

Managing Parasite Resistance Using A Whole Farm Approach

Module 6. Putting the Pieces Together - How to Develop a Parasite Management Program for Your Farm



Factors Affecting Parasite Levels

What Can We Change?

1. Age of horse
2. Local weather and climate
3. Manure removal and management
4. Problem parasites
5. Pasture management
6. Horse density
7. Management of horses
8. Personal opinions



Calendar Based Deworming – Not Recommended

2-Way Rotational Schedule:

	Yearly Calendar					
	Jan Feb	Mar April	May June	July Aug	Sept Oct	Nov Dec
Broad-Spectrum Dewormers:						
Ivermectin Paste Ivermectin Paste		✓		✓		✓
Fenbendazole-Based dewormers:						
Panacur Paste Safe-Guard Equi-Bits Safe-Guard Equine Paste	✓		✓			✓

Rotation Deworming Schedule: Veterinarians recommend deworming every two months.

ROTATION	TIME OF YEAR	COMPOUND
1	January/February	Pyrantel
2	March/April	Benzimidazole
3	May/June	Ivermectin
4	July/Aug	Pyrantel
5	Sept/October	Benzimidazole
6	November/December	Ivermectin

COMPOUND	PRODUCT (choose one)
Pyrantel	Durvet Pyrantel
	Strongid Paste
	Exodus Paste
	Primex
Benzimidazole	Panacur Paste
	Panacur PowerPac
	Safe-Guard Paste
	Safe-Guard Equi-Bits
	Safe-Guard Power-Dose
	Anthelcide EQ
Ivermectin	Equimax Paste (with praziquantel)
	Zimecterin Paste
	Zimecterin Gold (with praziquantel)
	Quest Equine Gel (Moxidectin)
	Quest Plus Gel (Moxidectin with praziquantel)
	Agri-Mectin Paste

The “New” Protocol in Parasite Management

- *Use products with proven efficacy*
- *Administer at the appropriate time of the year*
- *Deworm based on the parasite burdens of individual horses*
- *Adopt good farm management practice*

The question you need to ask is what are you most afraid of – allowing your horses to retain some parasites or developing anthelmintic resistant parasites that can no longer be killed.



Deworming Considerations

- 1. Conduct fecal egg counts on adult horses, yearlings, and two year olds in order to identify high shedders and low shedders that have good immunity.**
 - Low shedders are defined as horses with a FEC of 1-200 EPG, moderate shedders have a FEC of 200-500 EPG, and high shedders have a FEC of greater than 500 EPG.**
 - Conduct FECs once or twice each year or as often as it takes you to be comfortable with targeted deworming.**

Natural Immunity

- Adult horses vary greatly in immunity to parasites and shedding of small strongyle eggs.
- Most adult horses have good immunity against small strongyles
- Adult horses tend to shed roughly the same number of eggs throughout their life time; low shedders will often remain low and high shedders have a tendency to remain high.
 - 40-60% of adults are low shedders
 - 20 to 30% are moderate shedders
 - 10 to 30% are high shedders
 - 80% of eggs come from 20% of the horses on a farm.



- **A fecal egg count of zero does not mean that the horse is parasite free. The horse may have small strongyle larvae that are encysted or adults that are not shedding eggs and may harbor parasites other than small strongyles.**
- **In order to reduce the selection pressure that can lead to the development of resistant parasites, horses with low to moderate fecal egg counts should not be dewormed. Generally horses should be targeted for deworming if the egg count exceeds 300 EPG**
- **Focus deworming efforts on high shedders – this greatly reduces eggs that contaminate pastures.**

2. A basic foundation of anthelmintic treatments should be considered for all horses.

- **Generally consists of one or two yearly treatments.**
- **Choose a product that provides control of strongyles, bots and tapeworms for use in the fall, usually after the grazing season.**
- **Focus deworming treatments during times of peak transmission – usually spring through fall.**
- **Consider using a product labeled for encysted larvae in horses that have a history of parasite infection and disease.**

- 3. Evaluate the efficacy of dewormers on the farm by conducting a fecal egg count reduction test.**
 - Determine % reduction in egg shedding before and 14 days after deworming for all horses that are moderate or high shedders.**
 - Report % reduction as an average of all horses on the farm that were used in the test.**

4. Yearlings and two year old horses have a greater risk of parasite infection and disease due to reduced levels of immunity

- **More frequent deworming treatments (often 4 or more per year) may be necessary to control parasites in young horses.**
- **Conducting fecal egg counts on a regular basis will help with deworming decisions.**
- **Conducting fecal egg count reduction tests will ensure that the products are working.**

5. Foals and weanlings are very susceptible to parasite infection.
 - Great care should be taken to ensure that the foals are dewormed with the correct product at the appropriate time. for the parasites that are present.
 - Targeted deworming based on fecal egg counts is not recommended for this age group.
 - Very specific deworming protocol has been established for foals and weanlings.

Although specific protocol has been developed based on AAEP guidelines, you and your veterinarian are encouraged to provide input into the program that is developed for your farm.

Always involve your veterinarian in all decisions about your parasite control program.

Parasite Management Programs for Foals, Young Horses, and Mature Horses



Foal Parasite Control

Strongyloides Westri

- PP 5-7 days
- Control rarely necessary unless clinical disease



Parascaris Equorum – Roundworms

- PP 2 ½ -3 months
- Major parasite of young horses
- Macrocyclic Lactone resistance
- First deworming –
2-3 months of age
with Benzimidazole



6 months of age - FEC and then deworm for Strongyles, if indicated

9 and 12 months of age deworm for Tapeworms



Yearlings and 2 year olds

Treat as “high” shedders

- 3-4 yearly treatments based on fecals and product efficacy
 - Concentrate treatments when the climate favors transmission
- Do not treat during times of low refugia
 - Winter
 - Summer when hot and dry
- Larvacidal dose in the late winter/spring before encysted larva excyst

Mature horses

3-4 years of age and older

- **Low Shedders:** **0-200 EPG**
- **Moderate Shedders:** **200- 500 EPG**
- **High Shedders:** **>500 EPG**

Mature Horses

- One or two treatments per year based on FECs
- Use products with known efficacy
- Autumn treatment of all horses
 - Ivermectin **plus praziquantel (tapeworms)**
 - Consider moxidectin plus praziquantel for chronically high shedders
 - Double dose pyrantel (tapeworms) if low strongyle FEC
- Selective therapy in the spring and summer for high shedders

Price of a tube of dewormer is the same or less than the price of a fecal so why not just deworm ?

- 1. Millions of tubes of dewormer are being used that are killing very few worms - either because there are only a few to kill or because they are resistant.**
- 2. There are future costs to over-treating in the form of worsening drug resistance.**

3. Without monitoring you have no idea if your deworming program is successful or not.

Conclusion: Current practices of over-treating horses not only wastes money but also promotes drug resistance.



This project is partially funded by:



Presentation Contributors

Donna Foulk

**Penn State Extension Equine Natural
Resources Education: 610-813-6613**

dlf5@psu.edu

HeatherStofanak

haf10@psu.edu

Dr. Martin Nielsen, DVM, PhD.

**Equine Parasitologist, University of
Kentucky, Gluck Institute**

Dr. Ed Jedrzejewski – DVM

Penn State University

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identity, or veteran status. Discrimination or harassment against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901; Tel 814-865-4700/V, 814-863-1150/TTY. This publication is available in alternative media on request.

PENNSTATE



Cooperative Extension
College of Agricultural Sciences