

**It is important for those working with horses on a day to day basis to read this book carefully so that they:**

- Appreciate the seriousness of an overseas horse disease reaching New Zealand
- Know what they can do to minimise the likelihood of this happening
- Appreciate that any newly imported horse, or horses in contact with a newly imported horse, which become ill, should be attended to immediately
- Are able to recognise the horse diseases most likely to reach New Zealand from overseas
- Know what to do when they suspect an exotic disease.

To minimise the devastation that could occur to our horse industry with the introduction of a serious overseas disease **we need alert, knowledgeable horsemen and women** so read on.

**PUBLICATION OF THE NEW ZEALAND EQUINE  
HEALTH ASSOCIATION INC**

**KEEPING EXOTIC HORSE  
DISEASES OUT OF NEW  
ZEALAND**

By

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# GUEST PREFACE

Those of us who have experience moving horses around the world are very conscious of the restrictions that result from the need to control the spread of equine diseases. Internationally, horses suffer from a huge range of infectious diseases. Many die and others are slaughtered to prevent epidemics. Control of these diseases through preventative vaccination, movement restrictions and treatment are an ongoing reality for those caring for horses in almost every country in the world.

In New Zealand, our equine calendars continue unfettered by the restrictions with which others contend. But as we converge towards becoming part of the “global village” the increased traffic of people, animals and commodities pressure our border safeguards as never before.

The cost of a new, serious, equine disease on New Zealand horse owners is formidable and is a compelling reason to commit to disease exclusion. More unpalatable however is the associated misery and death which may accompany the introduction of an overseas horse disease. All horse lovers should make every effort to prevent such a calamity occurring.

This publication from the New Zealand Equine Health Association Inc is a timely reminder to the equine industry of the enviable health our horses enjoy. We commend their initiative in reminding us of the increasing vigilance required and detailing how it can be achieved through our individual responsibility.

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## **INTRODUCTION**

The introduction of an exotic horse disease is the most serious threat to the future of the New Zealand horse industry today. Because more and more horses, horse semen and people are moving between countries, the risk of introducing an exotic disease increases year by year. Indeed, many people believe it is not a matter of “if” one of these diseases reaches our shores but “when”.

An exotic horse disease entering New Zealand would cause serious (and probably permanent) damage to the horse industry. In almost all cases it would result in immediate cancellation of all horse exports. At worst, all horse events would be cancelled for a period and the movement of horses from one place to another would be stopped. It would seriously affect racing clubs, owners, trainers, jockeys, drivers, farriers, racing club staff, transport companies, veterinarians, stud owners, stable and stud employees, equine health companies, feed suppliers, selling agents, saddlers, TAB and, of course, the government, and all would lose income.

What can New Zealand horse people do to prevent this happening? The only way to be certain of keeping out all exotic diseases is to close the border to all traffic. This is simply not feasible. All international traffic in animals, people and goods carries some risk of introducing disease. However, we can take steps to reduce the chance of introducing an exotic disease and to minimise the impact if it does get introduced.

How can we do this? There are three things that horse people can do to help keep our horses safe from exotic diseases:

- follow the quarantine rules when returning from overseas or importing horses,
- stay alert to the signs of disease in horses
- know what to do if an exotic disease is suspected.

## **Returning home**

When returning to New Zealand from travelling overseas, it is important to complete the arrival declaration forms responsibly (i.e. carefully and honestly), and to declare any horse-related items such as clothing, gear, feed, feed additives, equipment or medicines. If importing a horse, follow the import procedures conscientiously.

**Anyone failing to do these things is putting the whole horse industry at risk. They also face penalties - instant fines - for making false declarations on arrival forms. Anyone convicted of deliberately importing unauthorised animal material into New Zealand faces a jail term and fines of up to \$100,000.**

## **Identifying disease**

In the event of a new disease occurring, it is enormously important to identify it as early as possible. That way it can be stopped from spreading and there is the best chance of eradicating it.

**Watch carefully** for any sign of illness in a newly imported horse. The sorts of symptoms to look out for are:

- going off food
- high temperature
- runny nose
- coughing
- rapid or laboured breathing
- change in behaviour
- discharge from the vulva
- abortion
- swellings
- death

### **Notifying suspect disease**

Familiarise yourself with the signs that are characteristic of the exotic diseases most likely to be introduced. They are described in the following pages.

