

With Dr. Jay Areiz

A parasite is defined as an organism that lives on or in an organism of another species, known as the host, from the body of which it obtains nutriment. Intestinal parasites can cause major problems in domestic rabbits because their anatomy and physiology is already somewhat delicate in terms of overall health and response to disease.

It is important to recognize signs of rabbits with possible intestinal parasites. Any rabbit or group of rabbits that have signs of lethargy, lack of appetite, cachexia (wasting away), or dull, listless coats should be of prime suspect for a possible parasitic infection.

COCCIDIA

It helps to think of protozoa as a distant cousin of bacteria. Like bacteria, they are single celled. They are more complex than bacteria however because they have a nucleus and other cellular components that bacteria lack. One of the most common protozoal infections that a rabbit breeder will encounter at some point in their individuals or herds is **Coccidia**. There are currently 12 species of *Eimeria* or commonly referred to as Coccidia that we find in domestic rabbits. Most of them are confined to the small and large intestine with the exception of one hepatic (liver) coccidian species.

Intestinal coccidiosis is the most common presentation noted by rabbit breeders and can be diagnosed with fecal flotation at most small animal veterinary clinics. Rabbits become infected with these species by ingesting oocysts of the organism, which is usually from other feces or fecal contamination. Whether or not a rabbit becomes ill is determined by multiple factors including the amount of the organism ingested, the species of the organism, age, and individual susceptibility of the rabbit. The most common age group that's affected is **young** rabbits.

Signs include:

- weight loss
- diarrhea +/- blood +/- mucous
- dehydration

It is important to note that since the disease is common in younger rabbits, the situation generally deteriorates rapidly once diagnosed. Quick intervention is often needed. **Breeders with multiple rabbits showing these signs should pool a fecal sample for diagnosis via a fecal float.**

Treatment of intestinal coccidia is most commonly achieved with Sulfa based drugs.

The most common of which are:

- Sulfamethoxine (Albon) at 75 mg/kg/day PO for 7 days
- 0.02% Sulfamerazine sodium via drinking water
- Trimethoprim-sulfa at 30 mg/kg PO q12h x 10d.
- Amprolium 9.6% (Corid) in drinking water (0.5 mL / 500 mL / 17 oz.)
- Ponazuril (Marquis in horses) at 20 mg/kg PO q24h X 7 d.

It is important to point out that the following treatments are coccidioSTATS and are not coccidioCIDAL. This merely inhibits the replication of the pathogen while the rabbit gains immunity to the disease.

Hepatic (liver) coccidia are a common ubiquitous organism in rabbitries not treated with coccidiostats. **Kits that suddenly die with little to no clinical signs are prime suspects for this!** Unlike the intestinal coccidia listed above, a fecal float DOES NOT identify this organism. Rabbits that have succumbed to this form of coccidia will have diagnosis made upon necropsy. Common findings include an enlarged liver, nodules on the liver, and an enlarged gallbladder.

Prophylactic use of coccidiostats can be implemented in most rabbitries because of the low cost of the drug along with the fact that rabbits tolerate sulfa-based drugs very well. Treating a herd every 6 months is a good place to start.

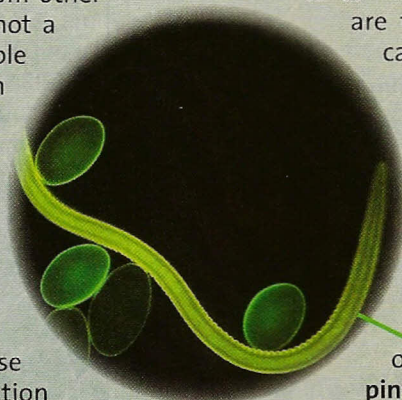
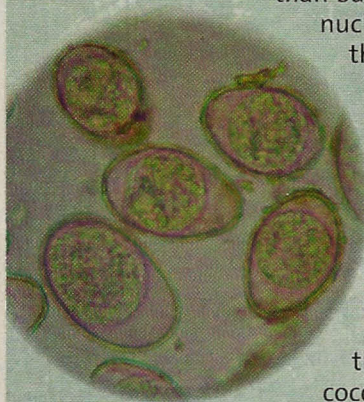
INTESTINAL PARASITES: AKA "WORMS"

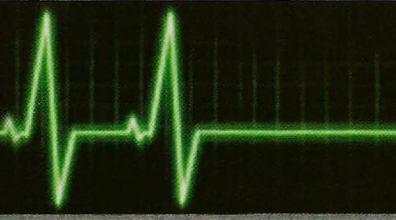
The following organisms are what we commonly refer to as "worms" in domestic rabbits. These parasites are frequently seen with the naked eye and can cause major problems in your rabbitry if left undiagnosed. The most common place a breeder will see these parasites are in the rabbit's fecal pellets. Those who butcher their own rabbits and/or perform necropsies regularly may see some of these parasites in abdominal organs.

NEMATODES

These are commonly referred to as a type of **roundworm** in rabbits and more specifically **pinworms**.

