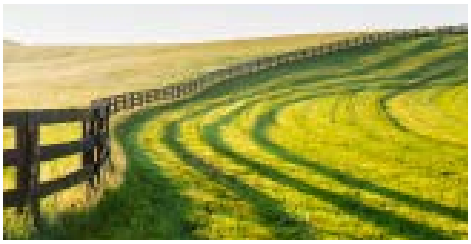
Natra Min



Pasture Management and Equine Nutrition

Ag Solutions AUSTRALIA

Helping Australia Grow

Quality paddock feed reduces fodder costs

Greater emphasis on pasture feeding of horses should be made in Australia, as it offers the advantage of a considerable reduction in feeding costs in combination with allowing horses to return to their natural grazing behaviour. To put it simply, horses are grazing herbivores and their gastrointestinal tract is designed for them to eat high fibre forages over long periods of the day.

Grazing horses attain benefit from both the nutritional value of the pasture and from the exercise derived from actively grazing. Horses at pasture are much less likely to suffer from behavioural idiosyncrasies that can occur when they are confined to a stable or yard for long periods of time.

Being able to graze a well-managed, productive grass-legume pasture blend can provide horses with:

- Lots of important nutrients. Good quality pasture is capable of supplying most, if not all of a horse's calorie and protein requirements. It is a source of some minerals and green forages are a rich source of vitamins.
- Important gut fill that helps prevent gastric ulcers by stopping the acid from the lower part of the stomach splashing up onto the unprotected top part of the stomach.
- A healthy gut bacterial population that is essential for fibre digestion, immune function, vitamin production, normal behaviour, normal gut function and maintenance of gut wall integrity.
- A natural grazing environment that allows the horse to express its natural behaviour.
- Space for the horse to exercise at will.
- Considerable cost savings without the need to purchase large quantities of expensive concentrate feeds.
- A significant reduction in the occurrence of feeding problems compared with those that can be experienced by hand fed and stabled horses.
- Reduced demands on the management of individual animal nutrition.
- A decrease in the occurrence of typical behavioural problems that are associated with the confined horse.

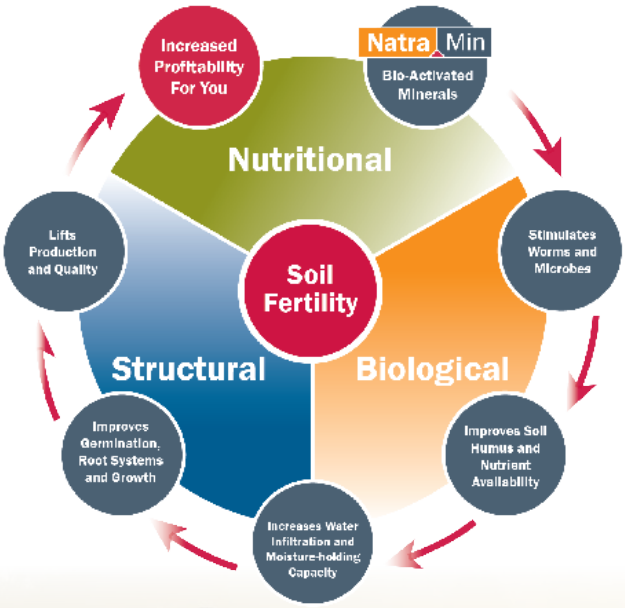
There are challenges to achieving healthy pastures for horses such as soil erosion, compaction and severe soil mineral imbalances. The performance of your pastures and grazing horses depends on the condition of your soil and being able to implement suitable rest periods for paddocks.

Fertile soil is your greatest asset

A large percentage of the Australian horse population is owned and managed on small land holdings that face the risk of becoming seriously degraded by continuous grazing of horses. Many issues of 'Horse Sick' pastures can be avoided or overcome by careful and skilled management of pastures and the grazing horse.

This informational booklet has been created to provide horse owners with hints and tips to support you to improve soil fertility and pasture quality. While your budget may dictate to what level the following steps can be implemented, it is important to remember that these steps can assist to improve pasture and decrease the reliance on purchasing feed.

NatraMin helps to improve the 3 aspects of soil fertility



Nutritional (Minerals):

NatraMin Mineral Fertiliser and Soil Conditioner provides a source of macro-minerals such as calcium, phosphorus, potassium and sulphur, as well as broad spectrum trace elements such as boron, zinc and copper.

Biological:

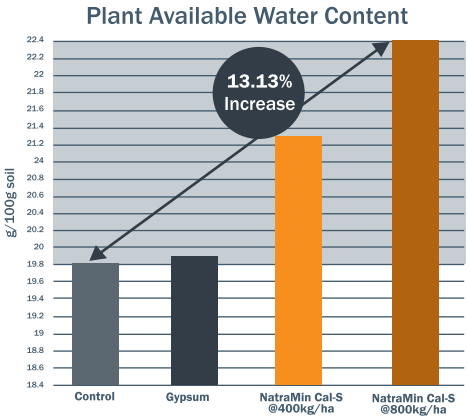
Microbe and worm activity is crucial for converting minerals and trace elements into a plant available form. The bio-stimulant in NatraMin helps to ensure the bio-availability of its minerals, as well as releasing nutrient lock up in your soil.

