

Chapter 1: Introduction

When you watch your horse graze, you are correct in thinking that this is the most natural way for your horse to feed itself. Millions of years of evolution have created this harmonious, symbiotic relationship between grazing animals (your horse) and plants. Plants also benefit from this relationship, just as the horse relies on plants for nutrients those plants rely on the action of grazing to promote growth and reproduction.

However, several factors, including the domestication of horses and the selective breeding and production of certain plant species, have created an imbalance in this once harmonious relationship.

Pasture is land used for grazing. Pasture usually consists mainly of grasses with legumes and other forbs (non-grass herbaceous plants).

Symbiotic relationship between grazing animals and pasture plants.



On the subject of horses and pasture, there are two real issues of concern for the modern horse owner; the first being how the nutritional changes associated with the new grasses have detrimentally affected the horse, and the second being the challenge that horse owners face to keep horses on relatively small areas of pasture, without causing overgrazing and land degradation.

What we are currently experiencing in the horse world is a growing epidemic. This epidemic has numerous causes and several symptoms, sometimes appearing to conflict with each other, but in reality adding to each other.

The issues include, in no particular order:

- An increase in equine obesity with its related issues.
- Increasing urbanisation and conflict for space.
- The impact of horses on the environment.
- The impact of social media, with peer pressure from its host of inexperienced 'experts'.
- Commercialisation, designed to sell a quick fix to the unwary.
- Developers and real estate agents promoting unsuitable properties to horse owners.

Once horse owners appreciate that the causes behind many of these issues are linked, and they understand the relationships between their horses, their pasture and the land on which they are kept, they are able to make informed decisions and make beneficial changes, which are often simple to implement.

Whilst many individual horse owners are oblivious for the need to change traditional practices, there *is* a growing awareness amongst the equine community that there needs to be a change. People are investing time and energy in trying to solve these issues. Horse owners seek information from various sources including the internet, their peers and role models. Some try out different systems to manage their horses and their weight, many of which are based on some form of restrictive feeding/grazing practices; although much of the current research shows that this stresses the horse and can actually have a detrimental effect. These restrictive practices tend to also put additional pressure on the land, leading to increased compaction, mud/dust, weeds and erosion- in other words *unhealthy land*. This not only has a negative effect on the land, but also on the image of the equine community in the eyes of other members of society. This in turn leads to bad feeling and ultimately legislative changes, which, when it comes to legislation on horse ownership, are on the increase. We have to be pro-active and not allow a situation to occur where this happens; we have to become responsible, sustainable and ethical horse owners.

To date, horse ownership has been less regulated than many other walks of life, but that is set to change. If we do not improve the way that we keep and manage our horses and land, then we risk having people who have little understanding about this way of life, regulate it for us. Even if you do not own your own land, you should be looking to the future and how you can make changes for the better that will protect your way of life, improve the welfare of your horse/s, protect the

environment and safeguard horsekeeping for future generations, a true win-win situation.

Restrictive feeding practices tend to put additional pressure on the land, leading to increased compaction, mud/dust, weeds and erosion.



Chapter 2: Horses and pasture

The benefits of pasture

Pasture plants are a vital part of our ecosystem and make up a huge proportion of the earth's land surface, 40% of it in fact. Natural pasture is biodiverse and this means that it contains a large variety of species. A biodiverse pasture has many different plants suitable as forage, of which grass is the most prevalent and, probably, the most important. Grass is the most successful of all the plant families – there are over 10,000 species of grass plant worldwide and it provides the bulk of the feed for large grazing herbivores. Pasture has many benefits for horses, the land/environment and ultimately for you – the horse owner.

A biodiverse pasture has many different plants suitable as forage, of which grass is the most prevalent.



Benefits for horses

- Grass and other pasture plants are what horses have evolved to eat; it is their most natural feed source. Horses eat a wide range of pasture species and, although predominantly grazers, they are also browsers and foragers, supplementing their diet with bushes, trees, herbs, berries and succulents.

