Calendar

A typical worming strategy for this method of control would be:

**February**: Treat for Cyathostome larvac (5-day fenbendazole e.g. Panacur™, or one dose of moxidectin e.g. Equest™)

Then choose your class of wormer to use for the rest of the year, dosing at regular intervals. With the exception of the following specific treatments:

**September**: Treat for tapeworms (praziquantel, or double dose with pyrantel embonate e.g. Pyrantel P™ or Strongid-P™ or Equtape)

**October**: Repeat treatment for Cyathostome larvac

**December/January**: Treat for bots (ivermectin e.g. Eqvalan™ Furexel™ Panomec™ Equimax™, or moxidectin e.g. Equest™)

The table below shows the class of wormers and which worms they are effective against:

<table>
<thead>
<tr>
<th></th>
<th>Large Redworms (Strongyles)</th>
<th>Adult Small Red Worms</th>
<th>Cyathostome Larvae</th>
<th>Tape Worms</th>
<th>Round worms (Ascaris)</th>
<th>Pinworms (Oxyuris)</th>
<th>Bots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivermectin (35 day interval) e.g. Eqvalan™ Furexel™ Panomec™</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Moxidectin (14 day interval) Equest™</td>
<td>Yes</td>
<td>Yes</td>
<td>Possibly</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pyrantel Ebonate (6 week interval) Pyrantel P™ Strongid-P™</td>
<td>Yes</td>
<td>Yes</td>
<td>(possible resistance)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Benzimidazoles (6.8 week interval) Fenbendazole e.g. Panacur™ Mebendazole e.g. Telmin™ Oxibendazole e.g. Lincoln™ Equest™ Panacur™</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes (resistance common)</td>
<td>No</td>
<td>(5 day course)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>(Praziquantel)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Summary

Intestinal worms are associated with numerous medical problems in the horse. The efficacy of most modern wormers has meant that, when used correctly, most horses will not develop significant worm burdens. Cyathostomes are a particular cause for concern due to their ability to "hibernate" for years, during which time they are resistant to most brands of wormer.

It should be remembered that certain classes of drug are more effective than others against certain species of worms and some species of worms have the ability to develop resistance to worming drugs.

A responsible use of wormers should therefore be adopted to prevent the resistance problem worsening. In case of worm resistance it would be advisable to carry out a routine egg count each summer.

Further Information

BHS Guide to Grassland Management for Horse and Pony Owners
British Horse Society 2000
Country Guide: Grassland and Grasskeep Management
NFU Countryside
Country Guide: Horse & Pony Management
NFU Countryside
Equine Industry Welfare Guidelines Compendium for Horses, Ponies and Donkeys
ADAS Consulting Ltd 2002
Five Point Plan for wildlife friendly farming
English Nature & NFU 2002
Horses, grasslands & nature conservation
English Nature 2002
Equipment & Vehicle Storage Advice Note (012)
Horse Pasture Management Project 2003
Exercise Areas & Exercise Equipment Advice Note (005)
Horse Pasture Management Project 2003
Feed & Bedding Advice Note (011)
Horse Pasture Management Project 2003
Fencing Advice Note (002)
Horse Pasture Management Project 2003
Gateways Advice Note (008)
Horse Pasture Management Project 2003
Grassland Management Advice Note (003)
Horse Pasture Management Project 2003
Manure Advice Note (007)
Horse Pasture Management Project 2003
Poisonous Plants Advice Note (010)
Horse Pasture Management Project 2003
Stables & Buildings Advice Note (006)
Horse Pasture Management Project 2003
Tenancy Agreement Advice Note (009)
Horse Pasture Management Project 2003
Trees & Hedges Advice Note (011)
Horse Pasture Management Project 2003
Water Regulations Advice Note (004)
Horse Pasture Management Project 2002
Water Supply Installation Guide to Agricultural Premises
Published by Water Regulations Advisory Scheme 2001