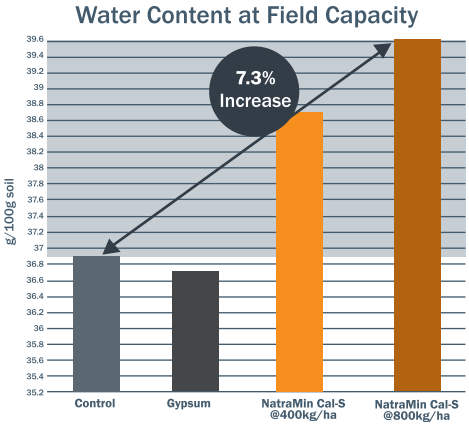
Structural:

NatraMin acts as a soil conditioner to soften soils, reduce soil surface crusting and improve cloddy, sticky soil types. Soil microbes and worms in your soil convert organic matter into humus, providing a storehouse for moisture and plant nutrients. Good humus levels provide softer, more friable soil resulting in improved pasture that can better tolerate weather extremes such as hot, dry conditions and can assist drainage in wet weather.

NatraMin - backed by science

Results from soil amendment trials conducted at the University of Queensland revealed that plants grown in soil treated with NatraMin Cal-S increased the water available to plants by over 13% due to a 7.3% increase in water content at field capacity (i.e. the soil is able to capture more water from any rain event or irrigation). It appears there is an interaction of NatraMin within the soil that improves soil porosity – giving it space to hold more moisture or in other words, increasing the 'size of the bucket' within the soil.

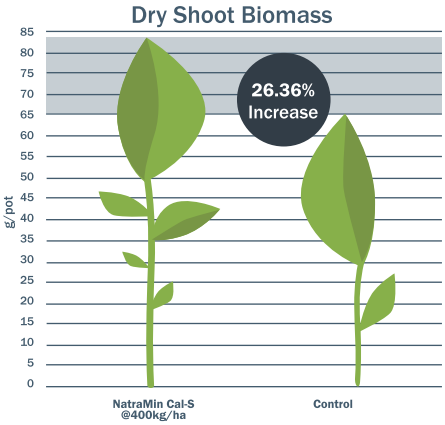




What can this mean for you?

- The bigger the bucket, the more moisture available for plant growth.
- Plants can 'hold-on' longer between rain events in dryland situations.
- Reduced frequency and/or duration of irrigation (saving time, money and resources).

In the same replicated glasshouse trial, plants grown in soil treated with NatraMin Cal-S at 400kg/ha yielded a 26.36% increase in dry shoot biomass as compared to the control (all soils had baseline NPK fertiliser applied as well).



An even more pronounced difference was evident under the soil surface, with the 400kg/ha NatraMin Cal-S treatment recording an increase of over 39% in dry root biomass in comparison to the control soil. Increased root growth has many significant benefits not only for the current plant, but also for on-going soil health.

These results indicate that it is not only possible to get a return on investment from applying NatraMin in short term production, but you can be adding long-term value to your asset within the soil at the same time.

Improve soil fertility

Following are some guidelines to help improve soil fertility and pasture quality and decrease the reliance on purchasing expensive concentrate feeds:

1. Soil Test

Getting a soil test to assess nutrient availability in the soil is highly recommended. Soil testing with a complete mineral analysis is a relatively cheap and cost-effective way to determine which mineral problems, if any, need to be addressed through pasture management or fertiliser application. One or more soil tests may be necessary, depending on the size of the property, variation in soil types and history of the paddocks. AgSolutions' soil tests include an assessment of the levels of both macro and trace minerals in the soil, fertiliser recommendations for pasture as well as soil and pasture management guidelines.

2. Fertilise

The range of NatraMin Mineral Fertilisers and Soil Conditioners are designed to assist soil regeneration by addressing the nutritional, biological and structural aspects of soil fertility. A major advantage of using NatraMin products for horse pastures is that they are made from natural rock minerals that have no withholding period so paddocks can be grazed immediately after spreading. When integrated with soil management strategies, NatraMin can assist to produce living, healthy and balanced soil capable of producing high yielding crops, pastures and healthy horses.

Apply NatraMin once or twice each year. It can be spread over existing pasture or applied to the soil prior to planting new pasture. NatraMin may replace the need for lime and gypsum as the use of NatraMin provides additional benefits as it can assist to stimulate microbe and worm activity in your soil, converting mulch into humus and creating more friable soil.

3. Address Soil Compaction

Soil compaction, particularly in high traffic areas, contributes to increased weeds and poor grass growth resulting in horse owners gradually having a higher dependance on purchased feed.

The decline in the pasture means a reduction in your low cost on property feed resource, thus leading to a more expensive 'substitution' feeding cost.

Soil aeration with a spiked aerator or Yeomans type plough is beneficial for hard setting soils. Aeration may be shallow and should be performed when moisture is optimal to reduce the soil disturbance (to prevent rough ground and possible injuries) and to avoid impacting existing pasture.

Aeration increases water and oxygen infiltration of the soil while also allowing root systems of your pasture to go deeper into the soil.

4. Supplement

While soil remineralisation with NatraMin can help to improve the nutritional level of your pasture, there will still likely be a requirement to provide extra trace minerals such as copper, zinc, selenium and iodine. Because soil minerals have been leached away over decades of farming, even purchased fodder may lack optimum nutrient levels. Clinical and sub-clinical mineral deficiencies can restrict animal performance, health and fertility. With MegaMin Equine Enhancer, you can provide year round broad spectrum, natural minerals for your horses.

Property plan and grazing management

Rotational grazing or strip grazing can provide a way to budget available pastures. If there is an opportunity to split paddocks up into smaller areas, do so as this allows rest and recovery time for pasture and supports the regeneration of palatable species.

There are several considerations to be made when planning a cell grazing layout.

- Watering points can be an obstacle and may be dependent on whether permanent watering points such as creeks and dams are in use. Careful trough set up can be designed to service more than paddock.
- Providing close proximity for horses that are in daily work.
- Consider dividing flat ground and slopes into separate paddocks to enable flat areas to be rested during wet periods.
- Grouping horses together can be a challenge and may not be possible due to high value animals or stallions but the most beneficial component in grazing management is high density stocking for short periods of time.

