Parasites

Parasites are organisms that get their nourishment from another living organism (called the host) – such as your horse.

Parasites are:

- Not yucky or gross.
- Well adapted to the animal species they parasitize.
- Capable of producing HUGE numbers of offspring.
- Most often compatible with their host.
- A big problem when we keep a lot of horses in a small area.

- Our horses no longer free range over vast areas of grazing-land like they did when wild.
- Because we confine them to paddocks and pastures, it is possible – sometimes even very common, for our horses to be infected by extremely large numbers of parasites.
- As good horse owners, we need to take measures to reduce the numbers of parasites and the chance of infection.

What horses are most at risk?

- Babies
- Why?
- Also horses with poor immune systems

Knowledge is power over parasites!

- What kinds of parasites should we be most concerned about?
- How does each one affect your horse?
- How are these parasites transmitted?
- How can we control them?
- What can we do better?
- **Your horse keeping habits are the first (and often the only) line of defense that your horse has against parasites.**

Parasite groups

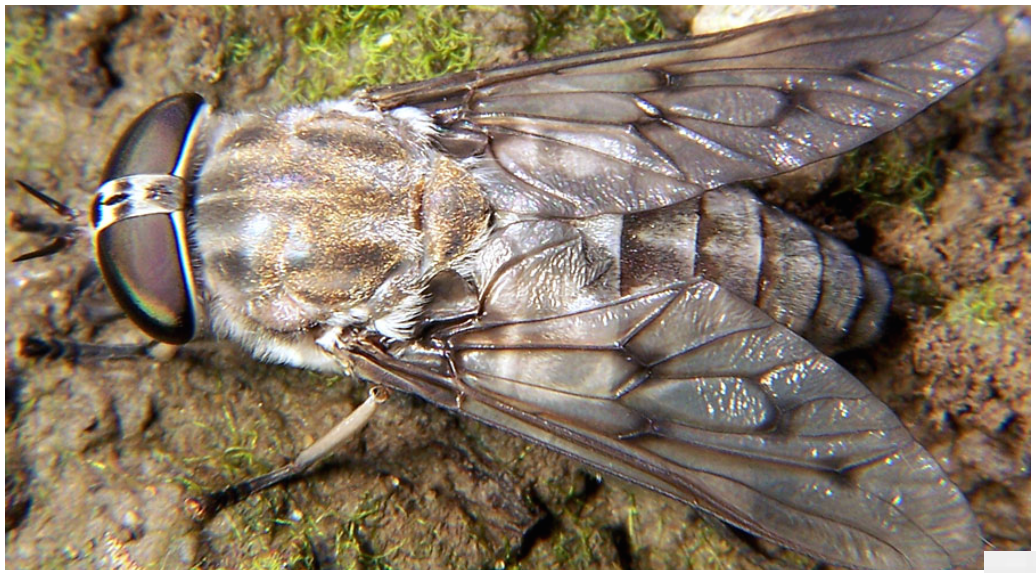
- Ectoparasites: Arthropods> Flies, ticks, lice.
  Also fungus.
- Endoparasites:
  - Worms

    > Nematodes (roundworms) Large and Small Strongyles, Ascarids, Lungworm, Pinworm

    ➢ (Flatworms) Tapeworms

    ➢ (Insect larvae) Bots

Ectoparasites – Biting Flies



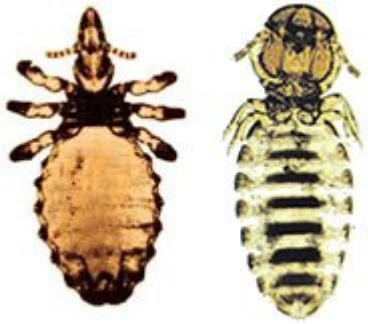
Blood sucking flies

Flies – concerns and control

- Cause stress in horses
- Spread diseases:
  - Equine Infectious Anemia or Swamp Fever - EIA
  - West Nile
  - Eastern Equine Encephalomyelitis – EEE

