

Code of Recommendations and Minimum Standards for the Welfare of Horses

Code of Animal Welfare No. 7

ISBN 0-478-07310-0

ISSN 1171-090X

**Animal Welfare Advisory Committee
C/o Ministry of Agriculture and Forestry
P O Box 2526
WELLINGTON**

February 1993

Contents

Contents	2
Preface	3
1. Introduction	4
2. Legal Responsibilities.....	5
3. Grazing of Horses	6
3.1 General Requirements	6
3.2 Care of Paddocks	6
3.3 Stocking Rates for Paddock-Grazed Horses.....	7
3.4 Fencing	8
3.5 Yards and Shelters	9
4. Housing.....	12
4.1 Stables.....	12
4.2 Loose Boxes	13
4.3 Stalls	14
5. Feeding of Horses.....	16
5.1 Calculating Horse Bodyweight.....	16
5.2 General Feed Requirements.....	16
5.3 Feed Value of Pasture.....	17
5.4 Supplementary Feeds.....	17
5.5 Specific Feed Requirements	19
5.6 Overfeeding, Obesity and Laminitis (Founder).....	23
5.7 Water Requirements	23
6. Husbandry.....	26
6.1 Supervision of Horses.....	26
6.2 Preventing Common Diseases and Unhealthy Conditions	27
6.3 Working with Horses.....	30
7. Agistment of Horses	35
8. Horse Hire Premises	36
8.2 Definition.....	36
8.3 Responsibilities of the Proprietor	36
8.4 Responsibilities of Supervisors	37
8.5 Records and Inspections	38
9. Organisers of Equine Activities.....	40
Appendix I.	43
Body Condition Scoring of Horses (Based on the Carroll and Huntingdon Method).....	43
I.1 Method.....	43
I.2 Score	43
Appendix II. Bodyweight Estimation of Horses	46
Appendix III. References	47

Preface

The codes of recommendations and minimum standards for the welfare of animals have been prepared by the Animal Welfare Advisory Committee (AWAC), which was established in 1989 by the then Minister of Agriculture to advise him on matters concerning animal welfare.

AWAC consists of members from the following backgrounds: the farming community, animal welfare groups, the veterinary profession, animal behaviour and the Ministry of Agriculture and Fisheries. It also includes the chairman of the National Animal Ethics Advisory Committee, an independent chairman and, up until February 1991, a philosopher.

Extensive consultation takes place with industry and other interested groups in the development of codes.

This *Code of Recommendations and Minimum Standards for the Welfare of Horses* was endorsed as a national code at the committee meeting held on 12 November 1992.

The codes of recommendation and minimum standards which have been endorsed by AWAC are:

Code of Recommendations for the Welfare of Circus Animals and Information for Circus Operators.

Code of Recommendations and Minimum Standards for the Sea Transport of Sheep from New Zealand.

Code of Recommendations and Minimum Standards for the Welfare of Sheep.

Code of Recommendations and Minimum Standards for the Welfare of Dairy Cattle.

Code of Recommendations and Minimum Standards for the Welfare of Deer During the Removal of Antlers.

Code of Recommendations and Minimum Standards for the Welfare of Animals Used in Rodeo Events.

The codes of welfare may be revised to take into account changes in practices of animal management and knowledge of animal welfare.

1. Introduction

Animal welfare considerations are becoming increasingly important for the keeping and raising animals, both in New Zealand and internationally. Practices which may once have been deemed acceptable are now being reassessed and modified according to new knowledge and changing attitudes. High standards of animal welfare are not only important legally, but also have direct economic benefits and ensure international market access.

Without good stockmanship, the welfare of animals can never be adequately protected. This code is intended to encourage all responsible for horses, and especially the inexperienced, to adopt the highest standards of husbandry.

The code takes account of five basic requirements:

- freedom from thirst, hunger and malnutrition
- the provision of appropriate comfort and shelter
- the prevention or rapid diagnosis and treatment of injury, disease or infestation with parasites
- freedom from distress
- the ability to display normal patterns of behaviour.

The term *horse* is used in this code to include all equine species. The code therefore applies equally to donkeys and mules.

The management of feral horses does not fall within the scope of this code.

2. Legal Responsibilities

It is an offence under the Animals Protection Act 1960, to cause unnecessary pain or suffering or unnecessary distress to an animal. The breach of a code provision, whilst not an offence in itself, can nevertheless be used in evidence as tending to establish the guilt of anyone accused of causing suffering under the Act.

Specifically, the Act indicates that an offence is committed if anyone:

- cruelly ill-treats any animal
- omits to supply it with proper shelter or proper and sufficient food and water sufficient to maintain the liveweight of the animal within the normal physiological range for its species, type, age and sex
- neglects the animal so that it suffers unreasonable or unnecessary pain, suffering, or distress
- slaughters, brands, mutilates, confines, conveys, or carries any animal in such a manner or position as to cause the animal unnecessary pain, or suffering
- keeps alive any animal which is in such a condition that it is cruel to keep it alive
- docks the tail of any horse, unless the docking is performed by or under the supervision of a veterinary surgeon
- performs on the tail of any horse the operation known as knicking
- being the owner or person in charge of any animal, permits it to be driven or led on any highway, or permits it to be ridden or transported, while the condition or health of the animal is such as to render it unfit to be so driven, led, ridden or transported
- castrates any horse, mule, or ass, unless the castration is performed by or under the supervision of a veterinary surgeon.

In the context of the Act:

- *ill-treat* means beat, whip, kick, wound, maim, abuse, torment, worry, torture, terrify, infuriate, override, overdrive, overload, drive when overloaded, or by any act or omission whatsoever cause pain, suffering, or distress
- *cruelly* means that the ill-treatment or act or omission causing pain, suffering or distress, is wilfully inflicted and in its kind or degree, or in the circumstances in which it is inflicted, is unreasonable or unnecessary.

3. Grazing of Horses

3.1 General Requirements

In New Zealand, horses are kept under a variety of conditions, from extensive grazing to intensive housing in yards, pens and stables.

The risk of injury to animals increases where horses are overcrowded, and competition for food, water and space may lead to fighting.

Subordinate animals must have an opportunity to escape bullying by dominant animals. Colts, stallions and mares close to foaling and sick animals generally require segregation from other groups to reduce the risk of injury and transfer of disease.

Minimum standards for all premises

- Every property on which horses are kept must provide an adequate number of paddocks or yards to permit incompatible animals to be segregated.
- The number of horses and their grouping in each paddock or yard must be appropriate for their compatibility and for the ground conditions, taking into account the climatic conditions pertaining at the time.

3.2 Care of Paddocks

Horses are poor utilisers of pasture, compared to cattle or sheep. Most horse pastures contain a large proportion of weeds and “roughs” where horses are the only grazers.

Horses will not eat pasture that is contaminated with horse dung. This usually causes the contaminated area to become larger and the grazing area smaller. The pasture growing round the dung patches is usually lush and looks to be the best feed, while the patches in between will look overgrazed.

Where possible, horses should be grazed in conjunction with cattle or sheep. The other species will clean up the “roughs” while also reducing the worm contamination on pasture. Although harrowing can also be useful to spread the dung around, in moist conditions and when the grass is long it may spread worm eggs, making a larger area of the paddock infective. Where no cattle or other grazers are available, it is essential to remove the dung or spread it around regularly during dry periods, when the sun and ultraviolet rays will tend to destroy eggs and larvae.

Grazing animals deplete soil nutrients progressively, which in turn leads to poor pasture quality and growth rate. This should be regularly monitored by soil and pasture analysis. Pasture should be topdressed with fertilisers to replace identified nutrient deficiencies.

Paddocks should be maintained free of plants which are poisonous to horses. Ragwort poisoning has serious results where horses are forced to eat it through lack of sufficient safe forage. Paddocks which expose horses to items of machinery, equipment or rubbish (especially wire) likely to cause injury must not be used to accommodate horses.

3.3 Stocking Rates for Paddock-Grazed Horses

Carrying capacity is a common New Zealand farming term, used to express the number of standard livestock units an area of land will support.

Each different class of grazing animal has been given a stock unit (SU) value based on its estimated feed requirements. As discussed in the later section on feed requirements, even animals of the same species have different feed requirements based on age, breed, type, weight, and stage of pregnancy or lactation, and level of work.

One stock unit is equal to one average-sized breeding ewe feeding her own lamb.

The number of stock units a property will support varies according to soil type, pasture quality and climate. Most farm consultants in New Zealand have access to data which, along with pasture assessment, will give new land owners the estimated carrying capacity of their property in stock units per hectare.

Where the carrying capacity of the land is known, the ideal stocking rate for horses on a pasture-only diet can be worked out on the following SU equivalents:

Pony in light work or turned out	6 SU
Pony broodmare and foal	8 SU
Small (up to 15.2 hands) hack in light work	8 SU
Small hack broodmare and foal	10 SU
Large (500-600 kg) hack in light work	12 SU
Yearling thoroughbreds	12 SU
Large hack broodmare and foal	14 SU

The above equivalents are based on an estimated 50% utilisation of the available pasture. Where pasture utilisation is improved through running cattle, the stock unit equivalent of horses is less than in the table given, but the cattle stock units need to be added in to give the overall stocking rate per hectare.