Strip grazing has been successfully used with horses. It may be slightly more labour intensive as it involves moving electric fences regularly. Back fencing is essential to prevent horses grazing regrowth in recently grazed areas. Strip grazing using electric fence (photo on right) provides better utilisation of pasture.

By following the strip grazing method, it is possible to rest and fertilise the paddock at some time during the season. This system will benefit horses nutritionally and allow control of intake to avoid obesity along with helping the paddock as there will be less bare land for weeds to germinate and the provision of conditions that allow various herbs to flourish.

The diagrams below offer possible layouts that provide centrally located water points.

Pasture establishment and maintenance

Once you have worked out the most appropriate way to split paddocks for ease of management and based on terrain, soil types and watering points, soil tests can then be taken.

Choosing your pasture mix

Soil test results, soil types and locality will determine the most suitable pasture mix. It is vital to choose a mix of pasture species that has various depth root systems. Deep rooted plants bring up minerals that may have leached below the root system of shallow rooted plants.

For instance, Kikuyu, which is a very shallow rooted plant is known to be a very poor accumulator of calcium. To offset this, it is beneficial to include deep rooted legumes (lucerne) and herbs such as chicory and tonic plantain, because they are known to be good accumulators of calcium and other minerals.

When choosing a pasture mix for your horse avoid grasses that contain high levels of oxalate (setaria, buffel, kikuyu, couch), endophytes that produce mycotoxins (Rye Grass) and phyto-oestrogens which interfere with hormones and reproduction (clovers such as red clover and sub-terranian clover).

A horse friendly pasture will be high in fibre and low in non-structural carbohydrates. Pastures that include Rhodes and Bluegrass are ideal for horses.

Preparation for planting

Steep paddocks may not be suited to ploughing and planting pasture due to the risk of erosion. In this case, pasture mixes may be oversown (more suited to legumes and herbs). Grass varieties tend to require 'seed to soil' contact for successful establishment.

It is an advantage to apply NatraMin 4 - 6 weeks prior to planting pasture. Because NatraMin assists to improve soil structure, many clients have reported reduced tillage costs and improved seed germination.

When planting a new pasture (or forage) the paddock may need to be sprayed out or cultivated. The number of times the soil needs to be cultivated will depend on the soil type, structure and the variety of pasture or forage being planted.

Spraying paddocks involves using chemicals but if this is not desired, then cultivating the ground will assist to control some weeds. Avoid excessive cultivation as fine soil is more prone to erosion and when soil is over-worked there can be an increased loss of soil carbon.

Ensure adequate seeding rates are used. A starter fertiliser is essential to maximise early growth to provide ground cover which will assist to suppress weeds.

Cover crops (eg oats, barley, millet) may be utilised to clean up paddocks, reduce weeds and increase the condition and fertility of the soil prior to planting a permanent pasture mix.

For native pastures or existing run-down pasture there is the choice to improve and regenerate what is currently growing through grazing management and soil remineralisation with NatraMin, or alternatively, over sowing with a new pasture mix.

Management of newly planted pasture

For both new pasture and when renovating existing pasture, it is critical to allow time for pasture to establish itself. Nursing the pasture for the first 6-12 months may be necessary to ensure long term persistence and production.

New pastures should not be grazed too soon. Test the plants by pulling them to see if grazing will pull the entire plant out of the ground. It may be best to only improve one part of the property at a time to ensure that new pasture is not grazed too early.

New pastures should only be grazed for short periods and then rested. Mulching or slashing instead of 'first grazing' is desirable to encourage plants to establish their root systems and tiller out for maximum ground cover.

Mulching or slashing 1-2 times each year can help increase pasture density. Do not over use synthetic fertilisers on pastures (however, adequate nutrition is important for establishment) as high levels of nitrates in a pasture are undesirable for horses.

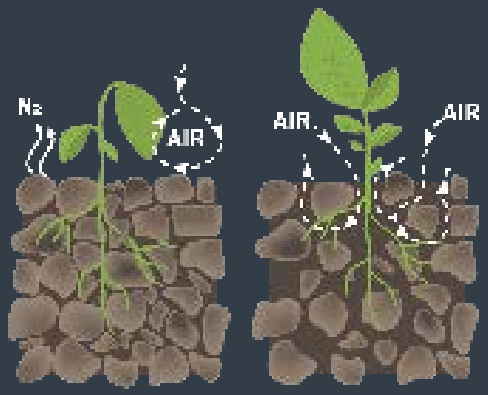
Horses overgrazing pasture to the ground due to a lack of area will create a number of issues. Set stocking is a major contributor in the decline of palatable pasture species, which eventually leads to more non-desirable pasture species and an increase in weeds.

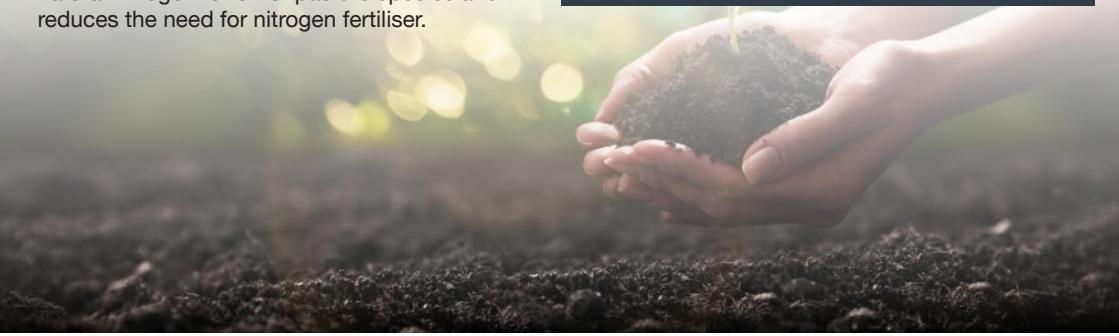
Successful nodulation of legumes provides natural nitrogen for other pasture species and reduces the need for nitrogen fertiliser.