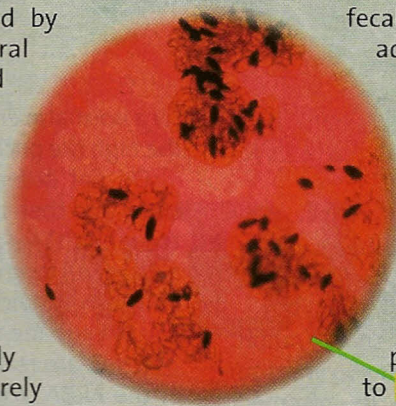
The most common species we see is *Passalurus ambiguus*. Rabbits can have a relatively large amount of these worms and appear perfectly normal in many instances. Adult pinworms are generally found in the cecum and colon and breeders will generally see them passed in feces. They are approximately 10 mm in length, white, and visible with





the naked eye. Rabbits become infected by ingesting the parasite's eggs (a fecal-oral route). Areas that have been contaminated with pinworm-infested feces should be thoroughly cleaned prior to any new rabbits living there. Rabbits that are allowed to graze on fresh grass are at risk for becoming infected with *Obeliscoides cuniculi* or the rabbit stomach worm. After ingesting the eggs, the larvae of the parasite begin hatching in as little as 30 hours. Like pinworms, rabbits generally do not show outward clinical signs. Severely infested rabbits may show depression, lack of appetite, and poor weight gain.

Treatment of these parasites can be done with Fenbendazole (Panacur or Safeguard) at 20 mg/kg by mouth. Repeat the treatment in 14 days to account for new infection. Ivermectin can also be used at a dose of 0.4 mg/kg by mouth and repeated in 14 days. Alternatively, to treat on a herd wide level breeders can obtain Piperazine powder. Dissolve 3 grams per liter of water or approximately 12 grams per gallon of water for two weeks.



fecal flotation of the intestinal parasite while the adult form can be found incidentally like *H. tricolor*. Like the cestodes, a single treatment of praziquantel will take care of them.

"Worming" of rabbits can become a routine and regular practice in the rabbitry. Most of these drugs are VERY safe and pose a relatively low risk of complications if used at dosages suggested. A good schedule to adhere to is every six months of worming. Always include intestinal parasites, from protozoa to **flukes**, as a top reason why your rabbit may show signs of gastrointestinal problems! 🐰

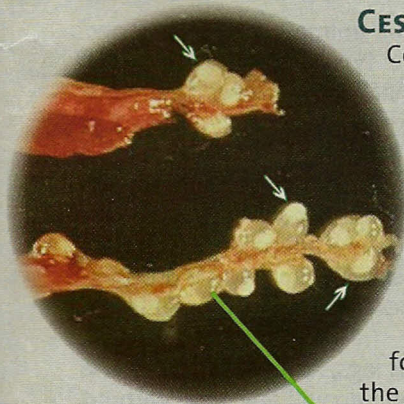
Jay E. Hreiz, VMD:

Chairman, ARBA Rabbit & Cavy Health Committee. Dr. Hreiz is a graduate of Penn's Veterinary School and currently works as an associate veterinarian at a small animal/exotics practice in the Charlotte, NC area. He is also an ARBA Judge #789



CESTODES

Cestodes are commonly referred to as **tapeworms**. Rabbits have five species that can live in their GI tract: *Cittotaenia variabilis*, *Mosgovoyia pectinata Americana*, *M. perplexa*, *Monoecocetus Americana*, and *Ctenotaenia ctenoides*. *C. variabilis* is the parasite that is most often found in domestic rabbits in the United States and Europe.



Tapeworms have a very characteristic segmented appearances (their body repeats in small pieces) and can grow to be very long.

Treatment of them involves a single dose of praziquantel 10 mg/kg by mouth. This drug is commonly called Droncit.

TREMATODES

Trematodes are known as **flukes**. The two common species we see in domestic rabbits are *Fasciola hepatica* and *Hasstilesia tricolor*. *H. tricolor* is generally not pathogenic (causing disease) but may be incidentally found in rabbits at necropsy or slaughter. *F. hepatica* and are generally located in the gallbladder or bile duct of rabbits. Signs to look for include cachexia or wasting, poor hair coat, lethargy, and occasionally death. Eggs of this parasite can be found on

REGISTRATION CONTEST

A The ARBA has a GENERAL registration contest open to all ARBA licensed Registrars. The contest runs from October 1 of one year to September 30 of the following year. The ARBA pays 10 places starting with \$50.00 for first, with each place thereafter dropping by \$5. EX: 1st, \$50 - 2nd, \$45 - 10th, \$5

LYNN EDEN, IL.....	30
MADELYN BECKSTROM, MN.....	16
BRYAN SHIRK, MI.....	14
DEBRA SANDOVAL, CA.....	6
EMMA HANSON, MN.....	6
JENNIFER GREEN, WA.....	6
GAY SPARKS, TX.....	4
HEATHER PICKENS, AZ.....	4
JAMES MURRAY, OK.....	3
JOANN SNODGRASS, OK.....	3

MEMBERSHIP CONTEST

The Commercial and Individual Membership Contests are sponsored by the ARBA and run from January 1 to December 31 of each year. Each membership contest pays up to 5th place as follows: 1st, \$25 - 2nd, \$20 - 3rd, \$15 - 4th, \$10 - 5th, \$5. In addition to any placement prize money, the ARBA pays 50 cents for each new member received by an ARBA member [if you have five (5) or more new members during the year's time]. We do not list any placement under three (3) memberships. Send to the ARBA office for membership applications if interested.

Commercial Contest

Koenig's Kountry Supplies ..	8
Bob Bennett	8
KD Cage	4
KW Cages	4
West Coast Cages.....	2
Quality Cage	1

Individual Contest

Nicole Barbacow, PA.....	26
Sherry Garrett, MI.....	15
Anne Copenhaver, PA.....	6
Melinda Grant, NC.....	4
Myron Dinsdale.....	4
Emma Hanson, MN.....	4
Elizabeth Dietzman	3