  - Control:
  - Shelter
  - Fly sheets
  - Fly repellant
  - Fly masks

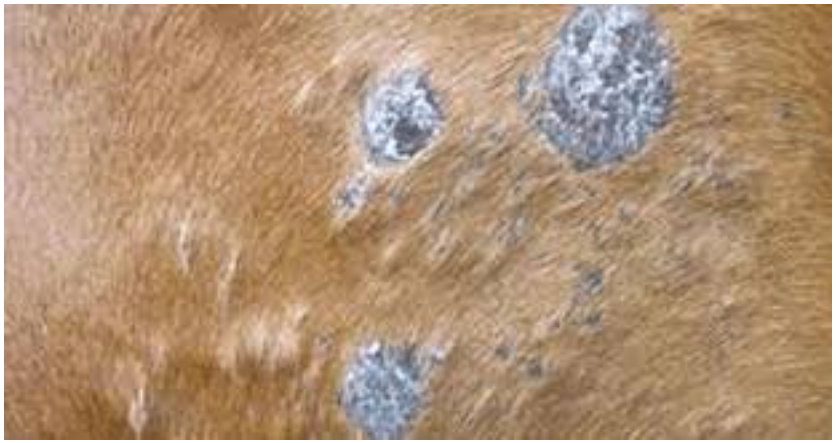
Ticks and Lice



Ticks and Lice – concerns and control

- Ticks spread Lyme Disease.
  - Check body, mane and especially dock
  - Remove with tweezers, bag and send to Mount Allison University for testing. (Dr Vett Lloyd, Biology Dept, Mount Allison University, Sackville, NB E4L 1G7 – include email address)
  - No transmission horse to horse.
- Lice cause itching and anemia.
  - Check mane and base of withers.
  - Look for nits (eggs) and adults.
  - Apply insecticide to horse and stall.
  - Passed horse to horse via contact, surfaces, grooming tools, clothing.