- These pasture species have evolved over millions of years to have a symbiotic relationship with the animals that graze upon them. Just as the animals cannot survive without the nutrition that biodiverse pasture provides, the grasslands themselves are reliant on the grazing animals for their survival.
- The correct type of pasture is an excellent feed source for most horses. Horses that are working very hard, lactating or growing may need supplementation with concentrate (hard) feed, but this is easily done. Even pasture that is deficient in certain nutrients can be remedied with the addition of supplements (minerals etc.).

Pasture is an excellent feed source for most horses.



- Grazing horses are able to maintain the correct gut fill required to keep gastric ulcers at bay. Horses need and thrive on a very high fibre diet; without it their gut cannot function properly.
- Grazing horses have their head down and are simultaneously draining their airways and breathing fresh air. This is very important as horses have delicate lungs which rely on the lowered head position to keep them clear.
- Pastured horses generally have a better quality of life than their stabled counterparts. Grazing horses are carrying out a natural pattern of behaviour and they do not develop behavioural disorders such as crib biting and weaving. Those that have already developed these behaviours tend to reduce them over time when they spend time at pasture with other horses.

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- Pastured horses have better circulation and better hoof quality due to the continual movement associated with grazing because, while grazing, horses are walking slowly and steadily. Slow steady walking, interspersed with short energetic bursts, is ideal exercise for a horse.
- Pastured horses are exposed to sunlight, enabling them to synthesise enough vitamin D. This of course, is reliant on them not wearing rugs that block sunlight.

See ***The Equicentral System Series Book 1 – Horse Ownership Responsible Sustainable Ethical*** for more information about horse grazing behaviour.

Benefits for land and the environment

- Pasture plants are a highly efficient 'carbon sink'. They take carbon out of the atmosphere and 'sink' it into the soil. This is very important in this day and age when excess carbon in the air is attributed to global warming. Pasture transfers carbon into the soil even more rapidly than trees. Like trees, pasture also produces oxygen; in fact an area of healthy pasture of approximately 25sqm (275sqft) produces enough oxygen for a family of four.

- Pasture plants collect and hold water, preventing the soil from drying immediately after morning dew and any rainfall. Without these plants, valuable water is wasted as it runs straight off the land.
- Pasture plants also slow the movement of water across the land, allowing it time to be absorbed into the soil and prevent erosion.

Pasture plants collect and hold water.



- As they grow, the roots of the plants allow air and water to penetrate the soil. Plants provide organic matter for soil; as their roots grow and die back in a continuous cycle, organic matter then builds up in the soil.
- Organic matter carries out many functions in soil – not least of all keeping the soil particles apart thus helping to prevent it from becoming compacted.
- Pasture plants cover, cushion and protect soil. Without this protection, soil becomes further compacted under the heavy weight of large grazing animals.
- Pasture plants hold soil together, protecting it from erosion. Without this protection, loose soil, along with manure, ends up in the waterways, causing pollution. This function is very important, as without soil and clean water nothing can survive.

Benefits for horse owners

- Keeping horses at pasture saves money spent on bedding and time spent on stable chores. Horse owners have a less strict timetable; horses do not necessarily have to be exercised every day. Time spent with a horse can be 'quality time'.
- Pasture is a convenient and relatively cheap form of feed. Money spent on pasture renovation saves money spent on feed later. Pasture is up to ten times cheaper than the next cheapest form of feed – bought-in grass hay.
- Properties with good pasture have a higher value, therefore spending money and time on pasture management is a good investment.

Pasture is a convenient and relatively cheap form of feed.



The importance of biodiversity

Pasture can be made up of one species type (a monoculture, which would only occur in a man-made situation), or many species living together (biodiversity). In nature, there is *always* a variety of species in any ecosystem – otherwise it would not be sustainable. In a natural ecosystem, there are many types of plants, animals and insects that live alongside each other and have symbiotic relationships with each other, meaning that they cannot survive without each other. Increasing biodiversity, therefore, is not just about taking care of grazing animals and the plants that they eat, but it is also about providing habitat for numerous beneficial creatures, including certain insects and insectivorous birds.

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The problem with monocultures

Monocultures are prone to disease and pest invasion. When biodiversity is lacking, chemicals such as pesticides and herbicides have to be relied upon more and more, because certain pest insects and plants become dominant in the absence of their natural predators. The problem is that many of these chemicals, as well as causing damage to the environment, are becoming less effective as their overuse

has caused resistance to build up in the plants and insects they aim to eradicate. As a result of this, there is now a lot of interest in looking at natural ways of controlling pest insects and plants.