**If you are worried that a horse could be showing signs of an exotic disease, call the MAF Exotic Disease and Pest Emergency Hotline freephone number:**

**0800 809 966**

The MAF National Centre for Disease Investigation (NCDI) at Wallaceville in the Hutt Valley employs veterinarians who are trained to recognise exotic diseases. Anyone can ring the NCDI hotline number above to report a suspected exotic disease. Write the number near your telephone for reference in case you need it.

### **Exotic diseases of horses**

The major equine diseases that are the most likely to be introduced in horses, semen or embryos coming from overseas are:

- **Equine Influenza**
- **Equine Infectious Anaemia (EIA)**
- **Contagious Equine Metritis (CEM)**
- **Equine Viral Arteritis (EVA)**
- **Equine Viral Encephalitides**
- **Vesicular Stomatitis**

Some of these diseases affect only horses while some can also infect other animals or humans, sometimes causing death!

All of these diseases have spread into new countries in recent years. Two (Equine Infectious Anaemia and Equine Viral Arteritis) have recently entered New Zealand. The first was eradicated and the second is being controlled.

The following pages tell you about the diseases listed above. If you and others who work with horses are aware of them, you will know to respond quickly to suspicious signs of illness in a horse.

## **EQUINE INFLUENZA**

This disease is probably the greatest threat to the horse industry. It is a flu-type illness caused by an equine influenza virus, which spreads rapidly. New Zealand and Australia are the only two countries with significant horse populations that do not have equine influenza. An outbreak here would probably be explosive, with up to 90% of our horses falling ill within a short period of time.

### **How to recognise equine influenza**

- It is a very **rapidly spreading flu-like illness**
- Many horses develop a characteristic **deep seated hacking cough** and often a high temperature.
- Other signs include runny nose and eyes, stiffness and soreness and being generally off colour.
- Pneumonia may develop in the very young and very old. This may be fatal in a few cases.

The consequences of equine influenza are far reaching. Many horses have to be rested for long periods after recovery and some develop permanent damage to their lungs.

### **How it spreads**

Equine flu spreads by horses coughing out infected droplets that are a source of infection for other horses that are in close proximity. There is a short period after first contact with the virus before signs of illness appear: usually one to three days. Infected horses can pass the

virus to other horses during this time and for at least five days after the illness has become obvious.

## **Prevention**

Equine influenza can be prevented by vaccination with the appropriate equine influenza virus strain. Vaccinations have to be repeated every few months as the immunity from the vaccine is short-lived (about three to four months). Imagine how much three-monthly vaccinations would add to the cost of owning competitive horses in New Zealand!

## **Control**

If an outbreak of equine influenza occurred here, the stables involved and other affected places would be placed under quarantine for at least four weeks. All horse movement would be prohibited and all horse events cancelled for the same period of time. Movement of people in contact with sick horses would also be limited. All equipment, transport vehicles, fences, stables and stalls would need to be cleaned and disinfected with an anti-viral disinfectant.

**When a horse (especially one from overseas) arrives on your property, keep it separate from other horses for at least 10 days. If it, and perhaps others in close proximity, develop a deep hacking cough – THINK EQUINE INFLUENZA and contact your veterinarian or the MAF Hotline 0800 809 966 immediately**

## **EQUINE INFECTIOUS ANAEMIA (EIA)**

This disease, which is caused by a virus related to the human immunodeficiency virus (HIV), is present in most countries we trade with, including Australia. Equine infectious anaemia (EIA) entered New Zealand in a horse in 1999 when the normal import health conditions designed to prevent its introduction were not strictly followed. Fortunately it did not spread to other horses so was quickly dealt with and New Zealand is again free of EIA. The reason that EIA is so serious is that once a horse is infected it carries the virus for life and is infectious to other horses. Those horses that carry the virus may appear to be healthy, but they can also have relapses of illness at intervals of months or years.

