

ASPECTS of PASTURE that can ADVERSELY AFFECT YOUR HORSE – PART 1 (pages 1-6)
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Until recently I had no idea of the impact that various aspects of the pasture can have on the health and temperament of our horses. Go thru the list of symptoms carefully. As you read, light bulbs will go on for you regarding horses you currently own or know of, or have owned or known in the past. You too, will realize how countless, perfectly good horses have suffered, been punished, become 'problem horses', caused accidents, labeled 'bad', 'nuts', 'unmanageable', deemed unrideable, diagnosed with brain tumours, wobbler syndrome, and sent to the knackers, *all because of the grass!!!!*

This information provides an explanation for many things going on with our horses where extensive investigations have previously failed.

It comes from years of my own personal observations and experiences and those of the hundreds of horses and riders I have met and assisted over the last 10 years of teaching Horsemanship throughout NZ. Additionally, in the spring of 2004 I conducted the "Equine Health & Behaviour Survey", the results of which have been very revealing. Horse owners frequently experience unexplained changes in their horse's temperament and personality. If you are like me and believe that horses do not 'plot against us' and are definitely NOT 'dirty' 'nutty', 'mongrels', 'bitches', 'pigs', 'f.....g cows', 'have got attitude' (the list goes on!), then there must be other reasons for this kind of behaviour. There is a strong correlation between the soils and pasture and the raft of health and behavioural problems our NZ horses are plagued with, some mildly, some chronically and sometimes acutely. Aggressiveness, herd-bound behaviour, pasture heaves, obesity and laminitis are just a few that spring to mind.

For example things have been going great with your horse, and then he starts spooking at things in the arena, or rushing out of the float, or you are paying for a lesson and he's not 'himself', so it's a complete waste of money, all of these sorts of things.

He doesn't like being touched or brushed.....

I've had the saddle fit checked but it's still like he's got a sore back.....

Why do some horses bleed from the nose when they're out at pasture??

What is the cause of head-shaking/flicking?

Why can't I get rid of that mud-fever?

How come my horse has got sore feet? Goes to bite me when I'm doing up the girth?

I'm feeding my horse heaps but he won't put on any condition...

My horse is on 'nothing' but I can't keep the weight off.....

What is the cause of many respiratory troubles? Skin troubles?

I believe the answers to these questions and many, many more, lie within the following information.

I am very interested in any feedback and experiences you may have had.

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(The following information is not intended to replace veterinary advice, merely to give you an overview. If symptoms are acute, or persist, call your veterinarian)

- Overview
- Signs of Myco-toxicity/Mineral Imbalances
- Respiratory Problems
- Nose-Bleeding
- Skin Conditions
- Mineral Imbalances Especially Magnesium Deficiency
- High Sugar / Lack of Fibre
- Fibre Requirements According to Lifestyle
- Why Add Fibre
- How Much Fibre
- B-Vit Deficiency is Caused by a Lack of Fibre
- Selenium
- Photo-sensitivity – the Real Cause of Sunburn and Mud-Fever
- Head-flicking/Shaking

AN OVERVIEW

In New Zealand horses are either kept on pasture primarily meant for other stock like sheep or cattle, or on paddocks grazed by horses alone. Both situations lead to problems.

The former consists of **high production** grasses (eg the rye/clover mixes) which, because of our climate and the fertilizer regimes applied to them, reach even higher production. This is counter-productive to the health of the horse, whose digestive system is highly specialized and different to other species. Their natural diet of grass, herbs, shrubs and leaves is RICH in fibre and POOR in carbohydrates. (See pics below)

High production grasses are LOW in fibre and HIGH in sugars and carbohydrates.

Whenever the grass grows quickly, which is mainly in spring and autumn, but also at many other times of the year in our climate, it leaves the essential minerals behind and becomes deficient, most obviously in magnesium.

Fertilising with super-phosphate, urea, or nitrates accelerates growth and causes plants to be shallow rooted and therefore /less able to uptake minerals from deeper in the soil. It also lowers the pH (acidifies) the soil and pasture. In healthy soil there needs to be the right balance of fungi to bacteria. **The lower the pH, the more fungi and the less bacteria. Fungi really thrive in these acid conditions. Rye-grass also loves a lower pH. This IS the root cause of why MYCO-TOXINS and MINERAL IMBALANCES are such a big problem. See below.**

Add to this the fact that that paddock of green, growing grass your horse is grazing is the equivalent of a bowl of sugar! Then we go to the feedstore and buy more sugar in the form of molassed grains. No animal stays healthy for long when their diet is predominantly sugar. This high sugar/carbohydrate, low fibre intake leads to amongst other things (See Obesity) an impaired insulin response, contributing to insulin resistant and 'diabetic' horses and ponies which are prone to laminitis and eventually the Cushings-like syndrome. It also leads to restricted peripheral circulation (eg in the hooves) and hind-gut acidosis, which has much more serious consequences than the horse just having runny manure for a few days!!!