Useful Contacts

ADAS 01954 267666
www.adas.co.uk
British Horse Society (BHS) 08701 202 244
www.bhs.org.uk
British Trust for Conservation Volunteers (BTCV) 01491 839766
www.btcv.org.uk
Business, Farming and Rural Advisor: Businesslink Surrey 0845 749 4949
www.businesslinksurrey.co.uk
Country Land & Business Association 01435 863106
www.cla.org.uk
Countryside Agency 020 7340 2900
www.countryside.gov.uk
English Nature 01733 455101
www.english-nature.org.uk
Farming and Wildlife Advisory Group (FWAG) 01483 402255
www.fwag.org.uk
Fencing Contractors Association 07000 560722
www.fencingcontractors.org
Horse Pasture Management Project 01372 74783
www.surreycountryside.org.uk
Lower Mole Countryside Management Project 01372 743783
www.surreycc.gov.uk/horsepastureproject
National Association of Agricultural Contractors 01733 369290
www.naac.co.uk
National Farmers Union (NFU) 01483 414016
www.nfu.co.uk
Surrey Hills Partnership 01372 220653
www.surreyhills.org

Purpose

This brief guide is intended to provide horse and pony owners and keepers with some basic advice on their grassland management. This is a huge subject, which can only be lightly touched upon here, but will supply details of where to get more information for individual needs.

Surrey is a Beautiful county, with over 25% having been designated the Surrey Hills Area of Outstanding Natural Beauty which is a landscape of national importance.
Introduction

Most horse owners are aware of the need to worm their horses on a regular basis. Generally, a horse can tolerate a small number of worms without apparent problems. However, if the worm burden reaches a significant level, symptoms such as weight loss, diarrhea, and general ‘unthriftiness’ may develop. Some species of worm are also associated with a potential life-threatening condition. It is therefore clear that control of these worms is important to the welfare of the horse.

Most of the worms that affect horses have a broadly similar life cycle. Typically, the horse swallows the worm larvae from the pasture, the larvae then spend a period of time developing within the horse before reaching adulthood within the bowel. Pasture can be contaminated by the parasites for a year or more, and as these worms produce eggs that are passed in the dung onto the pasture. Under warm conditions these eggs hatch into the infective larvae again. It is therefore possible to estimate the burden of worms a horse is carrying by counting the number of eggs in the droppings (known as a faecal worm egg count).

Dung removal and monitoring faecal worm egg counts

The best way to slow the development of drug-resistant parasites is to use the drugs as infrequently as possible.

One way to do this is by collecting dung from the fields twice each week. As well as supplying your vet with a fresh sample for worm egg count monitoring, this also improves the appearance of your pasture and increases the area available for grazing!

A “fresh”, less than 12 hours old, sample of dung from each horse in the yard should be given to your vet. The vet will then be able to advise as to whether treatment is necessary or not, and when you need to sample again (often it is only every two months). Using these methods allows the wormer to be given as and when it is needed, according to the number of eggs in the sample. This is obviously slightly more labour intensive, but may well work out cheaper than dosing unnecessarily.

The drawback of this system is that a negative faecal worm count does not necessarily mean that the horse has not got any worms! Tapeworms, for example, have to be in their adult form to be producing eggs. This is a particular concern in the case of the Small Red Worms (Cyathostomes), which may “hibernate” as larvae for years. It would therefore be advisable to treat for tapeworm and cyathostomes once or twice a year, irrespective of the faecal worm counts.

Other ways of reducing worm levels without drugs

Grazing farm animals with horses can be a convenient method of reducing pasture contamination with worms. Very few worms can live in both horses and farm animals. This means that if a cow or sheep swallows horse worms from the field, those worms do not develop and so are removed from the grazing. These other grazing animals will also graze areas of the paddock that horses have manured on and will not eat themselves, and so improves the appearance of your pasture as well.

Obviously having a low stocking density of horses to the acre would also significantly reduce the build up of worms in the pasture. It is also possible to remove bot eggs, avoiding the need for a specific dose against bots. These eggs are creamy-yellow in colour and are often seen stuck to the hairs of the forearms and neck, at the end of the summer. The eggs are very sticky, but may be scraped off with a disposable razor.

Types of Worms

There are many species of worms that affect horses, but the most important ones are listed below.

Large Red Worms (Strongyles)

These are the type of worm which in the past owners and vets were most concerned about. The life cycle of these species involves migration of larvae from the bowel into the abdomen, before returning back to the bowel as adult worms. These worms may be associated with general signs of malaise; but one species, Strongyloides wadigi, migrates specifically to the arteries supplying the bowel and can cause obstruction to the blood flow, resulting in a serious form of colic sometimes necessitating surgery.