### **How to recognise EIA**

As the name suggests, affected horses become anaemic. This means that their blood is deficient in red blood cells, making it appear thinner and the lining of the mouth look paler than normal. Within a few months they **develop a temperature, lose their appetite, lose body condition and some become weak and wobbly. They may also become jaundiced.** Severe jaundice can make the whites of the eye and even the inside of the mouth appear yellowish. Some horses haemorrhage in places such as the lining of the mouth or under the tongue. The outcome of infection is variable. Horses can die quickly from EIA, but some seem to recover and then suffer relapses later.

## **How EIA spreads**

Biting insects can spread the virus from horse to horse. In New Zealand the common stable fly (*Stomoxys calcitrans*) could transmit infection. Another way it can spread is through blood, so syringes or needles containing even tiny amounts of blood could transfer infection from one horse to another. All body tissues of infected horses contain the virus, including semen, so it could be spread during mating. In some countries EIA is known as swamp fever, because it particularly occurs around swampy areas where mosquitoes and biting flies breed and thrive.

## **Control**

Infected horses can be identified by blood tests (Coggins test or ELISA). Unfortunately it can take up to 45 days after the horse becomes infected before the blood test is positive. Spread of the disease by biting flies and mosquitoes can usually be prevented by keeping infected horses at least 100 metres away from other horses. This and insect control measures are used overseas to isolate infected from non-infected horses. Owners intending to shuttle horses back to New Zealand from other countries should keep the contact with other horses to a minimum while overseas, by keeping at least 100 metres distance wherever possible. While away they can also prevent flies and mosquitoes from biting their horses by keeping them covered with fly sheets, using fly sprays and practising good stable management. Gear that is shared needs to be cleaned or disinfected thoroughly, and used syringes and needles disposed of so they are not able to be re-used.

## **CONTAGIOUS EQUINE METRITIS (CEM)**

Contagious equine metritis (CEM) is a disease of the genital tract of horses and is caused by a bacterium named *Taylorella equigenitalis*. It was first recorded in 1977 in the United Kingdom and since then has spread to many of the countries that we trade with. A highly contagious disease, CEM causes temporary infertility in mares, most of which become carriers of infection. Antibiotic treatment will get rid of the infection but must be continued for a long time. If CEM were introduced here, our trading partners would demand rigorous pre-export and post-arrival testing of horses being exported, and only those proven to be free of the infection would be eligible.

### **How to recognise CEM**

The characteristic sign of the disease is a slight **greyish discharge from the vulva of mares one to six days after mating**. Mares tend to return to heat a few days after becoming infected. In some mares there is no obvious sign of infection but they are harder to get in foal. Others have a copious grey discharge from the vulva, which can mat the hair on the tail and buttocks. Infected stallions show no signs, but are an important source of infection for the mares they serve.

### **How CEM spreads**

CEM is a venereal disease – the bacteria are transmitted from an infected mare to a stallion at mating. The infected stallion shows no disease signs but sheds the

bacteria and infects other mares at subsequent matings. People can also inadvertently transfer the bacteria between horses if good hygiene is not practised when handling the genital tract of mares or stallions. For this reason, tail-wraps, speculums and other instruments used to examine the genital tract should be thoroughly washed between use in different horses. Very occasionally an infected mare gives birth to a foal, which can also be a carrier of the disease.

## **Control**

There is no effective vaccine available for control. Infected horses require long courses of antibiotic injections and repeated washing of the reproductive tract with disinfectants to remove the infection. And once cured, horses can become infected again.

## **Prevention**

The most likely way in which CEM would get into New Zealand is in imported stallions, mares or semen that carry the bacteria. All stallions, mares and semen imported from countries that have CEM have to be tested for the bacteria. However, the bacteria are sometimes hard to find and many mares have only minor signs of infection so the risk of introduction is high. Horse breeders should be aware of the possibility of this disease in an imported mare, particularly if she has poor fertility or any discharge from the genital tract. If you have any suspicions about a recently imported mare, call the MAF Hotline 0800 809 966.

**If a recently imported mare has a discharge from her genital tract call your veterinarian and notify the MAF Exotic Disease and Pest Emergency Hotline, 0800 809 966**

## **EQUINE VIRAL ARTERITIS (EVA)**

The virus causing equine viral arteritis (EVA) is currently present in New Zealand. In 1988 some standardbred horses recently imported from North America were found to be infected. A control programme was put in place and has recently been reviewed.