Many horses graze pasture that is termed 'horse-sick' because it is never fertilized or attended to. It will likely have a low pH (docks, gorse, blackberries and other undesirables love this environment) which, as already mentioned, also suits the endophyte rye-grass and fungal populations in general and also tells you loud and clear that the soils lack, amongst other things, calcium and magnesium.

Add all this to the fact that perennial rye-grass, containing endophyte fungi that produce mycotoxins that are known to affect the health of stock, is the dominant grass species throughout New Zealand.

In actual fact myco-toxins are present, to varying degrees, on and around ALL plants everywhere, including legumes.

(I am told by a researcher at Kimihea that the rye-grass of North Canterbury is a particularly virulent strain)

Stress on the grass caused by drought, or being eaten by an insect or an animal, causes myco-toxin production to go even higher.

What are the Signs of Toxicity and/or Mineral Imbalances?

Because both these tend to happen unpredictably and simultaneously, especially coinciding with flushes of pasture growth, it can be difficult and fruitless to try and differentiate so it is best to address both issues regardless.

- **Toxins are ones that have been *ingested* with pasture or feed
(They respond to a toxin-binder or removal from pasture)**
- **Mineral imbalances are complex and it is important to consider the inter-relationship of them all, however malnourishment of the macro-minerals such as Calcium and Magnesium have very serious consequences. They definitely require urgent attention in the short term in the form of appropriate supplementation.**

Meanwhile if your horse exhibits any of the following then it is highly likely he is 'affected' by his diet, in particular the grass he is eating.

Often starts with: general 'tetchiness', an unwillingness to be touched, or tensing up and reacting when touched, especially around chest and thorax

This can cause: cinchiness/girthiness, not standing for saddling/mounting
general crabbiness when ridden, pinning ears, swishing tail etc
tightness, tenseness, impulsiveness, wanting to run off, can't use your legs
reaching around to bite the girth when ridden

Progresses to: touchy around ears
Flings off suddenly when haltering
Difficulty with bridling
sore across the loins
uncharacteristic bucking when first moves off with girth tightened
discomfort when walking downhill
- excessive aggressiveness towards you or other horses (viciously biting you, attacking, hounding other horses, you think they're a 'rig')
-excessive herd bound behaviour (eg screaming maniac, irrationally attached to another horse)

Can exhibit both these previous two 'opposite' behaviours concurrently!!
Bucking (quite violent and "out of the blue")
Bolting off in short bursts
'ballistic' behaviour

Hypersensitivity:	excessive spookiness/alertness Shies away when approached, hard to catch 'spaced out', 'wired', 'not there', hallucinating eyesight seems to be affected, can't judge jumps overly claustrophobic (reluctant to ride close to the arena wall, rushes off the float etc)
Staggers:	heavy on the forehand, stumbling over nothing Standing 'base-wide' difficulty backing up, out of floats etc discomfort walking downhill slightly drunk or 'zonked' looking head twitch
Heat stress:	uncoordinated movement, staggering, giving out in the hind-quarters instantly overheats when you put the cover on Running madly around paddock for no reason (while other horses aren't) Slamming into fences/gates Excessive sweating, white sweats, smelly sweats, sweating in unusual places, eg on top of rump, patches on upper neck General agitation Fence walking
Head-Flicks	Like a bug has flown up their nose, can be worse on sunny days
Colic:	when autopsy shows hindgut necrosis due to vaso-constriction of blood supply to the intestine (too late to try a toxin-binder)
Reproductive:	raging seasons, not cycling properly Difficulty getting in foal Abortion Prolonged gestation Reduced milk production Weak suckling by foal
Ill-thrift:	chronic dull/rough coat Won't put on weight, looks wormy but not, no topline Consistently small, frequent manure Scours/diarrhea Lifeless eyes, dull, nobody home No energy, lethargic Falling asleep on their feet (like narcilepsy)

1. Myco-toxins

These are produced by various types of fungi.

Some of these fungi live *inside* the plant and are called *endophytes*. Perennial rye-grass which is the predominant grass in New Zealand contains endophytes which produce two very harmful myco-toxins, namely lolitrem B and ergovaline.



