC) highly variable, Water Soluble Content (WSC) main variation due to changes in growing, cutting and storage conditions.	• Available as hay • Alfalfa chaff known as green chaff, oat and wheaten known as white chaff. • Hay Quality - Look for high leaf content, soft to touch, minimal dust, fresh clean smell. Avoid musty smelling hay.	• Alfalfa can comprise up to 50% of the diet, remaining roughage component made up of cereal or grass roughage sources • Always aim for 100% roughage, 75% is realistic goal, absolute minimum 50% • Hard feed to comprise of at least 2 parts chaff to 1 part concentrate. • If ammonia smelling urine or white lathery sweat reduce alfalfa and increase cereal/grass component
	Oaten	8.3	av. 22.1 WSC max 24.8	8.29	• High fibre low starch			
	Wheaten	8.6	av. 17.6 WSC max 23.9	10.53	• Good Ca:P balance			
	Barley	8.7	av. 19.1 WSC max 23.6	9.97	• Feeding adlib assists in maintaining proper digestive function			
	Millet	8.4	av. 9.82 WSC max 13.4	11.08				
	Grass Hay	8.4	av. 12.8 WSC max 16.1	10.79				
	Pasture (fresh)	9.4	av. 13.1 WSC max 15.6	15.35				

If roughage is not providing sufficient energy, choose ONE fat concentrate AND/OR ONE carbohydrate concentrate

	Product	DE (MJ/kg)	Starch Av %	Starch Max %	Advantages	Disadvantages	General	Feed Guidelines
Fat	Vegetable Oil Eg. Linseed Corn, Soy, Sunflower	38	NIL		• Low GI, good digestibility • Energy without fizz	• Palatability - introduce slowly to find maximum horse will tolerate.	• Corn oil considered most palatable	• Total oil content 1g/kg of body weight • Underweight horses can have oil gradually increased up to 2 cups per day. eg 500g for 500kg horse.
	Fish Oil	38	NIL		• Good Omega 3 : 6 ratio	• Expensive	• Pasture has good omega ratio, cereals imbalance ratio.	
Carbohydrate Concentrates	Oats	14	43.7	53	• Considered most palatable	• ↑ intake causes LI disturbance resulting in tying up, colic, acidosis or laminitis • Poor Ca:P ratio • Untreated corn & barley have poor SI digestibility.	• Oats are most palatable and can be fed whole • Feed extruded or micronised barley or micronised maize to overcome poor SI digestibility	• 500kg horse fed no other cereal grain, coarse mix or pellet. Feed up to 1kg p/day. • If feeding more than 500g of Barley or Maize per day then split into at least two feeds.
	Barley	15.3	54.4	63	• ↑ energy than oats			
	Maize (Corn)	16.2	69.5	78	• ↑ energy than oats and barley			
	Cereal by-product Bran	13.3	21.2	34	• Appetite stimulant	• Poor Ca:P ratio • 'bran' disease	• Low nutritive value	• Can feed up to 1kgp/day
	Fibrous by-product Sugar beet pulp	13	1.05	3	• Good Ca:P ratio • Excellent for topping up energy levels without the fizz	• Can cause choke and stomach distension if not properly soaked prior to feeding	• Available as molassed or unmolassed • Very low risk of LI digestive disturbance	• Follow manufacturers directions. Use to top up energy in ration, do not use as forage replacer
	Molasses	9.5	Negligible		• Reduces dust • ↑ palatability • Binds feed	• Unsuitable for laminitis, EMS, PSSM	• Residue following sugar extraction	• Feed minimal to increase palatability or as a treat