EVA is present in most of the countries from which New Zealand imports horses or semen. However, it is not present in Japan, Malaysia, Singapore and Hong Kong, countries that make up a large part of our export market. EVA most commonly affects standardbred horses.

### **How to recognise EVA**

The illness caused by EVA virus can vary from severe disease, such as abortion in mares and pneumonia or even death in foals, to milder flu-like symptoms, or swelling of the legs, sheath or head. There are several different strains of the virus. The strain present in New Zealand has not so far caused any signs of disease. However, because the virus could change over time to become more virulent and cause serious disease, attempts are being made to eradicate it. (See Appendix 1 for details of the EVA control scheme.) To prevent any more infected horses from coming into New Zealand, and possibly bringing in more dangerous strains, imported horses and semen are tested for the virus.

## **How EVA spreads**

The virus can spread in two ways: firstly, and most importantly, as a venereal disease by stallions infecting mares during mating, and secondly by the mares spreading it to horses in the vicinity. Stallions can carry the virus for years in their reproductive tract and shed it in their semen. These carrier stallions are called 'shedders'. About one third of infected stallions become shedders and they are responsible for most of the spread.

Some infected mares will show no signs of disease while others will develop signs of flu (fever, coughing, conjunctivitis, discharges from the nose, swelling of the legs, abortion), two to 10 days after becoming infected. The virus can spread to other horses in close proximity when the infected mare coughs, and in her nose and eye discharges. Unlike stallions, once a mare is infected she will not carry the virus for long and soon becomes immune to further infection.

## **Prevention**

The EVA control scheme is designed to prevent any further stallions becoming shedders while still allowing stud masters to use their shedder stallions in a controlled way. The details of these controls are available from the New Zealand Equine Health Association. Currently so few stallions in New Zealand are shedders, that now is the easiest and cheapest time to control and eradicate the disease. The New Zealand Equine industry would like one day to be able to declare to our trading partners that the country is free of EVA. To do this there needs to

be regular checks to ensure that EVA is not spreading in the breeding stallion population. The keepers of the stud books for the various breeds are co-ordinating this in consultation with the New Zealand Equine Health Association.

## **EQUINE VIRAL ENCEPHALOMYELITIDIES**

These are a group of viral diseases that cause inflammation of the brain. There are various conditions such as Japanese encephalitis, Venezuelan equine encephalitis, eastern and western encephalomyelitis, Borna disease, West Nile virus and rabies, depending on which virus is involved.

Each disease is caused by a specific virus that can cause brain damage in horses and frequently death. Importantly some of them can, and often do, kill humans. The viruses can also affect other animals including birds, rodents, dogs, rabbits and possums.

The serious public health implications if any of these diseases were introduced into New Zealand would probably necessitate the immediate slaughter of all infected animals.

### **How to recognise them**

Since the viruses attack the nervous system, affected horses show **signs of nervous disease**. These signs will vary, depending on the virus involved, but can include:

- fever
- hypersensitivity to sight and sound
- tremors – especially of the shoulder and face muscles
- aggressiveness
- walking in circles or into objects
- depression and increasing incoordination
- paralysis, coma and death, often within a few days of the onset of signs.

## **How these diseases spread**

Infection in horses and humans usually results from a bite by a mosquito that has the virus in its saliva. In the countries where the diseases are present, outbreaks occur in the summer months when the mosquitoes are most active and in swamp areas where mosquitoes breed. We are fortunate that the mosquito species currently in New Zealand are unlikely to act as vectors for these diseases. So even if an infected horse were imported, the disease would probably not spread to other horses, animals or humans.

Rabies is an exception, as this virus is present in the saliva of infected animals and is most commonly spread by bites from rabid animals. For this reason, **imported animals that show nervous signs should be approached and handled with extreme caution.**

## **Prevention**

For many of these diseases there are vaccines available for horses, and horses travelling to countries where they occur are vaccinated before export or on arrival.