Perennial Rye-Grass



Paspalum

Make it your business to be able to recognize these grasses. When not in seed, the rye-grass is characterized by narrow, dark green, shiny leaves.



endophytes removed as in low or zero-endophyte are still not suitable for horses.

Compare the lower picture with the one above.

Horses thrive on the high fibre diet. Have you ever noticed when the grass browns off in the late summer that horses 'bloom' and are 'easier going'? Same in winter when they are eating more hay and the grass is not growing at all or very slowly.

The following is a picture of a horse in blooming health with excellent feet. He was just rounded up off the country pictured above.(the brown one!)

The rye-clover pastures seen on most NZ farms is nothing short of disastrous for horses and will cause you nothing but Trouble!



Clover is 1/3 higher in sugar and starch than grass. All rye-grasses are high sugar grasses therefore even when they have had the strains they



Equally dangerous are the myco-toxins produced by fungi that live on the outside of plants and in the surrounding soil, especially on the seed heads and in any decaying matter. You will perhaps have heard of the ergot, rust molds and facial ecsma spores. Maybe even of Aspergillus, a known asthma allergen in humans.

Until recently, we horse owners didn't take too much notice of fungi in our horses' environment, apart from knowing not to feed moldy hay or feed. Because they are usually **invisible**, and myco-toxins **do not** show up in blood tests, it has taken awhile to make the connection between many health and behaviour problems in our horses and these insidious equine trouble-makers!!

Our climate in NZ, and the generally low pH of the soils, means the conditions are frequently very favorable to the explosive proliferation of fungal spores and myco-toxins. If you happen to live anywhere near any orchards you will know how often they spray for fungi. You will have seen molds suddenly appear on horse manure from time to time. Fungi love acidic conditions, so pasture fertilized with traditional super-phosphate makes an ideal environment for them.

The lifestyle of the typical kiwi horse means they spend most of the time out grazing the pasture. Consequently they are inevitably ***ingesting and inhaling*** vast numbers of fungal spores and myco-toxins 24/7. Not just at certain times of the year, but ***any time the conditions favor fungi!***

It is no surprise that the results of the "Equine Health & Behaviour Survey" fit with this information. The horses with the most, and severest symptoms are invariably grazing the 'improved' pastures, especially the rye/clover mixes. Of these, most are also being fertilized with super. However, there are some horses with severe symptoms that live on rye-grass pasture that hasn't been fertilized in 10 years, and some that graze 'low-endophyte' pasture and still show symptoms. Thousands of horses throughout New Zealand suffer, for many months of the year, from an array of the symptoms listed below.

All of the 'severe' cases have exasperated owners who have spent many hundreds, sometimes thousands of dollars investigating other possible causes. They have had numerous blood-tests (which time after time come up clean), equine practitioners of all descriptions, multiple saddle fittings and sometimes up to three new saddles, horse dentists and hoof trimmers. Finally they hear about feeding a toxin-binder (a completely natural food that locks on to toxins in the horses' intestine, prevents them from going thru the intestine wall and into the bloodstream, and carries them out with the manure). Within days they are astounded at the difference in their horses. Even their husbands notice improvements!!

Due to the fact that there are hundreds of different myco-toxins lurking in and around all pasture types throughout New Zealand it is no surprise that the above scenario is very common. Because feeding a toxin-binder is simple, comparatively inexpensive, and totally safe, it would seem logical to go down this avenue along with addressing mineral imbalances, *first* if any of the above list of symptoms arise in your horse.

Toxin-Binders Explained

A toxin-binder helps to protect the horse from the toxins which can cause ill-health..

It is NOT a cure. It merely locks on to the toxin, making it too large to go thru the intestinal wall, thereby preventing the toxin from getting into the bloodstream of the horse. Sometimes, when the climate favours proliferation of fungi, or grazing hard means horses are eating the base of the plant*, or when seed heads are present, the toxin-binder has its work cut out and you will need to up the dose, or completely remove the horse from pasture until the symptoms subside.***

*******(this causes the plant to 'dial up' mycotoxin production as a survival response to discourage the animal or insect from eating it).***

Horses do not become 'immune' to the toxin-binder. How could they? It does not even enter their bloodstream.