Soil Management Programs

In addition to livestock and equine supplementation services AgSolutions provides soil and pasture nutrition support. Understanding soil and nutrient relationships that impact on nutrient uptake into the plant or pasture being grazed plus knowledge of soil structure and biology on this system is pivotal to successful pasture management. Our qualified field advisors can assist you with soil testing and pasture management programs from fully organic to fully conventional operations.

The Importance of Soil Structure for Plant Health





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Managing horses grazing sub-tropical pastures

A number of sub-tropical or C4-Type grass species growing in Australia contain high levels of a compound called oxalate. The calcium in these grass species is largely bound by oxalate. Once bound by oxalate the calcium becomes unavailable for absorption by the horse.

This inability to absorb calcium from the diet eventually leads to a calcium deficiency and the condition known as Nutritional Secondary Hyperparathyroidism (NSH) or more commonly referred to as 'Big Head' in horses.

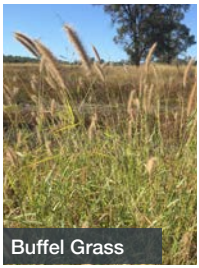
High oxalate containing grasses are: Setaria, Buffel Grass, Kikuyu, Purple Pigeon Grass, Green Panic, Pangola Grass, Para Grass, Couch and Signal Grass.

Despite this constraint, horses are successfully grazed on these species with the oxalate problems being managed by providing the horse with a daily calcium source such as MegaMin Bone Defender. If high oxalate grasses pose a risk to your horse, you must supply enough calcium in the diet to keep the calcium to oxalate ratio above 0.5 parts calcium to 1 part oxalate. Grasses such as Buffel and Kikuyu have an oxalate content of around 15 g/kg and readily cause Bighead. Where pastures consist predominantly of Setaria which contains anywhere between 30 and 80 grams of oxalate per kg, then very high rates of calcium must be supplemented to ensure adequate calcium is available for uptake. In addition to calcium, sufficient levels of phosphorus and magnesium as well as trace minerals are important. Growing horses, aged horses and pregnant and lactating mares should receive a higher rate of calcium supplementation to meet their requirements.

Improving your pasture has many benefits including increasing the nutrients available to horses, improving the look of your property and possibly the value, while reducing the environmental issues such as erosion and weeds. For further information on MegaMin Bone Defender or pasture management contact AgSolutions on 1800 81 57 57.


Green Panic

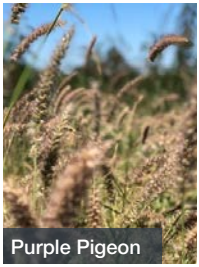

Pangola Grass


Buffel Grass


Para Grass


Setaria


Kikuyu


Purple Pigeon


Guinea Grass


Signal Grass

NatraMin Cal-S

Extra calcium and sulphur particularly beneficial for dark or crusted soils with a calcium imbalance and low in sulphur

NatraMin Cal-S is formulated with extra calcium and sulphur for dark, sodic, cloddy or crusting soils with a calcium imbalance and low in sulphur.

NatraMin Cal-S is a cost effective alternative to Gypsum as a soil conditioner and contains high levels of silica as well as other essential minerals and trace elements. All blends of NatraMin are formulated to stimulate microbe and worm activity in your soil, helping to release locked up nutrients for plant utilisation.

Benefits

- Replaces the use of Gypsum
- Broad spectrum minerals plus extra calcium and sulphur
- Particularly beneficial for use on heavy and dark soils
- Improves calcium to magnesium ratios
- Reduces high magnesium levels
- Reduces soil crusting
- Improves soil structure
- Available in Bulk, Bulk Bags and 20kg bags.

NatraMin Application Information

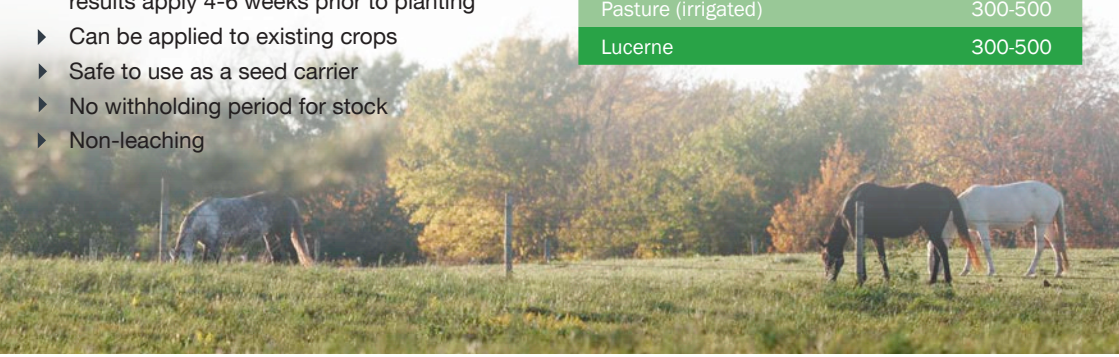
- Can be applied at plant stage, or for best results apply 4-6 weeks prior to planting
- Can be applied to existing crops
- Safe to use as a seed carrier
- No withholding period for stock
- Non-leaching

TYPICAL ANALYSIS	NatraMin Cal-S
Calcium	10.7 %
Phosphorus	0.06 %
Sulphur	5.8 %
Potassium	2.0 %
Magnesium	1.7 %
Silicon	17.3 %
Iron	3.7 %
Carbon	2300 ppm
Manganese	660 ppm
Zinc	100 ppm
Copper	40 ppm
Cobalt	16 ppm
Boron	13 ppm
Molybdenum	4 ppm

NatraMin Application Guide

The below application rate are a guide only. A soil test is recommended to identify specific needs of your soil and pasture. Split applications may be beneficial in certain circumstances.