Feed requirements are covered in detail in Section 5.

Stocking rates can increase over spring, as the spring growth allows. During winter and dry summers, supplementary feed may be required to meet shortfalls in pasture growth.

In wet weather, higher stocking rates may cause excessive pugging of ground. On small blocks, where the opportunity to spell paddocks and prevent pugging is limited, the stocking rate should be reduced to around 1 horse/hectare wintered, and supplementary feeding may be required.

Regularly exercising horses on paddocks used for grazing results in varying levels of pasture damage and reduced feed availability. The stocking rate should be reduced accordingly, where horses are exercised in their grazing paddocks.

Minimum standards for paddock grazing

- Horses relying solely on grazing must be kept at a stocking rate that ensures their individual feed requirements are met, based on age, breed, type, weight and stage of pregnancy or lactation (refer to Section 5).
- Where paddock size and/or pasture availability do not cater for each horse's daily feed requirement, the owner or person in charge of each horse must provide sufficient supplementary feed (refer to Section 5).
- Every paddock grazed must provide horses with access to clean, fresh drinking water at all times.
- In the absence of natural landscape features providing adequate protection against cold conditions, susceptible horses (i.e. very young, very old, sick, seriously injured or non-acclimatised animals) must be provided access to effective artificial shelter (refer also to Section 6.3.4).
- Paddock-grazed horses must always have access to a dry area on which to lie down, except under continuously wet conditions.
- Paddocks which expose horses to items of machinery, equipment, rubbish, or poisonous plants likely to cause serious injury or illness must not be used to graze horses.

3.4 Fencing

The suitability of fencing varies according to the breed, sex and disposition of the horses, as well as stocking density and paddock size. Barbed wire and narrow gauge (2.5 mm) high-tensile steel wire, because of their cutting, non-stretching and non-breaking properties, can cause severe injury to horses. They should be avoided when constructing fences for horses, as should internal fence-stays, which are a common cause of injury.

Fences should be readily visible to horses and properly maintained. The ideal fence for premises designed mainly for horses is the post-and-rail type, with rails treated or painted with non-toxic preparations. A popular alternative, which also provides a good visual barrier, is a single top rail attached to a conventional post-and-wire fence.

A form of internal fencing on horse properties which is growing in popularity is the use of posts spaced about 5 m apart with two electrified wires 60 cm and 120 cm above ground level. A heavier gauge wire should be used to provide a good visual barrier and, as with all electrically fenced paddocks, horses require careful supervision until they have become accustomed to the fence. Temporary internal subdivisions may be created quickly with electrified tape and fibreglass standards. This method must not be used to create pens or yards, as horses are likely to panic and flee when shocked.

All power units for electric fences must be effectively earthed to prevent shorts and electricity being conducted in unwanted places, e.g. gates and water troughs.

A single electrified wire or tape attached to outriggers on conventional post and rail and wire fences provides an effective barrier to prevent contact between animals in adjacent paddocks and chewing of rails. This method may also be used as a temporary barrier where unsound or barbed wire fences must be used.

Gateways should be designed to allow for the easy and safe passage of horses. Gates must be securely fastened to prevent escape and injury to the animals.

Minimum standards for fencing

- The height and strength of fences must comply with a standard which a competent horseman would consider to be reasonable to contain the types of horses being held.
- There must be no sharp objects projecting inwards.
- When first introduced to electric fencing, horses must be supervised closely to ensure they become adequately familiarised.
- Gateways must allow for the easy and safe passage of horses.

3.5 Yards and Shelters

For the purpose of this code, a yard means any small enclosure without a roof, not being a stable, loose box or paddock. Yards are frequently used to accommodate horses in New Zealand but they are not intended to support the grazing needs of horses. They should be situated in well-drained areas and soundly constructed of timber or metal piping.

Horses kept in yards do not have the same freedom of movement as those in open paddocks. They are more susceptible to the chilling effect of cold winds and rain, and heat stress from direct summer sun. Where natural shelter belts and trees do not provide protection from adverse weather, e.g. cold winds, driving rain and hot sun, artificial shelters should be provided (see also Section 6.3.4).

The walls of artificial shelters should be constructed to shield the horse against cold winds. The roof should be constructed to allow adequate ventilation and at a ceiling height which provides a minimum clearance of 60 cm above the poll of the animal when in its normal standing position.

In any yard or shelter, each horse must have adequate room to lie down, stand up, and turn around. There should be a clean, dry area for the horse to lie down, the surface of which protects the horse from abrasions and capped elbows and hocks.

Minimum standards for yards and shelters

- Horses kept in yards must be provided access to effective natural or artificial shelter, or be adequately covered to protect them against cold.
- Yards and shelter sheds must provide sufficient room for each horse to lie down, stand up and turn around.

- The bedding area in each yard or shelter shed must be clean and dry and provide warmth and protection against abrasion.
- Yards and pens must not be constructed with electrified tape or electrified wire as the only barrier.
- Yards and artificial shelters must be soundly constructed with no exposed surfaces or projections likely to cause injury to horses.
- Clean drinking water must be provided at all times.

3.6 Tethering

Tethering is a practice which has a high risk of injury to horses. It is not recommended and should be used only when other forms of grazing or containment are unavailable and when close supervision of the horse can be maintained. Only placid horses and those adequately trained to accept the practice should be tethered.

Minimum standards for tethering

- Horses tethered for grazing must be fitted with a secure halter or collar. Collars must be at least 50 mm wide.
- The tether must be at least 9 m long and include a swivelling device to prevent twisting. The tether may be constructed of soft hemp rope (minimum diameter 25 mm) or 10 mm chain of about 30 mm link. Nylon rope must not be used for tethering, due to its tendency to cause severe burns.
- The tether must be attached as low as possible to the anchor post and in a manner which minimises the risk of entanglement.
- The area across which the tether may travel must be free of obstructions that may entangle the tether. The tether must not be sited in a position that allows the horse or pony to cross or reach any public access way (footpath, road, etc.).
- Tethered horses must be kept under general surveillance and inspected closely at least twice every 24 hours.
- Supplementary feed must be provided twice a day where grazing does not provide the daily feed requirements.
- Clean water must be available at all times in a trough or container that is securely placed and not easily upset by the animal.
- Tethered horses must have access to effective natural or artificial shelter, or be adequately covered (see Section 6.3.4).
- Tethered horses must always have access to a dry area on which to lie down, except under continuously wet conditions.
- Horses or ponies less than 2-years-old must not be tethered.

- Horses must not be tethered in circumstances likely to lead to their becoming agitated, distressed or injured, e.g. in-season mares close to stallions, or horses close to noisy machinery.
- Mares about to foal must not be tethered.

4. Housing

4.1 Stables

In New Zealand, the term “stable” has a variety of meanings. It may refer to a complete training or riding establishment, or an individual loose box used for horse accommodation. In this code stable means any building containing loose boxes or stalls. Such buildings frequently incorporate feed storage and tack rooms.

The main considerations in planning the construction and layout of stables are the safety and comfort of the horses, adequate drainage and ventilation, and the safety of handlers.

The building must be soundly constructed, with no exposed surfaces or projections likely to cause injury to horses.

Floors must be constructed of a non-slip surface and should be designed to direct liquid effluent away from the animal accommodation. Where dirt floors are used, an even surface must be maintained by regularly filling holes which may develop.

Alleyways in stables must be wide enough to allow horses to be turned around in comfort without risk of injury to other horses and people; 3 m is the suggested minimum.

Stable roofs must be high enough to provide good air circulation and prevent hot conditions developing. In areas where horses are to be handled, there must be a minimum clear space of 60 cm above the poll of the animal when they are standing in their normal position. Ideally, the clear space above normal head position should exceed 1 metre. There should be adequate lighting to permit the inspection and safe handling of animals.

Windows or ventilators should be fitted at a high level on opposite walls to provide cross ventilation, but must avoid directing draughts on to the animals. Where necessary, a grill should be fitted to prevent injury to horses. There should be no draughts at floor level.

Fire is always a threat in stable areas. Storing damp straw, hay and used bedding in or near stables is a common cause of fires and should be avoided.

Highly inflammable liquid material must not be stored in or dangerously close to stables where horses are accommodated. Smoking in stable areas should be actively discouraged.

Water containers and feed bins should be constructed and sited in a manner that minimises the risk of injury to horses.

Stables must be designed for easy access to horses, and for their quick release in the event of fire or other emergencies.

Minimum standards for stables

- Stables must be soundly constructed with no exposed surfaces or projections likely to cause injury to horses.
- Floors must be constructed of a non-slip surface and must be designed to direct liquid effluent away from the animal accommodation.
- Alleyways must be wide enough to allow horses to be turned around in comfort without risk of injury to other horses and people.
- In stable areas where horses are to be handled there must be a minimum clear space of 60 cm above the poll of the animals when they are standing in their normal position.
- Ventilation must provide good air circulation in stables without directing draughts on to the horses.
- Highly inflammable liquid material must not be stored in or dangerously close to stables where horses are accommodated.
- Stabled horses must be readily accessible and able to be quickly released in the event of fire or other emergencies.

