Parasites of the horse cause tremendous economic loss as well as a great deal of pain and suffering to both the horse and horse owner. More than 80 different internal parasites afflict horses around the world. Total elimination of parasites in horses is not a realistic expectation. However, effective control of parasite numbers in the horse and its immediate environment can be achieved through strategic use of effective de-worming medications and environmental control using sensible management practices.

The major types of internal parasites of concern to horse owners include large and small strongyles, ascarids, bots, pinworms and tapeworms. These parasites can cause a host of injuries or even death through blockage of circulation to the intestines, damage to organs such as the liver and the lungs, blockage or rupture of the small intestine, ulceration of the stomach, etc.

**Control of Parasites with Medication**

It is generally recommended that effective de-worming products from several different chemical classes be selected for use in a “rotational” worming program in order to avoid the development of “resistance” to worming products by the parasites. Table 1 lists eight difference classes of de-worming medications for horses and the generic names of specific products in each class. A typical rotational worming schedule for horses would involve administering a product from a different class of de-wormers every two months. The recommended interval between wormings may be more or less than two months depending upon stocking density of the horses on pasture, housing conditions and levels of parasitism in the herd determined by fecal examinations. Horses that are relatively parasite-free that are kept in box stalls require less frequent de-worming than horses on heavily parasite-laden pastures.

It is important to note that switching products within a class (i.e.: benzimidazoles) is not truly rotational worming because parasites tend to develop resistance to an entire class of medication. In fact, it is known that certain types of small strongyles have developed resistance to the benzimidazoles. By switching to a different class of de-wormer (i.e.: a pyrantel or avermectin product) following use of a benzimidazole, resistant worms will then be killed.
With all de-worming medications, it is extremely important that the proper dose actually reach the horse’s stomach. After applying the recommended dose of a de-worming paste to the back of a horse’s tongue, the horse owner should observe for several minutes to make sure that the horse has swallowed the medication.

It is also important to realize that all of the de-wormers listed in Table 1 except for the organophosphates and praziquantel have fairly good effectiveness against round worms such as ascarids and strongyles, but only the organophosphates and avermectins have efficacy against bots. The avermectins have the broadest overall efficacy spectrum of any single class of deworming compounds, but may be improved by addition of praziquantel to also kill tape worms. Organophosphates have a lower margin of safety than the other classes of de-wormers, and only effectively kill bots and possibly pin worms, thus are seldom used in modern de-worming programs.

The pyrantels have some efficacy against tapeworms which are becoming more common the U.S. If a horse is to be de-wormed with pyrantel, the recommended practice is to administer a pyrantel paste at twice the dose listed on the tube in order to kill tapeworms. Fortunately, the relatively wide safety margin for these products allows for treatment for tapeworms in this manner.

A better, newer choice for de-worming horses with tapeworms is praziquantel. Praziquantel is used in commercial worming products that target tape worms, bots and round worms simultaneously. Combining praziquantel with an avermectin (ivermectin or moxidectin) results in a “cocktail” of drugs offering nearly 100% efficacy against internal parasites, and has an excellent safety margin.

A commonly recommended strategy for controlling bots is to administer an avermectin product during late summer (after the adult bot flies begin laying eggs on the horse’s legs, chest or nose) and then again in late fall after the first killing frost. The first summertime application is aimed at controlling migrating bot larvae in the mouth. The subsequent avermectin dose in late fall is aimed at expelling the bots that have managed to attach to the horse’s stomach lining.
Environmental Control

The use of effective antiparasitic medications in the fight against worms is really only half the battle. The other aspect of parasite control involves environmental management of parasite populations. Following is a list of several management practices which can reduce environmental parasite contamination.

1. Clean Stalls and paddocks frequently.
2. Prevent fecal contamination of feed and water.
3. Dispose of manure properly. Do not spread fresh manure on pasture.
4. Rotate pastures regularly.
5. Avoid overstocking of permanent pastures (more than 1 horse/2 acres).
6. Quarantine all new horses (perform fecal exams and de-worm if necessary) before intermingling with other horses.
7. Chain harrow pastures during dry or cold weather only.
8. De-worm all horses housed together at the same time.
9. Perform fecal examinations regularly to evaluate parasite control program.

Summary

The war against damaging and potentially debilitating horse parasites can be won by the horse owner who employs a comprehensive program that uses both effective medications and sound management practices.
Table 1. Classes of De-worming Medications for Horses

<table>
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<tr>
<th>Class</th>
<th>Medications</th>
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| A. Simple heterocyclic compounds | 1. Piperazine  
|                               | 2. Phenothiazine                                 |
| B. Benzimidazoles              | 1. Thiabendazole  
|                               | 2. Mebendazole  
|                               | 3. Fenbendazole  
|                               | 4. Cambendazole  
|                               | 5. Oxfendazole  
|                               | 6. Oxibendazole                                  |
| C. Imidazothiazoles            | 1. Levamisole                                    |
| D. Tetrahydropyrimidines       | 1. Pyrantel pamoate  
|                               | 2. Pyrantel tartrate                            |
| E. Organophosphates            | 1. Dichlorvos  
|                               | 2. Trichlorfon                                   |
| F. Phenyl-Guanidines          | 1. Febantel                                       |
| G. Avermectins                 | 1. Ivermectin  
|                               | 2. Moxidectin                                    |
| H. Praziquantel                |                                                  |