	RATE (kg/ha)
Pasture (improved)	200-300
Pasture (irrigated)	300-500
Lucerne	300-500



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NatraMin Hi-Phos

Extra calcium and sulphur particularly ideal for pastures and crops soils low in phosphorus

NatraMin HI-Phos provides bio-activated broad spectrum minerals with extra phosphorus, calcium and sulphur. This blend is ideal for pasture and crop soils low in phosphorus and calcium.

In addition to providing broad spectrum minerals, all blends of NatraMin are formulated to stimulate microbe and worm activity in your soil, helping to release locked up nutrients for plant utilisation.

Benefits

- Provides a valuable source of phosphorus, calcium and sulphur
- Stimulates microbe and worm activity
- Helps to unlock previously applied fertilisers
- Stimulates legume growth
- Can be used to replace Gypsum especially if phosphorus levels are low
- Available in Bulk, Bulk Bags and 20kg bags.
- No withholding period for stock
- Non-leaching

Product Range

NatraMin Original
NatraMin K-Phos
NatraMin Cal-K
NatraMin K
NatraMin S

TYPICAL ANALYSIS	NatraMin Hi-Phos
Calcium	11.0 %
Phosphorus	2.0 %
Sulphur	2.5 %
Potassium	2.4 %
Magnesium	1.7 %
Silicon	22.0 %
Iron	4.7 %
Carbon	3000 ppm
Manganese	1100 ppm
Zinc	140 ppm
Copper	55 ppm
Cobalt	20 ppm
Boron	18 ppm
Molybdenum	7 ppm

NatraMin Mineral Fertilisers are increasingly being used on permanent pastures throughout Australia and many farmers have reported increased growth and improved palatability, as well as the return of legumes to their pastures, often where legumes hasn't been seen for many, many years.

See the difference

Minerals for horses

The horse has a single (monogastric) digestive structure that is suited to foraging for long periods on grass dominant pasture. To maintain optimum health a horse requires a balanced diet receiving adequate levels of all nutrient classes on a daily basis. The major nutrients required are: Water, energy, protein, fat, fibre, minerals, electrolytes and vitamins.

Minerals play important roles in physiological, structural and regulatory functions within the horse's body and without adequate levels a number of health issues may arise. A borderline deficiency of a trace mineral may be present in the diet without a horse showing any outward signs.

Pasture is an instrumental source of nutrients for horses but often it is too low in some crucial nutrients to meet the horses' requirements. In most cases pasture can provide horses with plenty of digestible energy, protein, fibre, some minerals such as potassium, magnesium, iron, manganese and green pastures are especially rich in vitamins A, E, K and the B-group vitamins

Australian soils and consequently the pastures, hay and grain we feed horses tend to be deficient in a number of minerals. Analysis of feeds in Australia has indicated that the content of many minerals can vary between individual batches of feed. Feeds produced from plants or plant products grown in different areas may also vary widely in mineral content. Pastures usually lack adequate quantities of copper, zinc, selenium and iodine and have highly variable amounts of calcium, phosphorus, sodium and chloride. Consequently, horses on pasture and hay-based diets will often require a supplement to replace shortfalls of essential minerals.

"I first came across AgSolutions products because of my neighbour - we have the same soil, we receive the same rainfall, yet his paddocks always looked better than mine. I had used a range of fertilisers and I asked him what he used. It was AgSolutions' NatraMin! I tried it and noticed a considerable difference in the quality of my pasture. I was hooked! Then I discovered MegaMin Equine Enhancer.

My horses' feet and coats have never looked better. Living in a coastal environment, I am well aware of the dangers of subtropical pastures and how easily they can cause 'Bighead'. The symptoms can be quite mild right through to severe. By feeding MegaMin Bone Defender I know this potential problem is taken care of."

Brett Cantle, Gympie QLD

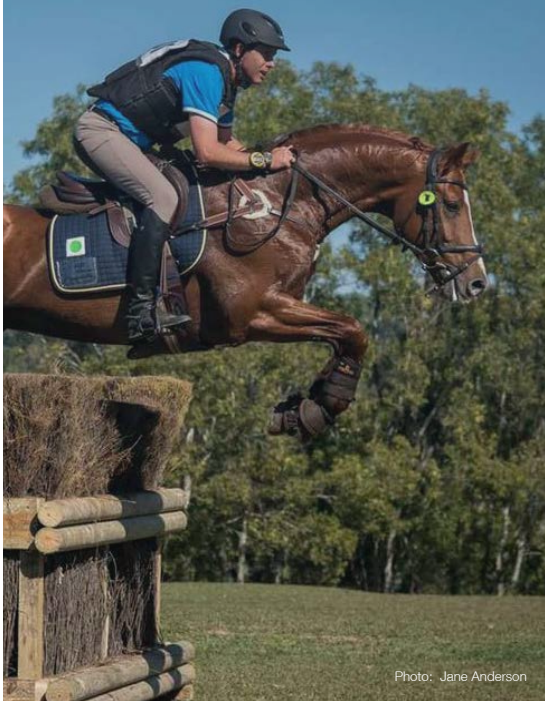

Photo: Jane Anderson

Ag Solutions AUSTRALIA

MegaMin Bone Defender

Premium Calcium, Phosphorus, Magnesium and Vitamin D Top Up Supplement to Promote Strong, Healthy Bones

MegaMin Bone Defender is formulated to provide extra calcium, magnesium and phosphorus to allow horses to maintain bone strength and to stay healthy and sound when grazing high oxalate subtropical pastures. Left unsupplemented on these pastures, horses are at risk of severe bone demineralisation and Bighead Disease.