4.2 Loose Boxes

Loose boxes are commonly used for the overnight or long-term individual accommodation of horses.

The essential factor in deciding on size of loose box is that the horse must have sufficient room to lie down, rise and turn around in comfort.

The recommended minimum floor sizes for various types of boxes are:

- ponies – 3 m x 3m
- horses – 3.5 m x 3.5 m
- mares and foals – 3.9 m x 3.9 m

Loose boxes constructed smaller than these minimums may increase the risk of injury to both the horse and its handler, particularly when young and untrained animals are being housed.

The loose box floor must be constructed of a non-slip surface with sufficient fall to allow liquid effluent to drain away from the animal accommodation. Where dirt floors are used, an even surface must be maintained by regularly filling in holes which may develop.

When any horse is kept in a loose box with a concrete or similarly hard floor for more than 6 consecutive hours, an adequate layer of bedding must be spread over the floor. On dirt floors, bedding must be provided if the horse is to be housed for more than 8 hours.

Bedding must be clean, dry and sufficiently thick to allow the animal to rest, protect it from abrasion and provide a warm bed. Straw is the most frequently used bedding, but deep litter beds of untreated wood shavings, sawdust or bark are also suitable.

In order to maintain a clean dry bed in loose boxes, manure and fouled bedding should be removed daily and stored in suitable bunkers, away from other buildings. To avoid wastage, small quantities of damp straw may be put up to dry in a thin layer around the inside edges of the box.

The interior of the loose box must not contain any rough edges or projections which may injure the horse. There must be a minimum 60 cm of clear space above the poll of the animal standing in its normal position and ventilation should comply with the requirements outlined above for stables. Ideally, the clear space above normal head position should exceed 1 metre.

Minimum standards for loose boxes

- Each horse accommodated in a loose box must have sufficient room to lie down, readily rise and turn round in comfort.
- Loose box floors must have a non-slip surface.
- When any horse is kept in a loose box with a concrete or similarly hard floor for more than 6 consecutive hours, an adequate layer of clean, dry bedding must be spread over the floor. On dirt floors, bedding must be provided if the horse is to be housed for more than 8 hours.
- Bedding must be clean, dry and sufficiently thick to allow the animal to rest, protect it from abrasion and provide a warm bed.
- Manure and fouled bedding must be removed daily from loose boxes.
- The interior of the loose box must not contain any rough edges or projections which may injure the horse.
- There must be a minimum 60 cm of clear space above the poll of the animal when it is standing in its normal position.
- Ventilation must provide good air circulation within the loose box without directing draughts on to the horse.

4.3 Stalls

Some horse premises in New Zealand provide covered stalls for the temporary accommodation of individual horses.

Stalls are ideal for providing a sheltered standing area for horses where separation from others is desirable. Because of their small size, most stalls are unsuitable for overnight accommodation.

A stall must provide sufficient space for a horse to be led in and turned around to reduce possible injury associated with moving horses backward into position. The minimum width and length should be 1.5 m and 2.1 m respectively.

The floor must have a non-slip surface and should drain freely.

Horses in stalls can become irritable, due to their inactivity. Precautions should be taken to prevent horses in stalls kicking and biting adjacent animals, or damaging themselves. Horses should be cross-tied, with leads attached from the head collar to each side rail.

Manure must be removed daily.

The roof should be constructed to allow adequate ventilation and its height must provide a minimum clear space of 60 cm above the poll of the animal standing in its normal position. Ideally, the clear space above normal head position should exceed 1 metre.

The maximum continuous period for leaving a horse standing in a stall is 6 hours, except where the animal is being confined under veterinary supervision.

Minimum standards for stalls

- Stalls must be soundly constructed, with no exposed surfaces or projections likely to cause injury to horses.
- Stalls must provide adequate room for horses to be led in and turned around.
- There must be a minimum 60 cm of clear space above the poll of the animal when it is standing in its normal position.
- Ventilation must be provided to ensure good air circulation, without directing draughts on to the horses.
- Horses must be confined within stalls in a manner which prevents them causing injury to themselves and to adjacent animals.
- Stall floors must have a non-slip surface and should drain freely.
- Manure must be removed daily.
- Horses must not be continuously confined in any stall for longer than 6 hours unless under veterinary supervision.

5. Feeding of Horses

5.1 Calculating Horse Bodyweight

Before any accurate feed calculations can be made, the bodyweight of the horse must be estimated. Both in New Zealand and internationally, horse breeders and trainers recognise the merit of weight monitoring to improve feed efficiency, growth rates and performance. Bodyweight assessment is also required in the treatment of many parasitic and disease conditions.

The easiest, most accurate method of determining bodyweight is the use of electronic scales. However, this is the most expensive option.

Another, usually less practical option, is to take the horse to a roadside weighbridge.

When using scales, weighing the animal just before feeding and watering will help avoid variations caused by different gut-fill levels and will make the results of successive weighings more meaningful.

For those without scales, this code includes a condition scoring method and charts which enable the average horseman to establish a horse's weight by relating height and condition score or girth and length. The girth-length method must be used when assessing the bodyweight of racehorses in full work – the other method will over-estimate their weight. (Refer to Appendices I and II.)

5.2 General Feed Requirements

In its natural state, the horse eats a variety of forages (mainly grasses) to meet its nutritional needs. Due to the small size of its stomach, the horse will normally consume its daily intake over 16-20 hours.

When the energy requirements are low, such as for horses in light work, dry broodmares and non-working horses, fresh forage can provide most of the horse's needs. When pasture is limited, however, the diet should be supplemented with dried forage, i.e. hay or chaff.

Provided the stocking rate is correct, most broodmares can meet their energy, protein and mineral demands from an adequate supply of good quality spring pasture, since they have adequate time to consume the quantities required (refer to Section 5.3).

When a horse is working, its feed demands increase and a pasture-only diet may not be sufficient to meet the increased needs. Forage takes a long time to digest and the horse may not physically be able to eat enough to sustain its needs. Horses in moderate-to-heavy work generally need supplementary feeding in the form of grains or concentrates.

To avoid major health problems, any changes in the type and quantity of feed should be introduced gradually over a period of several days.

When working horses are given a “rest” day (i.e. a day without any work), it is important to reduce the concentrate or grain part of the ration by approximately one-third. Failure to do this is likely to result in energy overloading and “tying-up”.

Hay generally contains about 15% water, whereas grass has levels as high as 80%. Most grains contain less than 15% water. For this reason, food intake is best expressed in terms of kilograms of dry matter (kg DM). This is the feed content less the weight of the water.

It is important to think about feeding in terms of weight rather than volume, as different feeds have different densities, as well as the different water contents mentioned. A feed dipper of oats, for example, will weigh less than one of maize and far more than the same one filled with chaff or bran.

The seeds of grains provide more energy per kilogram fed than forages (pasture, hay or chaff). However, some forage (fibre) must be fed to aid digestion and keep the horse healthy. The minimum daily intake of fibre for horses should be 1 kg DM/100 kg bodyweight.

5.3 Feed Value of Pasture

Due to the seasonal growing cycle of grasses and clovers, the nutritional value of pasture changes. In New Zealand, our pastures are predominantly temperate grass species (e.g. ryegrass, cocksfoot, prairie grass) and clovers. Clovers are high in protein and are of high nutritive value.

In spring, pasture is lush with new, immature growth and has a high energy content per kilogram of dry matter. However, as it contains over 80% water, the horse has to consume around 5 kg fresh weight to take in 1 kg DM.

Over summer, the grass becomes stalky and the dry matter content increases, while the energy content per kg DM decreases. Pasture growth in many areas of New Zealand is affected by the lack of rain in late summer, reducing the amount of feed available.

During autumn the grass grows lush again, but has a higher dry matter and lower energy content than in the spring.

In winter, pasture energy levels are adequate, but poor pasture growth or bad weather may mean that supplementation is required.

Refer to Section 3.3 for recommended stocking rates for horses grazed on pasture.

5.4 Supplementary Feeds

5.4.1 Importance of quality

When considering the supplementary feeding of horses, an important point to note is that horses tolerate poor feed poorly. Horses will not thrive unless they are fed good feeds in the right quantities.

5.4.2 *Dried forages*

Meadow hay is a form of roughage commonly fed to horses in New Zealand to supplement pasture. It must be of good quality to supply nutritional requirements and avoid health problems, i.e. it should be dry at the time of feeding, smell fresh and be free from dust and mould. An average bale of meadow hay normally weighs 20-25 kg.

Lucerne hay is higher in protein than meadow hay. It should be leafy and green in colour, and free from mould. Bales of lucerne usually weigh 30-35 kg.

Both oaten and lucerne chaff may be mixed with grains and concentrates. They have the advantages over hay of reducing wastage and preventing horses from bolting their feed. To reduce potential respiratory problems, it is important that chaff is dust-free. Dampening of feeds with a high chaff content, just before feeding, is recommended to aid digestion and prevent dust inhalation.