Modern worming regimes are usually very effective at killing these species and so recently their significance has diminished.

Small Red Worms (Cyathostomes)

As the significance of large red worms has declined over the past twenty years or so, the protozoa associated with this group of worms seem to have dramatically escalated. This is due in part to their relatively short life cycle, but is also a consequence of the ability of these worms to develop resistance to modern wormers. This problem of resistance is compounded by the tendency of these worms to “hibernate” in the lining of the bowel. When a horse swallows cyathostome larvae from the pasture, the larvae develop within the lining of the bowel and then re-emerge as adults. However a proportion remains within the lining and may remain there for years. Whilst hibernating these inhibited larvae are resistant to many types of wormer. The larvae then re-emerge, often at the end of winter and this re-emergence may involve large numbers at the same time, resulting in enormous damage to the bowel wall, which may even prove to be fatal.

Tapeworms (Cestodes)

These worms are less likely to cause problems compared to the red worms, however they are a potential cause of colic. Tapeworm eggs are not usually detected in dung samples, but a blood test is available.

Lung Worm (Dictyocaulus arnfieldi)

Donkeys are the natural host for these worms, and don’t usually show any symptoms. However horses grazing in the same field, or in a field previously grazed by donkeys, may also be affected. The worm does not usually complete its life cycle in the horse and so is not often detectable by faecal worm count. Horses affected with significant numbers of this worm cough due to the presence of the larvae within the lungs.

Rundworms (Ascarids)

Usually affect young horses only, typically foals and yearlings. Despite this worm being an intestinal parasite, infestation often results in coughing. This is due to the larvae migrating through the lung on their way to the intestine.

Pinworm (Oxyuris)

No significant disease implications but can cause irritation to the horse around the anus.

Bots (Gastrophilus)

In truth these aren’t really anything to do with worms, but are often put into the same category by owners. Bots are the larval stage of a certain species of fly. This fly lays its eggs on the horse’s coat, often around the forelegs and neck, which the horse then swallows when it grooms itself. The eggs then develop and the larvae remain in the stomach, until they are passed in the dung as pupae.

Finding these pupae in the dung may be distasteful, however it is very rare for bots to cause any medical problems.

Which wormer to use?

It has been shown in surveys that most owners worm their horses frequently enough to prevent a significant worm burden developing. However, it would seem that often the decision as to which wormer to use is made on the basis of advertising or cost.

Currently there is real concern over the problem of worms becoming resistant to the types of wormer we use. In Britain, there is already significant worm resistance to certain classes of drug used. In countries such as Australia and South Africa, the problem is worse and farms have had to be abandoned due to the worms being resistant to all classes of drugs available. It is therefore important that we not only worm our horses to prevent disease, but that we do it in a responsible way.

In order to slow the development of resistant worms in the population, it is important to understand a little about the wormer you are giving.

There are three commonly used classes of wormers in horses:

Classes of Wormers

1) Macrocylic Lactones
   a) Ivermectin e.g.Eqvalan™, Furexel™, Panomec™, Equimax™
   (also contains praziquantel)
   b) Moxidectin e.g.Equest™

2) Pyrantel Embonate
   e.g.Pyratape P™, Strongid-P™

3) Benzimidazoles
   a) Fenbendazole e.g.Panacur™
   b) Mebendazole e.g.Telmin™
   c) Oxibendazole e.g.Lincoln™, Equitac™

4) Praziquantel

How to worm your horse

Many owners worm their horses according to a routine, with a set interval between doses (shown in the table below) and maybe some treatments at certain times of year targeting specific species of worm.

If this system is being used, there are two golden rules to slow the development of worm resistance. Ensure that you are using the correct dose of drug (in particular not under-dosing), a weigh band is a very useful tool to quickly estimate the weight of your horse. Secondly, rotate the class of drug you use on a yearly basis. In other words if you are using one of the macrocyclic lactones (ivermectin or moxidectin), continue to use these until the following year, at which time you should change to another class. It is the class of drug that is important, not the trade name and so, for instance, it would be acceptable to use Panacur™ and Telmin™ in the same year.