If roughage is not providing sufficient protein, choose ONE protein concentrate

	Product	Protein %	Amino Acids %	DE (MJ/kg)	Advantages	Disadvantages	General	Feed Guidelines
Protein	Full-fat soybean Meal	38	2.3 lys 0.5 met	20	• ↑ quality means ↓ feeding rate	• Excess can reduce performance.	• By-product from extraction of oil from soybean	• 1-2 cups p/day lactating mares, growing horses and horses lacking topline
	Copra Meal	20	0.5 lys 0.36 met	15	• If fed correctly unlikely to cause LI issues	• To achieve required lysine intake may cause oversupply of protein	• By-product from extraction of oil from coconut	• up to 2kg p/day for 500kg horse
	Lupins	30	1.4 lys 0.22met	15.5	• ↑ palatable	• ↓ lysine & methionine		• up to 1kg p/day for 500kg horse
	Tick Beans	23	1.7 lys 0.2 met	12		• ↓ lysine & methionine	• aka Faba, Horse or Broad beans	• Not recommended due to better options being available for protein quality with lower feeding rates
	Sunflower Seeds	15	0.6 lys 0.4 met	16		• Very ↓ lysine		

Abbreviations:

DE (MJ/kg) Digestible Energy (Megajoules per kilogram of dry weight) NSC Non Structural Carbohydrate WSC Water Soluble Carbohydrate
 SI Small Intestine LI Large Intestine BW Body Weight Ca Calcium P Phosphorus GI Glycemic Index concentrates
 ↑ high ↓ low lys lysine (first limiting essential amino acid) met methionine (essential amino acid)

horses natural diet is typically low in fats and oils. While horses don't have a high requirement, fats and oils are metabolised aerobically and so provide more Adenosine triphosphate (ATP) - ATP is often referred to as the energy currency of life. ATP powers almost all of the cells activities including driving metabolic reactions, transportation of substrates, and mechanical work, such as moving muscles. Fat breaks down into long chain fatty acids and glycerol – the glycerol is then processed in the liver to glucose. When fed fat for three weeks, a horse is conditioned to use fat in preference to glycogen. The advantage is that the horse is getting maximum energy from food and saving glycogen for fast work. Horses that are able to fuel themselves in this way can work longer as glycogen depletion is a major cause of fatigue. Fat is an excellent way to increase the energy content of the diet without causing digestive disturbances. A maximum of 1g of fat per day per kg of bodyweight (eg 500g for a 500kg horse).

In summary, forage should be the primary energy source for all horses. Sugar beet pulp is an excellent concentrated source of dietary fibre and therefore energy for horses. Starch should be kept to a minimum and fats and oils can be fed to supplement the diet with extra energy.

Table 3 provides a brief description of common feeds and how they can be utilised in feeding programs.

Prepared feeds can be inappropriate for some horses due to the fixed ratio of protein, energy, vitamin and mineral content. For horses that are able to service their daily energy requirements on a high forage low concentrate diet, the lower coarse mix intake reduces protein intake which may be undesirable in young horses. Reduced coarse mix intake will also result in suboptimal vitamin and mineral levels which can negatively impact on performance.

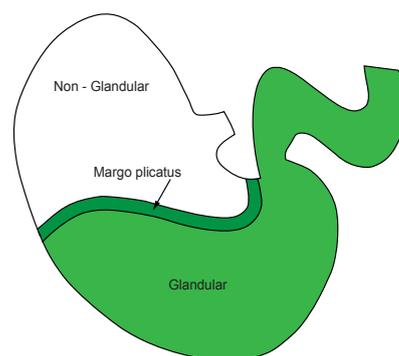
9. Quantity of feed

Each hard feed should be no more than 2kg. The horses stomach is the size of a rugby ball (around 8 litres) and has a rapid rate of passage of 20 - 45 minutes. Total feed intake for horses in hard work varies from 2.25 – 2.5% of their bodyweight per day (see table 4). This equates to 11.25 – 12.5kg of feed per day for a 500kg horse of which a minimum of 50% must be forage however trainers and owners should work towards at least 75% forage intake. As a guide, racehorse trainers should work towards a rate of 2 – 4kg of concentrates per day. Other performance horses (eventing, endurance) should have a maximum of 1 kg of concentrates per day. The remainder of the feed is forage. Performance horses will often require the hard feed split into at least 2 feeds, depending on your feeding program, some diets will require the hard feed to be split amongst 4 -5 feeds per day.