When horses are imported from countries with these diseases, they are subject to requirements such as vaccination, testing and/or isolation, which minimise the likelihood of importing infected horses.

**Newly introduced horses that show any behavioural changes or signs of nervous disease should be examined by your veterinarian and the National Centre for Disease Investigation notified by phoning the MAF Hotline, 0800 809 966.**

## **VESICULAR STOMATITIS**

This viral disease is confined to North, Central and South America and occurs in cattle, pigs, deer, horses and wildlife species, but not in sheep or goats. In itself vesicular stomatitis is a serious condition in horses, but it is of particular concern in New Zealand because the symptoms are indistinguishable from foot and mouth disease. Foot and mouth disease would have a serious impact on New Zealand's important livestock production industries – sheep, cattle and pigs. Horses do not get foot and mouth disease but they can catch vesicular stomatitis. If vesicular stomatitis occurred in domestic animals (other than in horses), it would be treated as if it were foot and mouth disease and rigorous control and eradication measures would immediately come into force until it could be proven otherwise.

### **How vesicular stomatitis spreads**

It is still not fully known how this disease spreads, despite much research. The virus has been found in flies, mosquitoes and midges. In areas where it occurs regularly, the virus may circulate between insects and small wild animals. In areas where it occurs only occasionally, it is usually seen along river valleys and lowland regions.

### **How to recognise vesicular stomatitis**

Horses with vesicular stomatitis develop **thin-walled blisters (vesicles) in the mouth and on the coronary**

**band of the hoof.** The vesicles may join together and rupture leaving raw areas that heal within 10 days unless they get infected. Affected horses usually have a fever, have drooling saliva, go off their feed, lose condition and may become lame. Horses rarely die from vesicular stomatitis.

## **Prevention and control**

New Zealand maintains strict import health conditions for imports of horses from countries with vesicular stomatitis. If an infected animal were to arrive here, there could be massive disruption to New Zealand's agricultural exports. Although the means of transmission are not well understood, it is unlikely that the disease would establish here as it has never previously established outside the Americas.

## **OTHER EXOTIC HORSE DISEASES**

Many other infectious horse diseases occur overseas but are not present in New Zealand. These include African horse sickness, dourine, equine lymphangitis, equine morbillivirus, equine paratyphoid, equine protozoal myeloencephalitis, glanders, horse pox, louping ill, Lyme disease, piroplasmiasis, Potomac fever, Q fever and surra. These diseases cause a wide variety of clinical signs, and while it is possible that some of these diseases could enter New Zealand, they are considerably less likely to arrive than the ones described in this book

**Any illness in recently imported horses, or in horses that are in contact with such horses or imported semen, should be immediately reported to your veterinarian or the MAF Exotic Disease and Pest Emergency Hotline 0800 809 966.**

## **WHAT ARE OUR IMPORT PROCEDURES?**

The Ministry of Agriculture and Forestry is responsible for preventing the introduction of exotic diseases. The easiest way to ensure we do not introduce new pests and diseases would be not to import animals. This is clearly unrealistic because some New Zealanders want to be able to import horses or semen. As a member of the World Trade Organisation, our Government has committed New Zealand to facilitating trade where this can be done safely.

To ensure that imports are safe, the Ministry of Agriculture and Forestry imposes safeguards that are based on a scientific assessment of the risk to the health of horses already in New Zealand.

The safeguards imposed, which may include post-arrival quarantine, are specified in three types of document:

- **Permits to Import**
- **Import Health Standards**
- **Import Health Certificates**

Before importing any horse or semen, or even equipment or medicines for use in horses, you should obtain advice on the conditions of import by contacting:

MAF Import Management  
PO Box 2526  
Wellington  
Ph 04-474-4100  
Fax 04-474-4133

Website: [www.maf.govt.nz/Biosecurity/index.htm](http://www.maf.govt.nz/Biosecurity/index.htm)

The conditions for importation are described in MAF **Import Health Standards**. The standards detail eligibility of animals and products for import, what tests and treatments must be performed in the exporting country, the border clearance procedures, and any measures (such as quarantine) applied after arrival.