5.4.3 *Cereals*

Cereals should generally be the major component of a feed designed to meet extra energy needs. All grains can be processed to improve their utilisation. It should be noted that processing may reduce the feed's nutritional value.

Cereals should always be measured by weight rather than volume when feeding, as there are marked differences in densities not only between types of grains, but also within different consignments of the same grain.

To avoid digestive problems, consideration should be given to bulking-out by adding bran or chaff.

Oats is very safe to feed, as it forms a loose mass in the stomach which aids digestion. Oats should be bright in appearance. Bruising is considered by many to aid digestion, but the storage of bruised oats reduces its nutritional value and should be avoided.

Maize has a higher energy value than oats. It tends to compact in the stomach and is generally considered to be more easily utilised when crushed, cracked or kibbled. Maize is generally cheaper than oats.

Barley's energy value lies between that of maize and oats, and it also has the tendency towards compaction. Its hard husk needs to be crushed or cracked to aid digestion. It is sometimes mixed with the ration in meal form, or boiled.

Wheat causes severe digestive problems in the horse unless fed with extreme care. It is not considered a suitable supplement for horses and should not be fed.

Bran is the husk of the wheat grain. It is a bulk food, low in energy but useful as a laxative when well dampened. As such, it may be useful in feeding older and sick horses. It should not form more than 10% of the total ration. It can be used as a mash in the place of energy foods on rest days, to avoid "tying up".

Linseed and soya bean are protein-rich foods often included in conditioning rations for young and growing horses. They should be fed in small amounts only, and introduced gradually.

Commercially blended feeds – There are many brands of purpose-blended horse feeds on the market in New Zealand. Providing the manufacturers' feeding recommendations are followed (this information should be printed on the label along with an analysis of ingredients), these provide a simple method of supplementation. Where small numbers of horses have similar supplementary feeding needs, premixed balanced feeds can save the horse owner work and ensure continuity of diet.

When feeding commercially blended feeds, as with all forms of supplementation, care must be taken to ensure the horse has access to its minimum daily forage (fibre) requirement of 1 kg DM/100 kg bodyweight/day.

Salt (sodium chloride) – Horse feeds are generally low in salt. Where horses are working and sweating, salt and possibly electrolytes, are required to be supplemented. Hand-fed horses should have salt added to their feed at 2-4 tablespoons/day, depending on their size and level of work.

Selenium – Most areas in New Zealand are low in selenium. If supplementary feeds sourced from selenium-deficient areas are fed to animals grazing on land with marginal selenium levels, a deficiency in the horse is likely to occur. Veterinary advice should be sought on this and other possible trace element or mineral deficiencies peculiar to any grazing area.

5.5 Specific Feed Requirements

5.5.1 Feeding levels can be worked out in terms of:

- Either dry weight expressed as kilograms of dry matter (kg DM), which can then be converted into actual weight fed.
- Or energy content in megacalories (Mcal). This method is more accurate as it takes into account the different energy values of the same weight of feeds. It should be used by those involved in training horses for strenuous activities that require high levels of fitness and for stud properties.

For simplicity, this code concentrates on the dry matter measurement.

The amount of feed required by the horse is made up of two factors:

- maintenance needs
- activity needs (which include rate of work, growth, lactation and pregnancy).

Both requirements must be satisfied to maintain body condition and weight.

5.5.2 *Maintenance needs.*

Maintenance feed is the amount required to maintain the horse at rest. "At rest" means that the work required of the horse is no greater in physical activity than that expected of a healthy horse grazing freely in a paddock. This includes horses being

spelled from their usual work, learners' horses which rarely get into a canter, and pleasure horses ridden carefully at a relaxing pace for no more than 1 hour/day.

Sweat may appear in small amounts on the neck during hot weather, but there should not be noticeable increase in breathing rate above the normal in the horse classed as at rest.

If fed to appetite, the average horse will consume 2% of its bodyweight, as dry matter, to meet daily maintenance requirements. Regular condition scoring or weighing will help establish any individual variation required from the 2% bodyweight guideline.

A 500 kg horse therefore needs a maintenance ration of 10 kg DM.

Table 1 shows the approximate maintenance dry matter feed requirements of different weights of horses. Also shown, for interest only, is the digestible energy requirement expressed in megacalories (Mcal).

Individual horses have varying digestive capabilities which affect maintenance requirements. Periods of extremely cold weather may also increase maintenance needs by up to 30%. Temperament is a further factor to be taken into account, as nervous or highly strung horses consume far more energy than do quiet horses of the same bodyweight.

Table 1. Average daily maintenance requirements of horses

Bodyweight	Dry matter (kg)	Digestible energy (Mcal)
150	3	5.9
200	4	7.4
250	5	8.9
300	6	10.4
350	7	11.9
400	8	13.4
450	9	14.9
500	10	16.4
550	11	17.9
600	12	19.8

5.5.3 Activity needs of pregnancy and lactation

The non-working pregnant dry mare does not require an increase in feed above maintenance during the first 8 months of pregnancy. After that, during the last 3 months of pregnancy, the activity (extra energy) requirement is about 0.5% of bodyweight, as dry matter, so the total dry matter feed requirement becomes 2.5% of bodyweight.

It has been estimated that a normal mare will produce milk equivalent to 3% of bodyweight in early lactation and 2% in late lactation. The milk production of pony mares is estimated at 4% in early lactation and 3% in late lactation.

For example, this means a 500 kg mare should produce 15 litres of milk/day in the first 3 months and 10 litres/day from 3 months to weaning.

In dry matter intake, the lactating mare's activity needs are between 1% and 1.5% bodyweight. Total DM intake should therefore be 3.0-3.5% of her bodyweight.

Table 2 shows the estimated daily dry matter feed requirements for mares from 3 months before foaling to late lactation.

Table 2. Estimated daily dry matter feed requirements of pregnant and lactating mares

Body weight (kg)	Estimated daily dry matter requirements (kg)				
	3 months before foaling	2 months before foaling	1 month before foaling	Early lactation	Late lactation
200	4.4	4.6	4.8	5	5
300	6.7	6.8	7.2	9	7.5
400	8.9	9.1	9.6	12	10
500	11.1	11.3	12.0	15	12.5
600	13.3	13.6	14.4	18	15

5.5.4 Activity needs of working horses

The activity requirements of the working horse depend on the intensity and duration of the work, or the load carried or drawn, and the size of the horse.

Exercise increases the energy expenditure, water requirements and electrolyte requirements (the latter due to sweat losses).

The general rule of thumb for working horses is:

- light work requires an extra 25% energy (above maintenance)
- moderate work an extra 50%
- heavy work requires more than an extra 100%.

The following explanation provides objective measures for light, medium and heavy work.

Light – repetitive daily work that causes increased and noticeable sweating on the neck, and a slight increase in breathing rate at the end of exercise or training period. Expected gaits would be slow trotting and cantering.

Moderate – repetitive daily work that causes sweating on the sides of the neck so as to be white in colour in some areas, due to salt and electrolyte excretion, and mild but observable sweating under the flanks and between the chest and forelegs. Respiration rate at the completion of exercise is increased to the stage that recovery to normal takes at least 5

minutes. Expected activity would be fast trotting, cantering and some jumping.

Heavy - repetitive daily work that causes active sweating on the neck, flanks, under the forelegs, and over the body, with noticeable white salt and electrolyte secretions in all areas of sweat but especially on the neck and body. Respiration rate is increased noticeably and recovery to normal takes at least 10 minutes after cessation of work.

Table 3. A sample feed calculation

A 500 kg horse doing moderate work loads, needs to eat:			
Maintenance requirement	(500 kg x 2%)	=	10 kg DM
Plus activity requirement	(maintenance x 50%)	=	5 kg DM
Total dry matter intake		=	15 kg DM
In spring, pasture contains only about 20% dry matter, so the horse would need to eat 75 kg of green pasture/day to supply its requirements. Since its grazing time is restricted by work and the gut capacity may not be large enough to meet this intake, the horse may need to be supplemented with a more energy-dense ration.			
Remember that at least 5 kg of this horse's ration (1 kg DM/100 kg bodyweight) should consist of forage (pasture, hay or chaff).			

5.5.5 Activity needs of stallions

During the breeding season, stallions usually require 25% above maintenance feed, although this will vary depending on the number of mares covered.

During the rest of the year, feeding must be related to work load.

5.5.6 Activity needs of growing horses

Growing horses need feeding above maintenance to supply the “building blocks” for growth. The feed required varies with the expected mature weight, growth rates, age and exercise.

Young horses have a higher protein requirement than mature horses. Their feed should consist of 13-15% protein. Lower protein feeds can be used if young horses are lightly exercised, because exercise increases appetite, which in turn lifts the total intake of protein.

The guideline for feeding young horses is that they need about 3% of their bodyweight as dry matter intake.

5.1.7 Special needs of aged, sick and injured horses

When horses show abnormal loss of bodyweight, despite being fed a diet based on maintenance and extra energy requirements, a veterinarian's advice should be obtained and followed.

A veterinary surgeon's advice may also be required to work out special feed requirements for sick and injured horses.