10. Feeding frequency and timing

In nature, horses roam 8 – 26 km each day and spend 16 – 20 hours grazing low quality high fibre feed. When we chew our food a signal is sent to release stomach acid in anticipation of food arriving. Horses are different to us in that they release

stomach acid constantly. They have two parts to their stomach, an upper non-glandular region and a lower glandular region. The glandular section produces hydrochloric acid (pH 1.5 – 2) and has a protective mucous layer. The non-glandular section has no protective mucous layer. Research shows that horses worked on an empty stomach have acid splash up from the glandular section to their non-glandular section causing acid to burn the non-glandular area. Saliva assists in buffering the acid in the stomach. Saliva is released when horses



chew forage. In the absence of forage, it is now believed that horses attempt to generate saliva by cribbing and windsucking to reduce discomfort associated with ulcers. A high quality leafy forage is recommended to be fed ad lib to all horses including high performance horses. It is also not recommended to feed a large cereal concentrate meal less than 4 hours before a competition as the blood glucose levels are lowest 90 minutes after feeding.

Table 4 - Feeding Quantity Guidelines

Body Weight	Guideline for feed per day for a racehorse horse in full work (kg)	Achievable feeding rate for better gut function in racehorses (kg)			Min & Max Rates in kg per day		
		Forage	Conc	No. hard feeds	Min forage	Max conc	No. hard feeds
400	9 to 10	8.00	2.00	2	5.0	4.00	4
450	10 to 11	8.95	2.30	3	5.6	4.50	5
500	11 to 13	9.90	2.60	3	6.3	5.00	5
550	12 to 14	10.85	2.90	3	6.9	5.50	6
600	14 to 15	11.80	3.20	4	7.5	6.00	6
650	15 to 16	12.75	3.50	4	8.1	6.50	7

It is preferable to feed hay over chaff/small particle sized roughage. Hay requires more chewing and results in higher saliva production providing an increase in the buffer against stomach acid.

DISEASE & ILLNESS ASSOCIATED WITH IMPROPER NUTRITION

- Colic
- Acidosis
- Tying Up
- Ulcers
- Laminitis
- Seedy Toe

Research shows that over 90% of performance horses suffer from ulcers and of these, less than 50% show clinical signs. The reality for the majority of performance horses is that they are performing well despite a poor diet. A balanced and appropriate feed ration will eliminate the barriers that are preventing optimal performance.

WHAT IS LEXVET AND EQUILIBRIUM

Our supplements were developed by Dr Lex Wills BVSc (Hons) MACVSc. Lex was a successful racehorse owner-trainer but with a growing veterinary practice his racehorse training interest had to be put aside. However, his interest in high performance equine nutrition remained.

Today Equilibrium and Lexvet Supplements is made up of a passionate team of people that strive to cut through the marketing hype and present the factual information so that owners and trainers can make informed feeding decisions. If there is one idea we want you to take away from this brochure, it is that a horse's mental and physical health and wellbeing goes hand in hand with their performance. If you don't have one you won't have the other.

Our Company

In Australasia we market under the brand Equilibrium and in Europe and North America it is marketed under the brand Lexvet. Our head

office is located in Brisbane with our overseas offices located in Auckland, NZ and Newbury, UK. All manufacturing of Equilibrium and Lexvet branded products takes place in our manufacturing facility in Brisbane, Queensland, Australia and is distributed from there. As a family owned business we continually strive to provide a premium quality and economical product to tens of thousands of horses each year. We are proud to be able to help you improve your horses' health and performance.

“As horse owners we are often on a huge learning curve wanting to learn more about horse nutrition. We are bombarded with a lot of marketing information and hype. In this quest for knowledge we are often left more confused, with bigger feed bills and our horses doing no better. I am concerned that the real reasons for supplementing horses is being lost amongst this hype and misinformation – Lexvet International wants to distance itself from this part of the industry. The formulation of Lexvet was not developed for the market it was developed for the horse.”