Ringworm



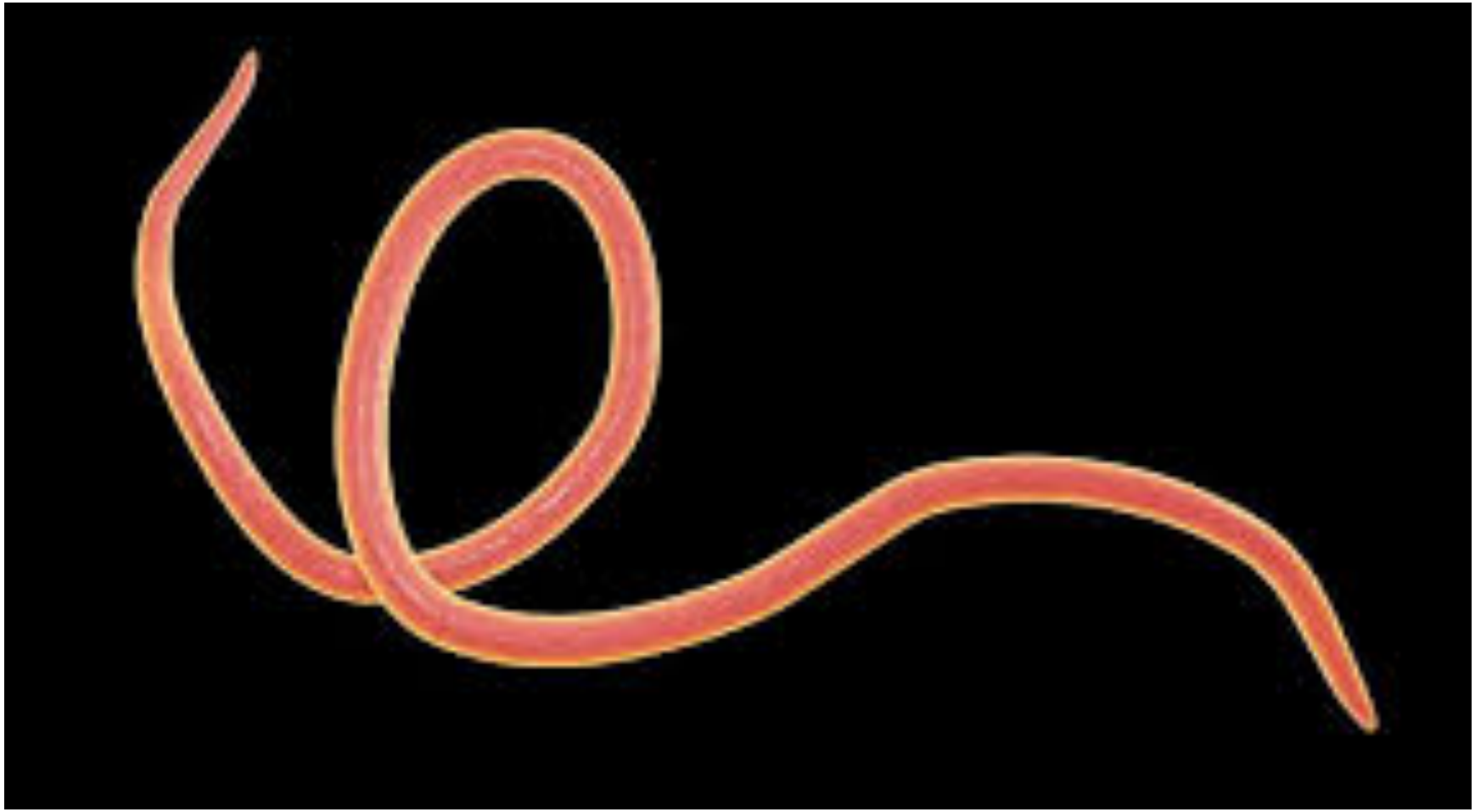
Ringworm is a fungal infection

- Very contagious
- Spread horse to horse (and to dog & human)
- Can be spread on fences, stall walls, tack and brushes
- Looks like hairless flaky patches
- Not itchy or inflamed
- Treatment:
  - Clip hair, Betadine scrub. antifungal ointment