Horses with abnormalities of the mouth may find normal grazing of pasture difficult and will have a greater reliance on supplementary feeds to maintain bodyweight. This problem is common in older horses (refer to Section 6.2.5).

5.6 Overfeeding, Obesity and Laminitis (Founder)

Some horses, particularly ponies, are able to utilise energy in feeds very efficiently, and can suffer from severe energy overloading. This is one of the causes of a common and crippling disease, laminitis. Founder is a commonly used name for this condition. It is important to note, however, that other causal agents include stress, a sudden increase in work, excessive concussion, and drinking large amounts of cold water when hot.

The common factor with each of these causal agents is a "shock" reaction, one of the effects of which is a reduction in blood circulation to the foot. Urgent treatment by a veterinarian in the initial stages, is essential to avoid a breakdown in the laminar bond which holds the bone structure of the foot in place. Breakdown of the tissues can lead to separation and rotation of the pedal bone away from the hoof wall (Figures 1 and 2).

Figure 1. The normal hoof

Figure 2. Rotation of the pedal bone following breakdown of the laminar bond

Signs that a horse may be developing severe laminitis are an inability or reluctance to move, refusal to get up, distress, rapid breathing, sweating and high temperature. The feet will be particularly hot around the coronary band and the front feet will be stuck out in front of the body. (The coronary band is the ring of soft tissue at the junction between the wall of the hoof and skin on the lower leg.)

Susceptible horses and ponies should have restricted access to spring and autumn pasture and grains. Low energy forages such as hay should be fed.

Horses should not be permitted to become over-fat (condition score 5 using the condition scoring chart in Appendix I). Control of over-weight horses using starvation diets is unacceptable. These horses must be supplied with a balanced reduction diet of food and water.

5.7 Water Requirements

A horse's daily water requirements may range from about 20 to about 70 litres, depending on air temperature and humidity, bodyweight, level of activity and health.

As these include similar factors to those determining feed intakes, water needs are closely related to dry matter feed requirements.

As a general guide, horses need 2-4 litres of water/kilogram of dry matter intake. This requirement increases with air temperature, e.g. an increase in ambient temperature from 13°C to 25°C adds 15-20%.

The basic water requirement for maintenance (see Section 5.5.1) may be worked out at 52 ml/kg bodyweight/day, or in rough figures:

Table 4. Maintenance water requirements of horses

Bodyweight	Water requirements
200 kg	10 litres
300 kg	15 litres
450 kg	25 litres
500 kg	30 litres

Rapid loss of water and essential electrolytes can result from severe diarrhoea, obstructive colic and other bowel diseases. Emergency replacement should be administered urgently by a veterinarian to overcome dehydration.

Horses must not be given access to cold drinking water when overheated and blowing immediately after exercise; they should first be allowed to cool down to avoid the risk of colic.

Water troughs and containers should be regularly cleaned to prevent algae buildup.

Minimum standards for the nutrition of horses

- Every horse must be offered daily a sufficient and appropriate ration of feed, to maintain its body condition at between 2 and 4 points on the condition score chart in Appendix I.
- Every horse's daily feed ration must take into account maintenance and activity needs and other factors considered relevant to the individual animal and its environment.
- For any horse not under veterinary direction, a condition score below 2 points is unacceptable. The horse must not be worked and must be placed on a sufficient and appropriate feeding programme to lift its condition score to a minimum of 2 points.
- Horses must not be permitted to reach a condition score of 5 points. Where identified, they should be placed on an appropriate less-than-maintenance diet. These horses should not be worked.

- Horses and ponies known to be susceptible to laminitis must have restricted access to spring and autumn pasture and grains. Low energy forages such as hay should be fed.
- Where horses are fed supplementary feeds, the minimum amount of forage (grass, hay and chaff) shall be 1 kg dry weight/100 kg bodyweight.
- Every horse must have daily access to a sufficient supply of fresh, clean water to meet its individual maintenance and activity needs.

6. Husbandry

6.1 Supervision of Horses

Every person responsible for the supervision of horses must be able to recognise signs of ill health, have a knowledge of basic equine first aid, and have access to a veterinarian to diagnose and treat any serious illness or injury.

Healthy horses:

- are active, move freely, eat and drink well
- have clear eyes and nostrils, clean skins and coats
- are neither very thin or over fat
- have vital signs within the normal ranges in Table 5.

Table 5. Vital signs of horses

Vital sign	Normal range	Average
Daytime rectal temperature	37.5-38.5° C	38.0°C
At rest pulse	23-70 beats/minute	44 beats/minute
At rest respiration rate	10-14 breaths/minute	12 breaths/minute

Note: Exercise, feeding and excitement will raise the body temperature, while drinking cold water and/or bleak conditions will lower it.

Pulse and respiration can vary widely. Factors which affect it include exercise, excitement, weather conditions and many disease conditions.

Sick horses may show any or a combination of the following signs:

- Lack of energy and loss of condition, which may be due to a variety of causes, e.g. internal parasites, poor condition of teeth or insufficient or unsuitable food.
- Digestive upsets, seen as a loss of appetite, diarrhoea (fluid droppings), soiled tail and hind legs, or constipation.
- Abdominal pain or colic, which may be shown by the horse being reluctant to move or being restless, looking or kicking at its stomach, attempting to lie down or roll, straining as though attempting to urinate, grinding its teeth, and sweating in patches.
- Lameness, due to injury, laminitis (founder), foot abscess or improper hoof maintenance.
- Discharges from the eyes, nostrils or swollen glands under the throat, which may be signs of a respiratory disease and may be accompanied by a cough, fever, and loss of appetite.
- Abnormal vital signs – unusual variations from the normal ranges for temperature, respiration and pulse.

The frequency and level of supervision of horses should relate to the likelihood of risk to the welfare of each animal.

The factors which must be taken into account are:

- stocking rate and availability of feed
- breed, type, nature and disposition
- age and pregnancy status
- nature of fencing and reliability of water supply
- likelihood of injury from natural features of landscape
- activities on adjacent properties with potential to alarm horses and cause injury.

Steps should be taken to ensure horses can be attended to promptly in the event of fire, flood or emergency.

Horses kept under intensive management in stables and yards must be inspected, fed and watered at least twice a day.

Horses turned out in paddocks must be inspected at least weekly. It is recommended, however, that they should be checked daily, at least from a distance.

Mares in late pregnancy must be observed at least daily for signs of impending foaling.

6.2 Preventing Common Diseases and Unhealthy Conditions

6.2.1 *Tetanus and other diseases*

Tetanus is a serious disease caused by bacteria which may gain entry through deep pricks or wounds. Horses should be protected against the disease by vaccination. A local veterinary surgeon's advice should be followed for other serious diseases which may require vaccination programmes.

6.2.2 *Internal parasites*

Internal parasites should be controlled through the use of a planned treatment programme in conjunction with good pasture management.

The frequency of treatment should be determined following discussions with a veterinary surgeon. Generally, however, horses and ponies intensively grazed with others require regular 6-weekly worm control.

Horses kept exclusively in stables and individual yards with no access to soiled pasture, and those kept in large paddocks (10 hectares plus) in conjunction with other species, e.g. cattle or sheep, may only need one worm treatment per year. The treatment regime for these horses should be discussed with a veterinary surgeon.

6.2.3 *Hoof Care*

When unshod, hooves should be trimmed as required to permit normal mobility. Horses ridden or driven on roads or hard, rough, surfaces must be properly shod by a

farrier or competent horseman. Heavy horses pulling loads on roads or paved surfaces must be shod.

Hooves of horses in work should be examined daily for signs of injury and other abnormalities, loose shoes and impacted foreign material.

Hooves of horses not in work should be examined weekly for signs of injury, abnormalities, loose shoes and impacted foreign material.

Where abnormal heat or painful pressure points are found in the hoof, the cause should be investigated by either a competent farrier or veterinarian.

Thrush, a smelly condition of the frog, may be treated by bathing in a 10% solution of formalin and improving stable and yard hygiene.

Loose shoes, and those with risen clenches, should be promptly removed, to prevent possible foot injury. The shoes should be replaced prior to work on roads or hard surfaces.

Shoes should be removed and adjusted or replaced at least every 6 weeks unless a farrier or veterinary surgeon has instructed otherwise.

6.2.4 *External parasites and skin conditions*

To maintain a healthy skin and coat, horses in work should be regularly groomed or washed after strenuous work. Uncovered horses grazed in paddocks should receive infrequent washing only, to avoid removing grease from the coat, which is essential for warmth.

Attention to grooming will help identify parasitic and skin problems at an early stage.

Lice are a common source of itching and discomfort to turned out horses in winter and should be controlled using a recognised wash when signs are first found.

Cattle tick infestation occurs in many areas of New Zealand and may seriously affect the health and condition of foals and young horses. An approved wash should be used for the immediate treatment of affected animals but a plan must be implemented to prevent reinfestation from affected paddocks.

Rain scald, caused by wet conditions, frequently results in rough lumpy areas on the skin surface and, afterwards, significant loss of hair. When this condition is noticed a veterinary surgeon's advice should be obtained for an appropriate treatment.