*Dr Lex Wills BVSc MACVSc
(1956-2006)*

Equine Specialist Manufacturer & Quality Assurance

Our in house manufacturing facility means that there is no cross contamination with feeds or supplements of other species. Our manufacturing facility has a Quality Control System and every batch is sampled and checked

by a Quality Assurance Manager. Where possible, we source locally produced raw materials, where we value the quality and consistency of the raw material. When it comes to what goes in the product we do not compromise.

Unique

One of our most unique qualities is that we have only two product lines. Equilibrium/Lexvet Mineral Mix is a broad spectrum supplement that contains macro and trace minerals, vitamins and salt. Equilibrium/Lexvet Mineral Mix is recommended for all horses. Equilibrium/Lexvet B1 Cool Mix has higher levels of Magnesium and Vitamin B1 which are both involved in the nervous system. Equilibrium/Lexvet B1 Cool Mix is recommended for nervous, fizzy or excitable horses.

Availability

AUSTRALIA

Stocked in over 500 stores Australia wide. Bulk discounts available with your local feed store carrying your account as normal. Contact sales@equiaustralia.com.au for more information.

NEW ZEALAND

Stocked in PGG, Farmlands and RD1 stores in addition to quality independent produce stores and saddleries

UNITED KINGDOM

Visit www.lexvetsupplements.com for a list of stockists of to purchase direct for Lexvet online.

EUROPE, IRELAND (INC NORTHERN IRELAND)

Visit www.lexvetsupplements.com for a list distributor and stockist.



REAL STORIES

REAL PEOPLE

REAL RESULTS

"The feeding program is working a treat, the horses look better and are working better. Have had a couple starters since the change and noticed they are hitting the line hard and running true races. I can't thank you enough"

CM New South Wales

"The horses look great, all finishing feeds and licking the bowl clean, noticeable improvement in behaviour across the stable. Most notably a colt that was difficult to handle that was brought back in to be rebroken has been excellent to handle"

KW Western Australia

"Our track rider felt the difference overnight. Overall improvement in behaviour, significant improvement in finishing their races. Less behaviour problems They now consistently hit the line hard."

RT Queensland

When this brochure was first introduced to Australian racehorse trainers in 2014 the response was overwhelming. It quickly became apparent that trainers were happy with their feeding programs however they had one or two horses that weren't tolerating the diet. Complaints included horses tying up, recurrent colic, not eating their feed, or extreme behavioural problems.

For many racehorse trainers the concept of a 100% forage diet was unheard of for horses in full training. Interestingly most trainers had stories of 'problem' horses that were kept on a basic diet in training and on whom have put the horse in a race, to have them finish first across the line. Recognising the horses potential trainers have then spent more money on feed and supplements for the horse to never

perform again. One of the most memorable stories was a trainer that acquired a horse with a history of tying up and laminitis. He trained it out of the paddock, and as it was working well he decided to give it a run. The horse won by 8 lengths. Talking with other trainers on the day he left thinking he needed to add specialised racing feeds and supplements. The horse had since suffered several episodes of tying up and hadn't come close to winning again. Research has concluded that high starch and protein diets reduce performance, however these diets seem to remain well entrenched in the high performance horse world.

Whilst most trainers were skeptical they were willing to try our feeding program on their 'problem' horses. Within weeks we had trainers switch their entire stable over to the new diet. Trainers were noticing

improvements in trainability, behaviour, recovery, appetite and overall their horses were happier.

For us the most exciting development from the distribution of this brochure was that horses in the peak of their career were being provided with happier environments. For some trainers they were able to give their horses access to large day paddocks. For some brave trainers they transitioned their horses from being stabled 24/7 to grazing paddocks as a herd. At the very least stabled horses were going from being meal fed to having access to adlib forage. Our goal is to reduce the negative behaviours associated with poor feeding programs so that horses are then happier, are easier to train and in turn will provide better results on the day.

The last fifty years has seen huge changes in our knowledge of horse nutrition and considerable advances have been made. This brochure has been prepared to assist horse trainers in making an informed decision to eliminate or reduce the barriers preventing optimum performance. Contact your local office, if you have any questions, or if you would like to discuss your feeding program with one of our nutritionists (details located on back page of this brochure.)