Respiratory Problems

May be caused by *Inhaling* Toxins and Pollens which are Allergens

These symptoms therefore *don't* respond to a toxin-binder

inflamed nasal membranes

'runny' noses, gunk in the corners of their eyes

blisters/ulcers up the nose (swabbing proves negative for Herpes)

coughing in paddock and/or on exercise

excessive snorting

breathlessness, out of 'puff' after very little exertion, can't get fit

wheezing

'gunk' out of one or both nostrils periodically

nose-bleeding when at rest out in the pasture

Many horses suffer from one or more of the above symptoms, some to the point where they are retired or their careers cut short. Once again extensive investigations which involve scoping, blood tests, etc are often fruitless and expensive.

On a sunny day, hold your horses' nostril open towards the sun and look up the nasal passages. Hopefully it is pink and clean looking. If it looks inflamed, or looks yellowy and bumpy, or there are little 'blisters' or even larger ulcerations, then your horse could have one of the allergies we are talking about.

When you think about it horses have their noses down in the grass eating most of the time. Whilst they are eating they are also breathing. There are quizzillions of fungal spores in the grass which get sucked up their noses. For instance spores from the rust molds and aspergillus fungi, both very common on our pastures, are known to cause hay-fever and asthma in humans. It stands to reason that some horses will also have allergic reactions to them. In fact some of the symptoms in our horses are very similar to asthma in humans.

If your horse has the laboured or noisy breathing, (symptoms similar to asthma), then he is suffering from constriction of the airways. Remember that magnesium is a natural dilator so keeping magnesium levels right up there is hugely beneficial. (Major clue)

Pasture with any length to it creates the ideal environment for fungi to proliferate within hours of the right conditions, so in this case very short, or zero pasture is best. It goes without saying to feed good quality, non-dusty (dunk in water if necessary), non-mouldy hay.

Leaving matter to decay on the ground, such as toppings, creates a wonderful environment for fungi.

An interesting fact is that when your soil is biologically active and minerally balanced, (ph up towards 7) fungi will not thrive, whereas they love in an acidic environment. (See Probitas). By attending to the 'cation capacity' (Calcium, magnesium, sodium and potassium balances) the pH of the soil will improve. This reduces the fungal populations to the optimal level.

One suggestion in the meantime, is to smear some Vaseline around the inside of the nostril to catch the spores and pollens on the way up. (Apparently you can do the same thing on aeroplanes and buses to prevent other peoples' germs going up your own nose!)

Keep magnesium intake right up there as when magnesium levels decline, the incidence of allergies and asthma rises. (see "Magnesium Deficiency" below)

Nose-Bleeding

This can occur when the Aspergillus fungus 'sets up camp' in the walls of the guttural pouch of the poor horse. Their preferred location is on one of the major blood vessels that are right there. The blood vessel gets damaged and bleeds. It's as simple as that. Sometimes this colony of fungi damage nerves in there, which can cause difficulty swallowing.

Unfortunately it's not that simple to eradicate it. It is a serious and debilitating condition and horses have been known to bleed to death. Surgery may be required.

This form of nose-bleeding is not related to exercise. If it is induced by exercise there is a different cause.

There is an excellent article "The Whys and Wherefores of Guttural Pouch Disease" by Dr Dwayne Bennett. Google will find it. Go to 'Guttural Pouch Mycosis' for more details.

Skin Conditions

I am talking about the persistent ones that don't respond to the normal treatment regimes. Where the poor horses rub and scratch their bellies on the ground so much that they bleed, or reach around and bite their elbows until they bleed. These conditions require a drastic reduction in sugar (lush grass) consumption and corresponding increase in hay consumption to restore hind-gut health and function, which will kickstart B-Vit production (essential for healthy skin), ensure omega 3's are in the diet with a good quality multi-vitamin and mineral supplement.

The answer lies in getting the horse into a state of optimal health.

Mineral Imbalances especially Magnesium Deficiency

Unless you have been organically farming for years, or applying the Probitas (or similar system) to your soil, your pasture WILL BE minerally imbalanced, in particular deficient in calcium and magnesium. These macro-minerals are so vital to life that if the animal isn't getting them from the grass he is eating then we *must* supply them in the form of a supplement for the following very good reason...

****The body pH of the horse (or any mammal including us) is supposed to be up around 7.

When the pH is less than 7, from eating too much sugar/carbohydrate from grass and molassed grains, the body is acid and numerous health problems arise from being in a state of 'acidosis'. If the diet does not contain enough calcium and magnesium then the body has to continually swipe these vital minerals from the bones, muscles, (including the heart), nerves, and brain, to maintain this pH.****

.....NOTE! This article continued in Part 2 from www.HorsemanshipNZ.com