

Parasite Control

Worm Control Programme

The main objective in parasite control should be to try to prevent infection from occurring, not just the removal of worms after infection has occurred.

Manure Collection

The worms of horses have eggs that pass out in the manure. These eggs give rise to larvae that are infective to the horse. If horse manure is removed from a paddock before the eggs have hatched into larvae, then infection cannot be passed on. Hence, the removal of manure from a paddock will minimise the numbers of worm larvae picked up by horses and it will reduce the need to treat them with drugs.



Research shows that removal of manure reduces the numbers of worm larvae on pasture to only 10-20% of the levels on pastures grazed by horses being regularly treated with worm drugs.

Given that larvae can hatch quickly from eggs and that heavy rain can wash the larvae into the soil, manure should be removed from paddocks TWICE weekly for optimal prevention of infection.

In an infected paddock twice weekly removal of manure combined with regular drug treatment for 9-12 months should enable a reduction in the number of treatments with worming drugs after this period. However, if there have been large numbers of horses grazing a paddock for many years or it is where foals and yearlings are kept, any reductions in drug treatment frequency should be made with particular care and it may be worth waiting until manure removal has occurred for 2 years.

A faecal egg count (FEC) can be used to check the effectiveness of your worm control programme. This is where a fresh manure sample is examined for worm eggs. If your control programme is working well, the FEC will be low. Your veterinarian can advise you on this.

It is also important to note that supplementary horse feeds should be fed off the ground wherever possible.

Harrowing pastures

This involves using a chain-harrow to break up and distribute manure. In hot dry climates this can be beneficial by exposing worm eggs and larvae to sun and wind, which could kill them. However, the climate in New Zealand is not suitable for this method, which could actually lead to increased pasture contamination and therefore is not recommended!

Mixed grazing

With one exception, parasites of horses do not infect other animals and vice versa. Therefore, other animals could be used to “clean up” horse paddocks. The one exception is a worm called *Trichostrongylus* that also lives in the stomachs of cattle, sheep and goats. However, with the infection being relatively minor in adult ruminants, horse paddocks could be grazed and “cleaned up” with adult cattle and sheep.



It is recommended that the paddock be left empty for 2-3 weeks before any stock are introduced to ensure that all the eggs hatch. These animals should then be allowed to graze for at least one month, although longer is better.

If possible, horses could be rotated to a new paddock every 2-3 months followed by cattle or sheep to clean up the horse paddock. If the horses could be limited to a paddock once a year, then worm infection would be kept to a minimum. However, if grazing area is minimal, then one to two drug treatments will be required throughout the year. A FEC can help with the timing of these treatments.

Drugs to control worms

It is very important that your horse is given the correct dose and that the entire dose ends up in the stomach. It is very easy to underestimate the weight of your horse. If underdosed, all the worms will not be killed and there is the risk that this will encourage the development of resistance of the parasite to the drugs. It is also important to make sure the drug you are using is effective against parasites you want to treat for. There are many different worm products on the market; therefore you should carefully read the label of each product to ensure it will suit your horse's needs.

It is important to be aware that there is drug resistance within the parasite population. This is especially true of small strongyles and the benzimidazole (BZ's) drug group. This resistance developed because BZ's were used intensively and on a large scale for a long time. However, resistance can develop to other drugs and it is important that we try to prevent this from happening. Resistance is most likely to develop if the same drug is used continuously for years and if there is underdosing of the drug.

The best way to reduce the development of drug resistance is to change the type of worming drug used every 1-2 years, but not anymore frequently. Remember to avoid underdosing and you should have treatments checked by arranging to have a FEC performed at 7-10 days after the last treatment. A FEC should be done 1-2 times yearly.

Worm Control in Foals

Foals should be reared in as clean an environment as possible. Ideally, it should be an area that hasn't been heavily grazed by older animals or last year's foal crop.

It is important that the mare is treated with an anti-worm product 2-3 weeks before she is due to foal. It is also worthwhile washing her udder a few days before birth to remove any roundworm eggs stuck to the skin.

Foals should be treated with a product effective against roundworms (*Parascaris*) at 8-10 weeks of age. This will remove the worms before they have reached full size and before they start laying eggs. If there is a prior history of problems with roundworms then it is worth giving foals their first treatment at 6-8 weeks of age.

After this, in many situations, foals need to be drenched at 6-8 week intervals with a drug that kills all common worms. If the mare and foal are housed in a clean paddock (no horses for 1 year or more), or where there has been a routine of removal of manure for several seasons, then treatments may not be needed as frequently. Check with your veterinarian regarding treatment frequency.

At weaning, foals should be moved to a fresh pasture, ideally one that has not been grazed by yearlings for at least 6 months. Worms such as *Strongylus vulgaris* (the bloodworm) often reach adult stage and produce most eggs in yearlings.

Worm Control in Yearlings

Ideally, yearlings should be grazed on paddocks that have not had horses on them for several months. On heavily stocked studs, it is usual for 6-8 weekly drug treatments to continue. However, this has the risk of encouraging drug resistance. It is important that the management procedures described above are used also to reduce the infectivity of the paddock.