Benefits

- A scientifically balanced calcium, phosphorus, magnesium and vitamin D supplement to help promote strong healthy bones.
- Incorporates multiple sources of calcium, including chelated calcium.
- Assists in maintaining/balancing the calcium to oxalate ratio for horses grazing subtropical pastures (setaria, buffel, kikuyu, couch etc.). An imbalance in the calcium to oxalate ratio can lead to Bighead Disease.
- Recommended to be fed in conjunction with MegaMin Equine Enhancer.
- Contains AgSolutions' unique blend of natural minerals.

TYPICAL ANALYSIS	per 100g	per kg
Fat	8 g	4%
Salt	2 g	1%
Calcium	49 g	246 g
Phosphorus	9.2 g	46 g
Magnesium	18 g	92 g
Sodium	0.9 g	4 g
Chloride	1.2 g	6 g
Vitamin D	1020 IU	5100 IU

MegaMin Bone Defender also contains small amounts of naturally occurring trace minerals including copper, zinc, iodine, selenium, iron, cobalt, silicon, boron and chromium which play a role in bone and general health.

Feeding Guide

If your horse is grazing Setaria pastures the dose rates are 3 times the amounts given below. If your Setaria is the Kazungula variety please contact us for advice on dose rates.

	Bodyweight (kg) 400	500	600
	Feeding Rate (g/day)*		
Not in work to light work	140	180	220
Moderate work	160	200	240
Heavy work	180	220	260
Pregnant Mares	140	180	220
Lactating Mares	190	230	270
Aged Horses	140	180	220

	Bodyweight (kg) 400	500	600
	Feeding Rate (g/day)*		
Weanlings, Yearlings and 2YOs	140	170	200

*The above feeding rates are for horses on pasture who are not receiving any significant amounts (less than 1 kg/day) of supplementary hay or hard feed.

MegaMin Bone Defender should be fed with the recommended dose of MegaMin Equine Enhancer or as part of a balanced diet.

If supplementary hay or hard feed is given you may reduce the amount of MegaMin Bone Defender by the following amounts:

	Reduce MegaMin Bone Defender by:
For every 1kg of Lucerne Hay	70 g/day
For every 1kg of Grass Hay (Low Oxalate)	25 g/day
For every 1kfg of Complete Feed$^{\Delta}$	50 g/day

$^{\Delta}$Fortified with at least 8.5 g/kg of calcium.

1 heaped scoop (in bucket) = approx 100g of MegaMin Bone Defender

See the difference

MegaMin Equine Enhancer

Premium Triple Action Vitamin and Mineral Supplement for all Types of Horses

Specially formulated by a leading Australian Equine Nutritionist to meet the needs of horses with access to diets consisting largely of pasture or hay. MegaMin Equine Enhancer is suitable for horses and ponies in all disciplines.

Features and Benefits

Healthy Hooves - No hoof, no horse! MegaMin Equine Enhancer contains organic zinc, methionine and a targeted 20mg of biotin per 100g dose to help keep your horse's hooves growing strong and healthy. No need to use a separate hoof supplement!

Strong Immune System - A well balanced diet is essential to maintain effective immune function. MegaMin Equine Enhancer provides trace minerals and vitamins that are generally not at adequate levels in pasture and hay to support a strong immune system.

Shiny Coat - Good health on the inside is reflected in the way a horse's coat looks on the outside. MegaMin Equine Enhancer contains minerals, trace minerals, vitamins and amino acids that a horse needs to stay healthy on the inside and brilliantly shiny on the outside.

Efficient Digestion - MegaMin Equine Enhancer incorporates a prebiotic to help support a healthy hindgut and aid efficient fibre digestion.

Antioxidants - MegaMin Equine Enhancer includes two potent antioxidants in selenium and vitamin E. These antioxidants work together in your horse's body to help reduce the muscle damage that can occur during exercise.

Natural Minerals - MegaMin Equine supplements contain AgSolutions' unique blend of natural broad spectrum minerals that include a host of trace minerals such as chromium, boron and silicon that are absent from many other supplements.

Shiny coats, strong hooves and a healthy hindgut are made of these!

MegaMin Equine Enhancer is fortified with ingredients to help promote optimal hoof, skin and coat condition from the inside out.

Biotin supplementation of 20mg per day has been linked to improvements in hoof structure and strength.

Zinc is essential for the immune system as well as bone, cartilage, hoof formation and the integrity of skin.

Methionine is important for optimum growth, nitrogen balance and in stimulating the production of Keratin.

Prebiotics support digestive health by balancing gut microbial populations. Optimal digestive function supports higher, more consistent performance.

Antioxidants such as selenium and vitamin E work in synergy to help prevent polyunsaturated fatty acid oxidation that can damage muscle and cell membranes.

Natural Occurring Extras

Silicon is incorporated into joint cartilage and is essential for bone formation and collagen synthesis.

Chromium is concerned with the control of blood glucose and has been reported to have a role in supporting increased energy metabolism, and assisting to reduce stress and lactic acid accumulation during fast exercise.

Boron is believed to be necessary for the synthesis of calcium and magnesium and is also thought to play a role in normal brain function.

AgSolutions AUSTRALIA

> The only thing I changed was the addition of 100g per day of MegaMin Equine Enhancer into the diet and in six weeks Bugsy looked like a different horse. Now his coat has settled and he looks 150% better, making him a happier and calmer horse!
>
> - Steve Thake, Woolooga QLD

Feeding Guide

Directions: Mix well into feed and dampen. Ensure that an adequate supply of fresh, clean drinking water and free choice plain salt are available at all times. Introduce into your horse's diet slowly over 7 to 10 days.