Mud fever, which has similar characteristics to rain scald but is usually confined to the lower legs, should first be treated by cleansing and application of zinc ointment. If this doesn't work, a veterinary surgeon should be called.

6.2.5 Care of teeth

Horses with worn or abnormal teeth are unable to chew their food properly, resulting in poor digestion. Common signs of this are:

- half-chewed food dropping out of the mouth
- poor condition and lack of energy
- wholegrains, such as oats, in the droppings
- avoidance behaviour, associated with the bit, and failing to respond to pressure on the reins.

In the mature horse, sharp and uneven edges may develop on the outer edges of the upper teeth and on the inner edges of the lower molars. These should be evenly filed by a veterinary surgeon or competent horseman.

In younger horses, the primary or milk teeth are sometimes not shed and this interferes with the digestive process. A competent horse dentist or veterinary surgeon can easily remove these crowns.

The horse's teeth should be examined at least annually for conditions that may cause unnecessary pain or interference with normal feeding and digestion. The period should be reduced to 6 months when concentrates or grains are being fed regularly as a large portion of the ration.

6.2.6 Strangles

Strangles is a serious and highly infectious respiratory disease of horses. It is generally first noticed by a gradually thickening nasal discharge over 1-2 days, accompanied by swollen lymph glands between the branches of the lower jaw. The horse develops a high temperature and increased rate of respiration, and is also off its feed. The lymph glands continue swelling, and in many cases, eventually rupture, releasing large quantities of creamy-yellow pus. Frequently a cough will also develop.

Whenever strangles is suspected a veterinary surgeon should be called immediately. The organism may be readily identified from samples of nasal discharge and rapid treatment during the early stages may prevent development of abscesses and minimise spread.

To further prevent or control disease spread, affected horses must be isolated from others until a veterinary surgeon considers the infective period to have passed. Contaminated equipment and facilities should be disinfected with an effective product before re-use with other horses.

Minimum standards for the supervision of horses

- Every person responsible for the supervision of horses must be able to recognise signs of ill health, have a knowledge of basic equine first aid and have access to a veterinary surgeon, to diagnose and treat any serious illness or injury.
- Horses kept under intensive management in stables and yards must be inspected for signs of injury and ill health at least twice a day.

- Horses turned out in paddocks must be inspected at least weekly for body condition, hoof condition, signs of ill health and ill-fitting halters and covers.
- Mares in late pregnancy must be observed at least daily for signs of impending foaling.
- A veterinary surgeon must be consulted urgently by the owner or person in charge of the horse if there is:
 - acute abdominal pain or colic
 - serious injury involving deep wounds, severe haemorrhage, suspected bone fractures or damage to the eyes
 - evidence of straining for more than 30 minutes by a mare that has not foaled
 - inability to rise or stand
 - inability or abnormal reluctance to move
 - severe diarrhoea.
- A veterinary surgeon must be consulted within 48 hours of the owner or person in charge becoming aware of the following conditions:
 - marked lameness that has not responded to normal first aid treatment
 - injury that has not responded to normal first aid treatment
 - signs suspicious of strangles
 - persistent signs of a cold
 - sustained loss of appetite
 - persistent weight loss
 - stubborn skin conditions that have not responded to treatment, including saddle sores and girth galls.
- The person in charge must follow veterinary instructions regarding the resumption of work.
- Horses suspected of having, or known to be infected with strangles, must not be intentionally mixed with non-infected horses. They must not be moved to a new property during the infective period, unless effective isolation and appropriate care has been pre-arranged.

6.3 Working with Horses

6.3.1 Introduction

Persons involved in handling, shoeing, treating, educating, conditioning, training, riding or driving horses must be able to prove competence relevant to the activity being carried out, or be under the supervision of a competent person.

Competent horsemen recognise the different behaviour patterns of horses, and successful trainers adapt their training methods to suit the individual horse.

Competent people instil confidence in their horses. They recognise that most horses respond best to firm but gentle techniques, and to rewards for correct responses.

6.3.2 *Discipline and restraint methods*

Abnormal physiological and behavioural responses to handling, training and confinement should be recognised and measures taken to correct them. These responses may include aggression, biting, pawing, kicking, weaving, pacing crib-biting or wind-sucking.

Occasionally, disciplinary measures may be necessary with certain horses, to ensure compliance with the trainer's commands or to discourage undesirable habits and responses. Discipline, if appropriate, must be administered immediately following an act of misconduct, and must be no more severe than is necessary and reasonable to achieve the trainer's objectives (refer also Section 6.3.4).

Similarly, any restraint method used to assist normal management or treatment of the horse should be the most mild and effective method available, and should be applied for the minimum required period. An example of this is the use of the twitch, which should be applied with reasonable pressure to the nose only, and for the minimum time required to induce compliance.

Practices which cause pain or distress should not be carried out on horses if milder alternative treatment methods can be adopted. Practices which cause marked pain or distress should be performed only under the influence of suitable anaesthesia or analgesia, administered by a veterinarian.

6.3.3 *Education and training*

Training methods which involve cruelly ill-treating horses are unacceptable (refer to Section 2).

Basic education of young horses (under 2 years old), while desirable, should also be minimal, to reduce the risks of injury and growth abnormalities. These animals should not be given heavy work.

To minimise the risks of injury and distress to young horses, the following recommendations are made:

- Foals less than 4 or 5 months old should be handled to accustom them to being caught and led, and to being confined within a yard, loose box or horse float, when on their mothers.
- After weaning (usually between 5 and 7 months old), foals should be introduced to having their legs and feet handled, and to being tied up and confined alone.
- When first introduced to new harness, equipment or unfamiliar surroundings, the young horse must be kept under close supervision to prevent injury.
- Horses must not be ridden under 15 months old; the preferred minimum age is 2 years (refer also to Section 8.5).
- Only competent persons should ride or drive horses under the age of 2 years, or any unbroken horse of any age.

After being spelled for more than 4 weeks, horses must be given a graduated programme of light and moderate exercise over a period of weeks, before they are exposed to heavy work (see also Section 5). This conditioning period should be lengthened for over-weight horses and those spelled from work for longer periods.

People involved in educating and training horses for competitive purposes should be familiar with the average industry or organisational practices with regard to age, fitness and the suitability of breeds of horses.

Even well-trained animals can be over-ridden. Experience and skill must be employed by riders and drivers in competitive horse events to ensure their horses do not suffer avoidable injury, distress, illness or death.

Every person training, riding or driving horses has an obligation to use the horse in accordance with its fitness and, if in doubt, should seek advice from an experienced horseman.

6.3.4 *Saddlery and equipment*

Ropes used for educating and restraining horses should be pliable, at least 15 mm thick and should be made of hemp rather than nylon. Except during emergency treatment, ropes should not be attached directly to a horse's legs. Leather straps, preferably felt-lined, should be used where leg restraint is essential.

Leather and synthetic harness and equipment should be maintained in clean, supple condition, free from cracks and other features likely to cause chaffing, burns and abrasions. Disinfection of gear is recommended between its use on different horses, to prevent the transfer of infectious conditions from one animal to the other.

Halters left on horses should be checked weekly for damage, signs of chaffing or injury and fit. Young horses outgrow their halters rapidly, causing pressure injury if they are not adjusted and changed as necessary.

Covers are a form of artificial shelter and should be used on non-acclimatised, sick, injured and very old horses for warmth during cold weather. Unclipped horses, turned out in paddocks with reasonable shelter, generally adapt well to their environment and when fully acclimatised do not require covering.

During warm conditions, winter covers should be replaced by summer ones to prevent the animals becoming heat stressed.

If worn during inclement weather, covers must be maintained in a waterproof condition. Covers should be kept correctly fitted to prevent rubbing, hair loss and abrasions.

Horses must be covered when they are kept in temporary yards or pens which do not provide adequate shelter from cold winds and rain. This applies also to tethered horses.

Covers should be removed at least every week for airing, and for the removal of loose hair and caked-on dirt from the cover.

Bits should contain no rough or sharp surfaces which may cause damage to the mouth.

Whips and spurs – These comments do not include the use of whips and spurs during races under the control of the New Zealand Racing Conference or New Zealand Harness Racing Conference, for which special provisions are required.

Whips and spurs should be used on horses only by, or under the direct supervision of, competent horsemen. Their purpose is to reinforce normally used aids such as the voice, hands, seat, legs and heels. They should be used only when the horse has failed to respond to the correctly applied aid.

Whips and spurs do not achieve their intended purpose as training rather than punishment tools unless they are applied immediately the disobedience or resistance occurs. When they are used in the correct manner, the horse learns to respond to the more acceptable gentle aid, and after the initial use the mere presence of the whip or spurs should be sufficient reminder to ensure compliance.

The maximum permissible number of consecutive whip strokes applied in response to any disobedience or resistance is three. In most cases, one firm stroke should be sufficient.

In **extreme** cases, where the horse persists with any serious disobedience or resistance immediately following the first application, the whip may be used for a further maximum sequence of three strokes. Continued failure to comply is unlikely to be corrected with extended use of the whip, and alternative training measures should be employed.