The **Import Health Certificate** is completed in the exporting country by a Government authorised veterinarian. It details the tests and treatments the horse or product has received before leaving that country. The Import Health Certificate is critically important at the time the animal arrives in New Zealand, as it provides the evidence that the required tests and treatments have been carried out correctly. If the Import Certificate is correctly completed and the animal is healthy it will be allowed into New Zealand.

For horses arriving from countries other than Australia, new requirements to be introduced during 2000 will specify two weeks post-arrival **quarantine** in New Zealand. The reason for this is that some diseases caught by the horse before export, or while in transit, may not become apparent until this time. This period also allows for further checking, testing or treatment of horses as required, and greatly reduces the likelihood of exotic horse diseases entering New Zealand.

## **ACKNOWLEDGEMENTS**

This book was commissioned by the New Zealand Equine Health Association Inc. It is the shared vision of its co-authors who believe that the New Zealand equestrian environment is unique and precious. Dr Brian Goulden, with his passion for sharing knowledge and Dr Trish Pearce with her experience in state veterinary medicine have backgrounds that equip them well to offer practical and applicable information to the New Zealand horse industry.

To present such a diverse and technical topic in an accurate yet succinct and readable manner is no mean feat and the authors called on many other talented people to contribute. These people include Drs Mark Collet and Nigel Perkins from Massey University; Drs Gary Horner and Mark Bosson from the National Centre for Disease Investigation; and Dr Matthew Stone from MAF Biosecurity Authority all of whom critically appraised the scientific content.

Drs Elizabeth Sommerville and Dr Stuart McDiarmid helped to edit the content and Mr Brent Harpur, with obvious artistic flair, drew the horse caricatures presented in it.

The New Zealand Equine Health Association (Inc) thank all of these people for their professionalism and willingness to produce this book which we believe presents essential information for those working with our horses.

Our thanks is also due to the Mexico - United States Commission for the Prevention of Foot and Mouth Disease from whose book "Illustrated Manual for the recognition and Diagnosis of Certain Animal Diseases (1982)" the colour photographs in the book were obtained.

We are also very appreciative of the financial support to produce this book given by the Ministry of Agriculture and Forestry, Biosecurity Authority. This support has allowed us to distribute the book free of charge and widely through out the NZ horse industry.

## **The New Zealand Equine Health Association (Inc)**

The introduction of new animal diseases poses a constant threat to New Zealand's economy, environment and way of life. The Biosecurity Act 1993 provides the legal framework for managing the risks of introducing exotic diseases - those diseases that are present in other countries but not here.

The Act requires animal industries to be actively involved in keeping New Zealand free of exotic diseases. This means that each animal industry - including the horse industry - has a say in the measures to be taken to prevent disease entry, in the surveillance to identify new diseases, and in the steps for eradication or control of a disease, should it be necessary. Under the Act, an industry can propose and develop regional or national 'pest management strategies'. A pest management

strategy is a formal plan that details the course of action for dealing with a particular disease. The New Zealand Equine Health Association was established to represent the interests of the horse industry and to provide an organisation through which the industry can play a key role in keeping New Zealand free of 'exotic' diseases.

Whether or not the government would become involved in dealing with an exotic disease that occurred would depend on the potential impacts of the disease, the benefits of intervention and the likelihood of successful eradication or control.

As one of the industries concerned about the risks of disease, the horse industry has recently established the New Zealand Equine Health Association to undertake these roles. The Equine Health Association is developing proposals for pest management strategies for diseases of special concern to the horse industry.

### **New Zealand Equine Health Association Inc Management Committee Representation**

NZ Standardbred Breeders Association - Bruce Graham  
NZ Thoroughbred Breeders Association - Mike Martin  
NZ Racing Industry Board - Dr Brian Goulden  
NZ Thoroughbred Racing- Justin Blackburne  
Harness Racing NZ - Wayne Reid  
NZ Equestrian Federation - Dr Trish Pearce  
Royal Agricultural Society of NZ - Robin Bruce  
NZ Arab Horse Breeders Society - Dr Gabrielle Deuss  
NZ Pony Clubs Association - Keith Bennett  
Equine Branch of NZ Veterinary Association &  
NZ Equine Research Foundation - Dr John O'Flaherty  
NZ Equine Transporters - Greg Northcott