Dosage/Administration:
1 level scoop = approx 50g of Equine Enhancer

Average Feeding Rate:
Horse 100g per day
Pony 50g per day

	Bodyweight (kg)		
	400	500	600
Not in work	45	55	65
Light work	60	70	80
Moderate work	80	100	120
Pregnant Mares (first 8 months)	60	70	80
Pregnant Mares (last 3 months)	80	100	120
Lactating Mares	60	80	100
Aged Horses	60	70	80

	Expected Mature Weight (kg)		
	400	500	600
Weanlings, Yearlings and 2YOs	80	100	120

Feeding rates above are in g/day.

Presentation

2.8kg Pouch Provides:
28 daily average horse* doses.

10kg Bucket Provides:
100 daily average horse* doses.

20kg Bucket Provides:
200 daily average horse* doses.

TYPICAL ANALYSIS	per 100g	per kg
Digestible Energy	0.6 MJ	6.0 MJ
Crude Protein	7.6 g	7.6 %
Crude Fibre	5.8 g	5.8 %
Fat	4.7 g	4.7 %
Prebiotic (yeast culture)	9.9 g	98.5 g
Salt	2.5 g	2.5 %
Lysine	0.2 g	2.4 g
Methionine	2.5 g	25.2 g
Non-Structural Carbohydrate	3.7 g	3.7 %
Calcium	5.6 g	55.9 g
Phosphorus	2.3 g	22.9 g
Magnesium	2.9 g	28.7 g
Sodium	1.6 g	15.7 g
Chloride	1.5 g	15.4 g
Potassium	1.4 g	13.8 g
Copper	127 mg	1272 mg
Zinc	387 mg	3874 mg
Selenium	1.8 mg	17.5 mg
Manganese	199 mg	1990 mg
Iodine	4.2 mg	42 mg
Cobalt	1.5 mg	14.7 mg
Iron	1531 mg	15310 mg
Silicon	6.4 g	6.4 %
Chromium	3.1 mg	30.7 mg
Boron	0.5 mg	4.8 mg
Vitamin A	4951 IU	49 512 IU
Vitamin E	365 IU	3648 IU
Vitamin B1 (Thiamine)	34 mg	345 mg
Vitamin B2 (Riboflavin)	5 mg	50 mg
Niacin	0.6 mg	6.4 mg
Vitamin B5 (Pantothenic Acid)	0.2 mg	2.2 mg
Vitamin B6	5.0 mg	50.3 mg
Folic Acid	5.4 mg	54.4 mg
Biotin	20 mg	200 mg

What horse owners have experienced

Strong, Healthy Hooves

Emma is an elite dressage competitor and coach who has trained with the World's best coaches and competitors.

"I'm a big fan of MegaMin Equine Supplements! With the Equine Enhancer I have seen significant results in coat quality and hoof quality. Sometimes I have horses come into my stables that are quite poor in condition and I find it really interesting in watching them over time progress and improve. AgSolutions has given me confidence that I'm providing my horses with what they need nutritionally to perform to the best of their ability."

Emma Flavelle, Emma Flavelle Dressage

Feeding For Success

From Australia to the United States, Professional Horseman Rob Leach has successfully trained and shown horses in the reined cow horse, cutting, campdraft and stockman's challenge events at an elite level.

Rob's particular focus is on the young horse in building a foundation for success, giving them the best opportunity to excel in any arena.

"We use MegaMin Equine Enhancer in our horse's feed, it shines them up and makes them feel good. We are really happy with how it just helps them do better and convert their feed better. We have had a lot of good results from using MegaMin Equine Enhancer and highly recommend the product."

Rob Leach, Rob Leach Equine/Select Sires

Ag Solutions AUSTRALIA

A 'Rocky' Road To Recovery

Peter and Karen Donaldson moved from inland NSW to Kempsey on the NSW Coast a few years ago and their new property contains pasture that consists mainly of Kikuyu and Paspalum.

When Karen had to care for an injured horse 24/7 she turned her other horses out to pasture, including her two-year old ASH gelding Rockstar. A couple of months later Karen discovered her beloved Rocky had developed significant facial swelling between his eyes, his behaviour had changed, and he hated to be touched on his head. Karen immediately thought of "Bighead" which is caused by a calcium deficiency that can develop when horses are grazing sub-tropical grasses like Kikuyu that contain high levels of oxalate that blocks the absorption of calcium.

> "I'm really happy with the MegaMin Equine Enhancer and Bone Defender as the results speak for themselves – the swelling on his face has almost completely gone, he has grown, his coat is in much better condition and I can touch his face again!"

Knowing that Rocky needed extra calcium, Karen started adding limestone and di-calcium phosphate to Rocky's feed but never really knew how much of the powder mix to give him. Unfortunately, Rocky's symptoms didn't appear to be improving which led Karen to make contact with AgSolutions for help. Karen recalls, "AgSolutions' Technical Advisor, Shannon Godwin went through absolutely everything he was being fed, from the grass to the supplements, and I had to weigh everything so we could work out what he was missing out on." Rocky was put on MegaMin Equine Enhancer to balance the trace minerals lacking in the pasture and MegaMin Bone Defender to help balance the calcium to oxalate ratio.

When staff from AgSolutions visited the Donaldson's 8 months later, Karen was excited to report that the bump between Rocky's eyes had almost completely disappeared. Karen concludes, "I'm really happy with the MegaMin Equine Enhancer and Bone Defender as the results speak for themselves – the swelling on his face has almost gone completely, he has grown, his coat is in much better condition and I can touch his face again!"