Horses must not be struck around the head or genitals with any whip, lead or other object.

Spurs should not be used as a punishment, and they must not be used in a manner which causes skin abrasion or puncture.

Minimum standards for working with horses

- Every person involved in handling, shoeing, treating, educating, conditioning, training, riding or driving horses, must be able to prove competence relevant to the activity being carried out, or be under the supervision of a competent person.
- No person may handle, ride or drive any horse in a manner which is incompatible with its age, current level of fitness, nutrition or health.
- Methods of restraint used to assist the normal management or handling of the horse must be the mildest effective method available, and must be applied for the minimum required period.
- Harness, saddlery and restraining devices used for handling, riding, driving and educating horses must be free of features that are likely to cause unnecessary or unreasonable pain, suffering or distress to the horse.

- Discipline, if appropriate, must be administered immediately following an act of misconduct, and must be no more severe than is necessary and reasonable to achieve the trainer's objectives.
- Except during races under the control of the New Zealand Racing Conference or New Zealand Harness Racing Conference, no person may inflict upon a horse more than three consecutive strokes with a whip.
- No person may strike any horse around the head or genitals with a whip or other object.
- No person may use spurs in a manner which causes skin abrasions or punctures.

7. **Agistment of Horses**

Agistment in this code refers to the commercial service of keeping horses belonging to other people for grazing, education, conditioning, training or breeding.

It is recommended that a written agreement defining the conditions of the agistment should be made between the horse owner or agent and the agistment property proprietor. The agreement should state the fee, the service to be provided, the name of the person responsible for the supervision and provision of feed and water, and the steps to be taken should the horse become sick or injured.

The proprietor of the agistment property should state the provisions made for safety of the animals, the supply of feed and water, and routine measures for control of parasites.

Any disputes that may arise between an agistment property proprietor and a horse owner or agent, must not be permitted to interfere with the maintenance of minimum standards for accommodation, supervision and nutrition contained in this code.

Minimum standards for agistment of horses.

- The responsibility for implementing this code, in relation to every horse kept on an agistment property, rests with the proprietor or any person in charge of the animal.
- Any disputes that may arise between an agistment property proprietor and a horse owner or agent must not be permitted to interfere with the maintenance of minimum standards for accommodation, supervision and nutrition contained in this code.

8. Horse Hire Premises

8.1 Introduction

New Zealand has a wide range of commercial operations which, in return for payment, offer horses to clients for riding.

These range from small seasonal businesses aimed at the holiday market to large, full-time premises catering for local and international tourists.

The primary purpose of these recommendations and minimum standards is to protect the welfare of horses on horse hire premises. Their secondary purpose is to protect the safety of clients.

This section must be read in conjunction with the rest of this code.

Compliance with the minimum standards by all proprietors of horse hire premises will help protect New Zealand's favourable international image as a country which humanely uses animals. Voluntary compliance by all proprietors should also eliminate the needs for special regulations and licensing systems.

8.2 Definition

A horse hire premises, for the purposes of this code, means any business, non-profit or voluntary operation which provides horses to clients for riding, trekking or tuition. This includes holiday facilities which provide horses for riding as one of a selection of recreational activities. It also includes riding schools in which the horses used for tuition are owned or leased by the proprietor.

8.3 Responsibilities of the Proprietor

8.3.1 The responsibilities below may be delegated to a manager.

8.3.2 The proprietor of every horse hire premises is responsible for ensuring that the minimum standards prescribed in this code are complied with on the premises.

8.3.3 The proprietor must ensure that no horse under his care is ridden by any client without the supervision of a competent and responsible employee aged 16 years or over. This person will be termed the "supervisor" for the purposes of this code.

8.3.4 Notwithstanding Section 8.3.3, following the documented assessment of the rider's competence, the proprietor may make special contractual arrangements for an unescorted ride. There must be a documented agreement formally transferring the responsibility for the animal from the proprietor to the rider while the animal is under his care.

8.3.5 The proprietor must ensure that every supervisor has:

- a minimum level of horsemanship equivalent to that required for the New Zealand Pony Clubs C Certificate examination

- the instructional ability to explain the techniques of mounting and dismounting, and the aids used to make the horse walk, trot, canter, halt and turn
- evidence of a basic knowledge of human first aid, including cardio-pulmonary resuscitation (CPR); a current first aid certificate is recommended
- an understanding and knowledge of road safety, where roads are to be crossed during any ride.

8.3.6 The proprietor must take all possible steps to ensure that all riders are provided access to a correctly fitting hard hat, of a type which meets the current New Zealand Standards for Protective Helmets for Horse and Pony Riders (NZS 8602: 1989 or its replacement). Footwear used by every rider should have a defined heel to prevent the rider's feet sliding forward through the stirrup, and the soles of shoes should be smooth to reduce the chances of footwear becoming stuck in the stirrup.

8.3.7 Prior to allocating a horse to any client the proprietor, or supervisor if delegated the task, must:

- assess the prospective rider's ability to establish his level of competence and whether he will require initial basic instruction
- assess the prospective mount to ensure its suitability for the rider's level of competence, age and weight, and to ensure that the horse's level of fitness, nutrition, health and soundness, and the state of its hooves, make it suitable for the intended ride
- assess the saddlery to ensure correct fit and freedom from features that may cause injury to the horse or the rider

Note: No horse may be ridden when its condition score is below 2 points or above 4 points on the scale in Appendix I. Every horse should be given one day's complete day's rest after 6 days' work.

It is recommended that a record is kept of the above assessments.

8.3.8 Unless confined to an arena or small paddock, each ride should ideally be conducted with the following ratio of supervisors to riders:

Up to 5 horses	1 supervisor
5 to 10 horses	2 supervisors
11 to 15 horses	3 supervisors
16 to 20 horses	4 supervisors

The suggested minimum standard is 1 supervisor for every 10 horses.

8.4 Responsibilities of Supervisors

8.4.1 Prior to the start of any ride, the supervisor must cover the following points in a briefing of every rider:

- the supervisor is in charge of the ride and every rider must agree to follow his instructions about care of the horse
- limitations on the manner in which the horse may be ridden, relevant to rider-experience and horse condition, must be explained to and agreed to by every rider
- a final reminder about the use of correct hats and suitable footwear.

It is recommended that a formal agreement between the proprietor and rider should note the above conditions of hire and the importance of correct head and footwear.

- 8.4.2 The supervisor must take all possible steps to ensure that during the ride no horse is worked beyond its level of fitness, nutrition, health and soundness.
- 8.4.3 The frequency and length of resting periods for horses during rides must be determined by the nature of the ride and the factors in Section 8.4.2. Any animal showing signs of stress or overwork must be rested immediately.
- 8.4.4 The supervisor must arrange for the last 10 minutes of every riding period to be completed at an easy walk to ensure that the horse has regained its normal pulse and respiration rate by the end of the ride.
- 8.4.5 During periods between rides, the supervisor must arrange for each horse to be rested, fed, watered and sheltered, and otherwise supervised, according to its needs. The bridle should be removed and, if the saddle is not removed, the girth must be loosened and the stirrups on conventional saddles should be run up. No horse at rest may be left tacked-up for more than 4 hours.

8.5 Records and Inspections

- 8.5.1 When the proprietor assigns responsibility for Sections 8.3.7 or Sections 8.4.1 and 8.4.2 to a supervisor he must also provide the supervisor with all relevant information. The method of achieving supervisor awareness of horses' fitness levels and recent workloads will vary according to the nature of the operation.

However, for larger premises, where horses may be hired more than once per day and under the direction of different supervisors, it is recommended that a simple central record should be maintained for supervisors' reference and updated after each ride. Suggested essential details are the horses' name or identity, and the date, time and duration of the ride.

Where factors affecting a horse's fitness for subsequent use are observed by a supervisor, appropriate comments should be added and the proprietor advised.

- 8.5.2 Upon the reasonable request of an inspector under the Animals Protection Act 1960, the proprietor shall permit the inspector to inspect all horses, saddlery equipment, facilities and relevant records.

Minimum standards for horse hire premises

- The proprietor must ensure that every horse under his responsibility is cared for according to the minimum standards contained in this code.
- No horse under 4 years old may be ridden by any client
- No horse may be ridden when its condition score is below 2 points or above 4 points (as determined using the chart in Appendix I).

- The proprietor must take all possible steps to ensure that every rider is provided with access to a correctly-fitting riding hat which meets the NZS 8602 standard (or its replacement).
- Except as provided in 8.3.4, no horse may be ridden by any client without the direct supervision of a competent staff member (supervisor).
- Prior to every ride the proprietor, or supervisor if given the task, must carry out an assessment of the riders' capability, suitability of the mounts and fitness of the saddlery.
- When the proprietor assigns responsibility for Sections 8.3.7 or Sections 8.4.1 and 8.4.2 to a supervisor, he must also provide the supervisor with all relevant information.
- Prior to the start of every ride, a supervisor must brief riders on the rules for the ride. Points covered must include the person in charge of the ride, the manner in which mounts may be ridden and the use of suitable head and footwear.
- The supervisor must take all possible steps to ensure that no horse is worked beyond its state of fitness, nutrition, health and soundness.
- The frequency and length of resting periods for horses during rides must be determined by the nature of the ride and the four factors above. Any animal showing signs of overwork must be rested immediately.
- The supervisor must arrange for the last 10 minutes of every ride to be completed at a walk.
- During the periods between rides, the supervisor must arrange for each horse to be rested, fed, watered, sheltered and otherwise supervised, according to its needs. If the saddle is not removed, the girth must be loosened.
- Horses at rest must not be left tacked-up for more than 4 continuous hours.
- Upon the reasonable request of an inspector under the Animals Protection Act 1960, the proprietor shall permit the inspector to inspect all horses, saddlery, equipment, facilities and relevant records.