The benefits of biodiversity

- A good, biodiverse pasture provides a wide variety of plants, providing differing nutritional value to horses. Many of these provide different minerals and compounds that have many health benefits too.
- A variety of species will withstand grazing pressure better, as they peak at different times in the season. This staggered growth pattern provides variation to the horse's diet and offers the horse an element of choice as to what plants to graze on and when.
- This well-managed ecosystem also provides habitat for many other animals, some of which naturally predate on pest species.

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Increasing biodiversity

A well-managed horse property can do many things to increase biodiversity. By managing the grazing of your horses, for example, you can increase the organic mass on your land and increase the number of both plant *and* animal species.

Many beneficial insects live in healthy grassland and, by using chemicals such as parasitic worming pastes (anthelmintics) responsibly, you can reduce the damage to beneficial insects such as dung beetles (see the section [Dung beetles and other insects](#)) and earthworms. The same is true with herbicides; responsible usage means less damage to the environment. By planting trees and bushes, you can provide habitat for numerous animals, such as insectivorous birds and insectivorous bats, that will in turn help to control any pest species (see the section [Trees and bushes as habitat for wildlife](#)).

It will take time to establish a varied pasture, but eventually you should be aiming for a blend of grasses, legumes, medics, sedges and herbs etc. (see the section [What to aim for](#) for more information). Horses have evolved to eat a great variety of plants on a daily basis, they need variety in their diet and thrive on it – in the wild, horses have access to a huge variety of plants on a daily basis (see the section [Pasture plants in their natural environment](#)). In the naturally-living situation, horses do not seek a balanced diet every day; they instead seek that balance over the year, as different food sources become available at different times. Biodiverse pasture copies this behaviour as, throughout the seasons, different plants will be available within the grazing area

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Pasture plants in their natural environment

Many pasture plants, in particular pasture grasses, have evolved to coexist with grazing animals, meaning that a symbiotic relationship exists between them and they each rely on each other for survival. Grazing animals obviously rely on plants mainly for food, but the plants rely on the grazing animals for various functions including reproduction, with their seeds being carried and scattered by the effects of grazing.

- In a natural setting, grazing animals move across a landscape; in a migratory fashion for most ruminants and as part of a 'home range' for equines, biting and eating the plants and trampling the rest. The plants are subjected to a short, heavy period of grazing, followed by a period of rest, which stimulates the plants to re-grow and thicken. The animals also leave small indentations on the land with their hooves, into which drops some of their manure, along with the seeds of the plants that they have consumed in the last few days. Some of these seeds are then able to germinate and start life afresh.

Grazing animals move across a landscape; either in a migratory fashion (most ruminants) or as part of a 'home range' (equines).



- In the natural situation, various species of animals graze and browse the plants. Different animal species favour different plant species (with some cross overs), this results in a more even, cleaner graze. Once all of the animals have passed over that particular area of grassland, the plants get chance to rest and recuperate, with the animals only returning periodically to the same areas.

- If they are managed properly, domestic horses and other herbivores such as cattle, sheep, goats, etc. are very beneficial to grasslands – in fact they are essential to it. Without grazing or artificial intervention such as regular mowing – which after all, only attempts to copy grazing, a grassland will eventually become rank and stop growing and may, ultimately, even turn back to forest in some areas. It is all about controlling the grazing pressure so that the plants get the beneficial effects of being grazed without the negative effects of being overgrazed. In turn, the grazing animals (horses and any other animals) get a more varied diet due to the increase in biodiversity (see the section [The importance of biodiversity](#)), which is fundamental to all grazing animals.
- What happens to pasture plants in the domestic situation is usually quite different. The practice of set-stocking is more common in a domestic situation (see the section [Set-stocking](#)) and because this in no way replicates how plants have evolved to thrive, they become ‘stressed’ and develop ‘coping mechanisms’ as a response to that stress. This can make the plants dangerous for horses to graze (higher in sugar etc.).

The practice of set-stocking is common in the domestic situation.