In other countries there is a seasonal pattern of parasite infestation. However, it is unclear if that is the case in New Zealand. Nonetheless, it is still considered important to ensure that yearlings are given a treatment in the spring (September or October) for small and large strongyle larvae.

There also tends to be a build of worms on pasture in the late summer early autumn period. Therefore, it is important that yearlings are treated during this period. In young animals 3-4 treatments given at 8-10 week intervals from January on should deal with this build up in paddocks that have had regular removal of manure. Otherwise, the treatment should be every 6-8 weeks in paddocks that have not had removal of manure.



Adult Horses and Breeding Mares

On places with large numbers of horses, it is common for adults to be treated at 6-8 week intervals throughout the year. However, this has had a major effect on the development of resistance to BZ's in the worm population. Therefore, where it is practical, every effort should be made to use management procedures to control worms.

With regular manure removal twice weekly the frequency of treatments could be reduced to 2-3 times a year. Once in the early spring (September/October), or in breeding mares, just before foaling. The other treatments should be given at the end of summer (March) and late autumn (May/June) to remove any worms picked up over the summer period. The products used for these treatments should be effective against small and large strongyles as well as roundworms in the spring treatment. FEC are recommend to monitor the effectiveness of treatment as well as the level of infection.

Visiting Mares and New Herd Introductions

It is important that all new horses are treated on arrival and then kept apart from other horses for the first 24-48 hours. All manure should be collected and disposed of. To be sure that these horses aren't bringing in drug resistant worms, an FEC should be performed a few days after treatment.

Stallions

Since stallions are generally kept on their own and tend to pass manure in one location, it is easier to remove manure, minimising the need for treatment. Nonetheless, treatments in spring and autumn are still recommended.

Tapeworms

Tapeworms are carried by a pasture mite, which makes it difficult to prevent horses from becoming infected. It is likely that numbers of tapeworms build up when horses are densely stocked on the same paddocks for long periods.

In situations where there is a history of a tapeworm problem, periodic treatment of tapeworms should always be given. Spring and autumn treatments are recommended to reduce infection of mites and remove any infection picked up during the summer.



Bots

Adult bot-flies are active during the warmer months in New Zealand. The flies cement their yellowish eggs to the hairs mainly on the legs and lower body of the horse. Larvae develop within the eggs and hatch when licked by the horse. The larvae eventually end up in the stomach after a few weeks burrowing in and out of the tongue before being swallowed. The larvae spend 9-10 months buried in the wall of

the stomach. After which they pass through the intestines and out in the manure before pupating to emerge as an adult fly one month later.

To control bots, a bot-knife can be used to remove bot eggs on the hairs once or twice weekly. Close-clipping may also help by making it more difficult for the flies to attach their eggs.

The best time to treat horses for bot larvae is a few weeks after the flies have disappeared, normally May/June.

Not all worming preparations are effective against bots, so it is important to make sure the right product is selected.

Product	Active Ingredient	Active Against
ADTAPE [®]	Praziquantel	Tapeworms
AXILUR [®]	Fenbendazole (BZ)	Large and small strongyles and some other nematodes
EQUELL [®]	Abamectin	Nematodes and bots
EQUEST [®]	Moxidectin	Nematodes and bots
EQUEST [®] + Tape	Moxidectin/Praziquantel	Nematodes, bots and tapeworms
EQUIMAX LV [®]	Ivermectin/Praziquantel	Nematodes, bots and tapeworms
EQUIMINTH PLUS [®]	Oxibendazole (BZ)/Dichlorvos	Nematodes and bots
EQUITAK [®]	Abamectin/Praziquantel	Nematodes, bots and tapeworms
EQVALAN PASTE [®]	Ivermectin	Nematodes and bots
GENESIS HORSE WORMER [®]	Abamectin/Praziquantel	Nematodes, bots and tapeworms
IverQuantel [®]	Ivermectin/Praziquantel	Nematodes, bots and tapeworms
NEGUVON [®] 98%	Trichlorphon	Bots and roundworms
NOROMECTIN [®] PASTE	Ivermectin	Nematodes and bots
PANACUR [®]	Fenbendazole (BZ)	Large and small strongyles
PARADE [®]	Ivermectin/Praziquantel	Nematodes, bots and tapeworms
PARAMINTH [®] PASTE	Morantel tartrate	Nematodes and tapeworms
RINTAL [®] +NEGUVON [®] PASTE	Febantel/Trichlorphon	Nematodes and bots
SYSTAMEX [®] LOW DOSE	Oxfendazole (BZ)	Large and small strongyles and whipworms (Oxyuris)

* Nematodes include: small and large strongyles, roundworms, whipworm, threadworm & lung worm

*BZ = Benzimidazole

The New Zealand Equine Research Foundation has a book titled **Parasites and Horses** by Dr. Tony Charleston. This is an excellent source of information regarding equine parasites and is available for purchase from the NZERF