9. Organisers of Equine Activities

The provisions of this code may at first view appear to be targeted at the owners and persons in charge of horses. There are, however, clear obligations on the part of organisers of any equine activity where horses are brought together to provide facilities and services that will enable compliance with the minimum standards contained in this code.

The Animals Protection Act 1960 places obligations on owners and occupiers of land to prevent the commission and continuation of offences of cruelty on their land.

The organiser of any equine activity should consider the well-being of the horse above any personal needs and the demands of breeders, trainers, owners, riders, drivers, dealers, spectators, sponsors or officials.

The organiser should provide an adequate supply of drinking water for all horses involved in the activity (refer to Section 5.7). If unable to do so, he should give owners prior warning.

It is recommended that all recognised equine sporting, recreational and commercial organisations in New Zealand should develop and implement formal internal systems for ensuring the welfare of horses in terms of this code.

Minimum standards for organisers of equine activities

- No person being the occupier of any land may knowingly permit an offence of cruelty or aggravated cruelty to be committed on that land, or fail without reasonable cause or excuse, to prevent the commission or continuation of such an offence thereon.
- All horse accommodation provided by the organiser must be secure and must meet the minimum standards prescribed in Sections 3 and 4 of this code.
- The organiser must ensure that every test of speed, skill or endurance is within the reasonable capability of a fit, healthy horse that is correctly trained for the purpose.
- The organiser must provide on-call emergency access to a veterinary surgeon who is experienced in equine treatment.

10. Transport of Horses

The specific welfare implications of transporting horses within New Zealand are to be addressed in a proposed Code of Minimum Standards for the Road Transport of Livestock.

Various international codes of conduct are used to protect the welfare of horses travelling out of New Zealand.

Both the owner, or person in charge of the horse, and the driver of any vehicle transporting horses have clear obligations under the Animals Protection Act 1960. Their legal requirements are summarised in the minimum standards set out below.

Horses should not be transported by any person who cannot prove competence or appropriate experience in the transport and supervision of horses, unless throughout the journey he is directly supervised by such a person.

Minimum standards for the transport of horses

- The owner, or person in charge of any animal, must not permit it to be transported when its health or condition makes it unfit to withstand the intended journey.
- The consignor of every animal confined in a vehicle must arrange for the supply to the animal of proper and sufficient food and water, and must arrange that where necessary and practicable the animal is off-loaded to enable the supply to be made.
- No person may confine or transport any animal in a manner which causes the animal unnecessary pain or suffering.
- The person in charge of the vehicle must ensure that the animal being conveyed is provided with reasonably comfortable and secure accommodation.

11. Humane Slaughter of Horses

Where, in the opinion of a veterinary surgeon, a horse will not respond to treatment for any serious injury involving significant pain, or where a horse is in such a condition that it would be cruel to keep it alive, the animal must be humanely destroyed without unreasonable delay.

Acceptable methods for the humane slaughter of horses are:

- rapid intravenous injection of a euthanising agent (it should be noted that tissue residues will render the carcass unfit for human or pet consumption if this technique is used)
- shooting, using a firearm
- use of a captive bolt or humane killer.

Slaughter must be performed only by persons who are able to prove competence or appropriate training in using the method selected.

Firearms used for shooting should be at least 0.22 calibre (long rifle). The target area and direction of the bullet are shown below. Adequate precautions must be taken to protect other animals and people from injury.

Figure 3. The target are for humane destruction of a horse by shooting just above the intersection of the broken lines.

Figure 4. The direction in which a bullet should be fired at the target area.

Minimum standards for humane slaughter

- No person may keep alive any horse which is in such a condition that it is cruel to keep it alive.
- Slaughter may be performed only by persons who are able to prove competence or appropriate training in the method selected.

Appendix I.

Body Condition Scoring of Horses (Based on the Carroll and Huntingdon Method)

I.1 Method

To obtain the condition score for any horse, first score the pelvis, then adjust the pelvis score up or down by 0.5 if it differs by 1 or more points from the back or neck.

I.2 Score

0 *Very poor*

Pelvis

Angular, skin tight
Very sunken rump
Deep cavity under tail

Back and ribs

Skin tight over ribs
Very prominent and
sharp backbone

Neck

Marked ewe neck
Narrow and slack at base

1 *Poor*

Pelvis

Prominent pelvis and croup
Sunken rump but skin supple
Deep cavity under tail

Back and ribs

Ribs easily visible
Prominent backbone with
skin sunken on either side

Neck

Ewe neck, narrow and
slack at base

2 *Moderate*

Pelvis

Rump flat either side

of backbone
Croup well defined, some fat
Slight cavity under tail

Back and ribs

Ribs just visible
Backbone covered
but spines can be felt

Neck

Narrow but firm

3 *Good*

Pelvis

Covered by fat and rounded
No gutter
Pelvis easily felt

Back and ribs

Ribs just covered and
easily felt
No gutter along back
Backbone well covered
but spines can be felt

Neck

No crest (except for
stallions) firm neck

4 *Fat*

Pelvis

Gutter to root of tail
Pelvis covered by soft fat
need firm pressure to feel

Back and ribs

Ribs well covered – need
firm pressure to feel
Gutter along backbone

Neck

Slight crest
Wide and firm

5 *Very fat*

Pelvis

Deep gutter to root of tail
Skin distended
Pelvis buried, cannot be felt

Back and ribs

Ribs buried, cannot be felt
Deep gutter along back
Back broad and flat

Neck

Marked crest
Very wide and firm
Fold of fat

Note: When using this chart to assist calculating bodyweight (Appendix II) the score must be calculated to the nearest 0.5 points.

Appendix II. **Bodyweight Estimation of Horses**

The charts below provide alternative ways of estimating a horse's bodyweight. They were developed by C.L. Carroll and P.J. Huntingdon.

The first method relies on the condition score (worked out as in Appendix I) and height at the wither. It gives good results for all but horses in racing condition. The more accurately height and condition score are established, the better the weight assessment will be. Ensure that the horse is standing squarely on level ground, is relaxed and with the head in the normal position before measuring its height. Make allowance for the thickness of the shoes. To calculate, run a straight line on the chart between the horse's known condition score and height, then read its weight on the centre axis. In the example on the chart, a 14 hands pony scoring 3 points on the condition scoring chart shows an estimated bodyweight of 375 kg.

The second method, which relates measurement around the girth to length, is slightly more accurate and is the method to be used for racehorses in full work. The girth measurement is taken immediately behind the elbow after the horse has breathed out. Length is taken from point of the shoulder to the point of buttocks. To calculate, run the straight line on the chart between the known girth and length. In the example below a horse with a girth of 180 cm and length of 175 cm shows an estimated bodyweight of 475 kg.

Insert charts

Appendix III. References

1. Ministry of Agriculture and Fisheries. Code of Minimum Standards for the Welfare of Horses. Aglink FPP893. MAF, Wellington, 1998.
2. MAF Department Agriculture and Rural Affairs. Agnote 1983, Melbourne.
3. RSPCA Code of Practice for Tethering Horses and Ponies. (UK) (1988).
4. Federation Equestrian Internationale. Code of Conduct – Welfare of Horses, (1991).
5. British Horse Society. Provisional Code of Conduct for Pony Trekking and Riding Holiday Centres, (1990).
6. Knox-Thompson, Elaine, 1987. New Zealand Pony Club Manual No. 1 / by Elaine Knox-Thompson and Suzanne Dickens – Auckland (NZ). Ray Richards Publisher for the New Zealand Pony Club. ISBN: 090859612X
7. Carroll C.L. and Huntingdon P.J. (1988). Body condition scoring and weight estimation of horses. Equine Veterinary Journal 20(1), 41-45.
8. Kerrigan, R.H. (1989). Practical Horse Nutrition. – 2nd ed. – Maitland, N.S.W.: R.H. Kerrigan. ISBN: 1875381023
9. Swann, Philip, Dr. (1985). Racehorse Training and Feeding: modern & scientific conditioning methods. – 2nd Australasian ed. – Doreen, Vic.: Racehorse Sports Medicine and Scientific Conditioning. ISBN: 0959043314
10. National Research Council (US) Subcommittee on Horse Nutrition, 1989. Nutrient requirements of horses/subcommittee on Horse Nutrition, Committee on Animal Nutrition, Board of Agriculture, National Research Council – 5th rev. ed. ISBN: 0309039894