Karen Donaldson, Kempsey NSW

What horse owners have experienced

No horsing around when beefing up your pastures

John Clothier, 'Christmas Creek Pastoral', Beaudesert, talks firsthand about his success in establishing high performance pastures.

"I have been using NatraMin for 6 years since I first purchased the property. The paddocks were bare as they had previously been night paddocks for dairy cows for many years.

Improved pastures were planted and established well under a NatraMin program that focused on addressing not only soil nutrition but also the greater impact of soil structure (sticky, high Magnesium soil type).

> "Clients often remark how well their horses are looking after being on this property for just 6 weeks."

Pastures established well and the biggest improvement is that the soil no longer sets like concrete. The most important change to our program was the application of NatraMin Cal-S twice a year at 800kg/ha for the first two years and now a maintenance of 400kg/ ha each year."

Christmas Creek Pastoral runs beef cattle but the major business component is the horse spelling and agistment property for top quality Thoroughbred race horses.

"Our clients are from all over the eastern seaboard and expect good quality pastures for feed, while the presentation of the property and pastures is also paramount to my business.

The real evidence of our success is the improved soil structure, pasture growth and density of grass in our day yards (something unheard of on many horse properties). Regular, relatively high rates of NatraMin are applied several times each year to the day yards to achieve this.

AgSolutions have been able to assist me with my pasture management through their soil testing and NatraMin soil conditioners/fertilisers. Our forage program still involves other Nitrogen inputs and starter blends that we complement with grazing management, legumes and crop rotations."

John Clothier, Beaudesert QLD

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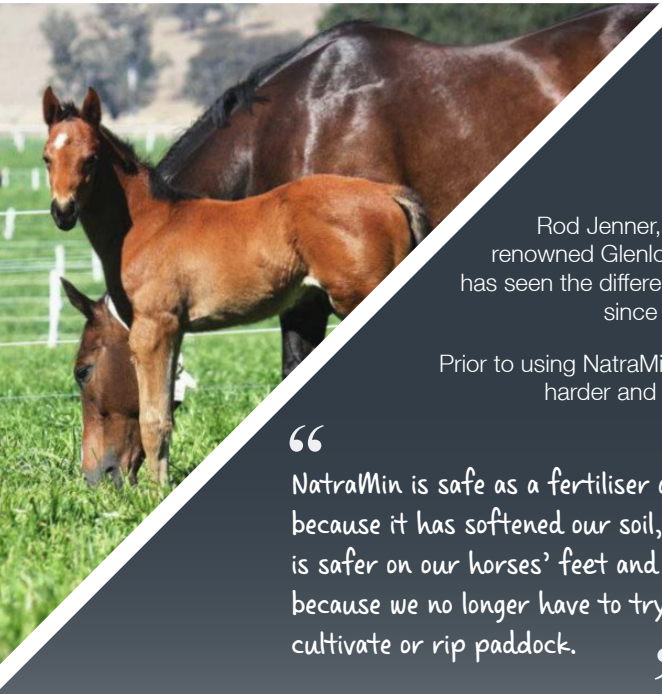

Thoroughbreds Benefit From Better Pastures and Softer Soils

Rod Jenner, Farming and Operations Manager of the renowned Glenlogan thoroughbred nursery at Innisplains, has seen the difference in soil structure and pasture nutrition since using NatraMin in their fertiliser program.

Prior to using NatraMin, their heavy black soils were becoming harder and pasture growth was below expectations.

> “NatraMin is safe as a fertiliser and because it has softened our soil, it is safer on our horses’ feet and legs because we no longer have to try to cultivate or rip paddock.”

Rod explains, “Rough ground affects bone development and we certainly don’t want the high risk of leg injury for young thoroughbreds with their racing life ahead of them.

We have to be results driven in every part of our farming, pasture nutrition and breeding at Glenlogan and we have got more out of NatraMin than what we expected. The soil structure continues to improve and the pastures are the best they’ve ever been.”

No NatraMin applied on back paddocks

NatraMin applied to the front paddock

See the difference

The AgSolutions Difference

A company dedicated to 'Helping Australia Grow'

AgSolutions is an Australian-owned family company that has been dedicated to developing and delivering the highest quality products and services to Australian farmers since 1989. It means a lot to us to be able to share our vision of 'Helping Australia Grow'. Our team is truly passionate about helping soil, helping plants, helping livestock and helping people. We are dedicated to building partnerships, with the aim of solving problems and providing solutions that add value to the agricultural industry.

Our NatraMin range of mineral fertilisers and soil conditioners are designed to assist soil regeneration by addressing the nutritional, biological and structural aspects of soil fertility. NatraMin is formulated to supply broad-spectrum minerals and trace elements, stimulate microbe and worm activity and improve soil structure – all of which are essential to achieving long-term results. Not only do we have over 30 years of Farmer Results in the Field, we now have results from trials conducted at the University of Queensland, St Lucia, that indicate NatraMin can increase water holding capacity, can increase plant shoot and root biomass and appears to stabilise soil organic carbon.

Our MegaMin range of animal supplements supply broad spectrum macro and trace minerals essential for optimum production, health and fertility of livestock and assists with the utilisation of fodder. Trials conducted at the University of New England, Armidale have revealed that MegaMin supplements provide a safe, economical and effective mineral supplement for both pasture and grain-fed livestock.

The MegaMin Equine Supplements are premium products that have been formulated in conjunction with a leading Australian Equine Nutritionist to meet the needs of horses and ponies that have diets consisting largely of grass and hay. MegaMin Equine Supplements contain AgSolutions' unique blend of naturally occurring earth and sea minerals derived from carefully selected ingredients to provide an exceptional array of broad spectrum macro and trace minerals.

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FREE CALL 1800 81 57 57
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