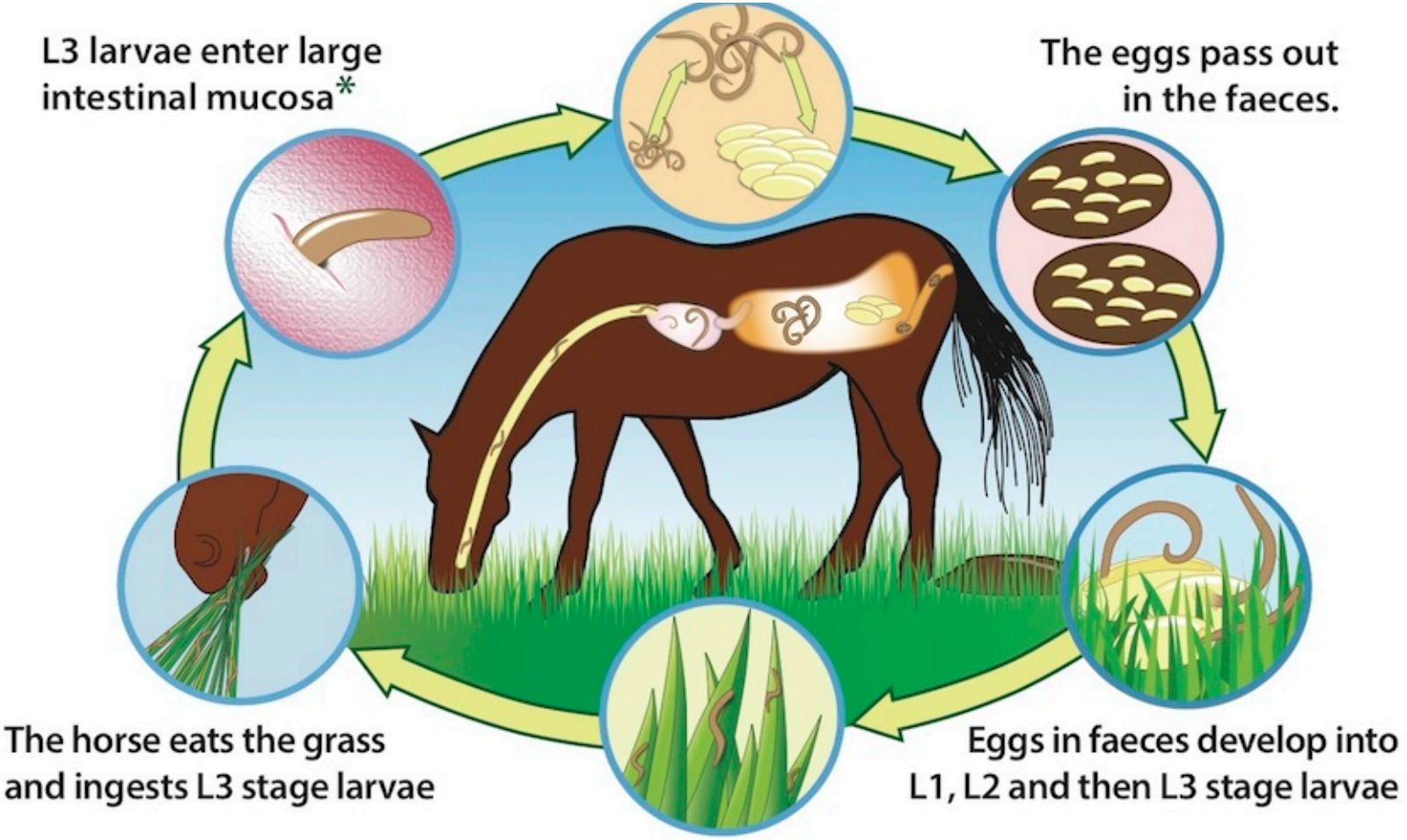
Endoparasites

- Roundworms: Large and Small Strongyles, Ascarids, Lungworm, Pinworm
- Tapeworms
- Bots

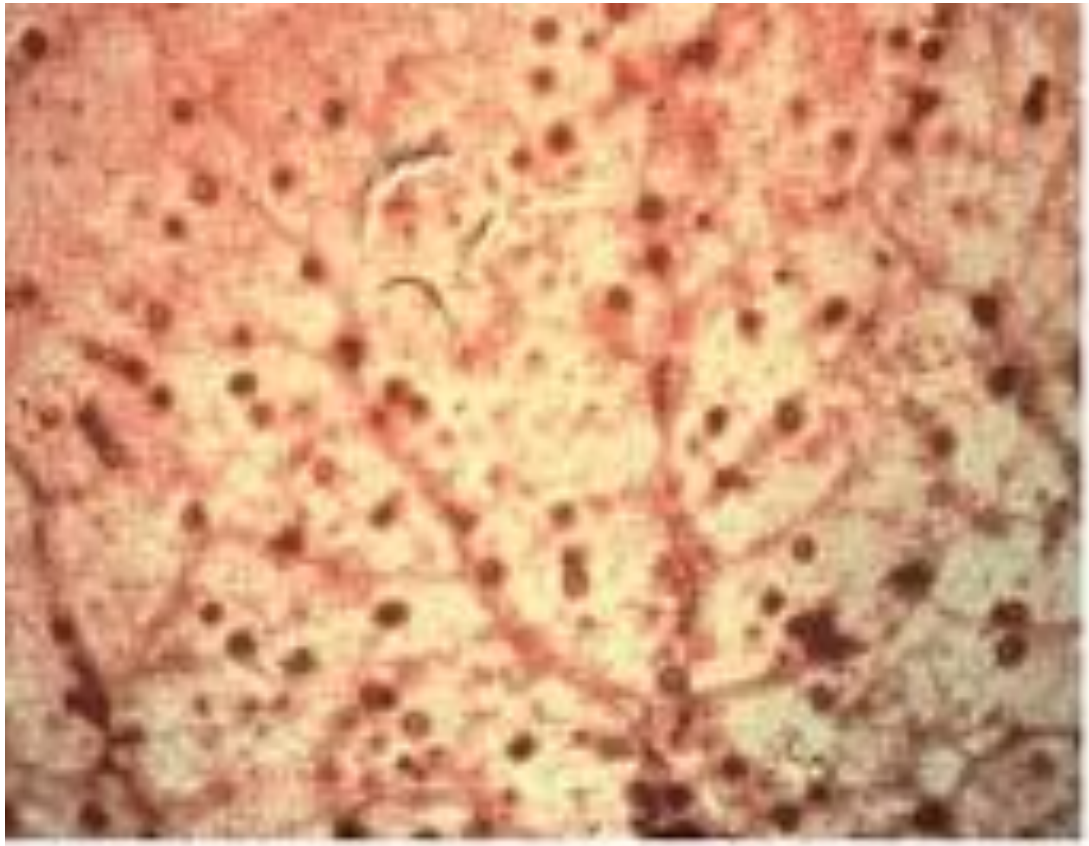
Nematodes - roundworms



Small Strongyles



Encysted larva



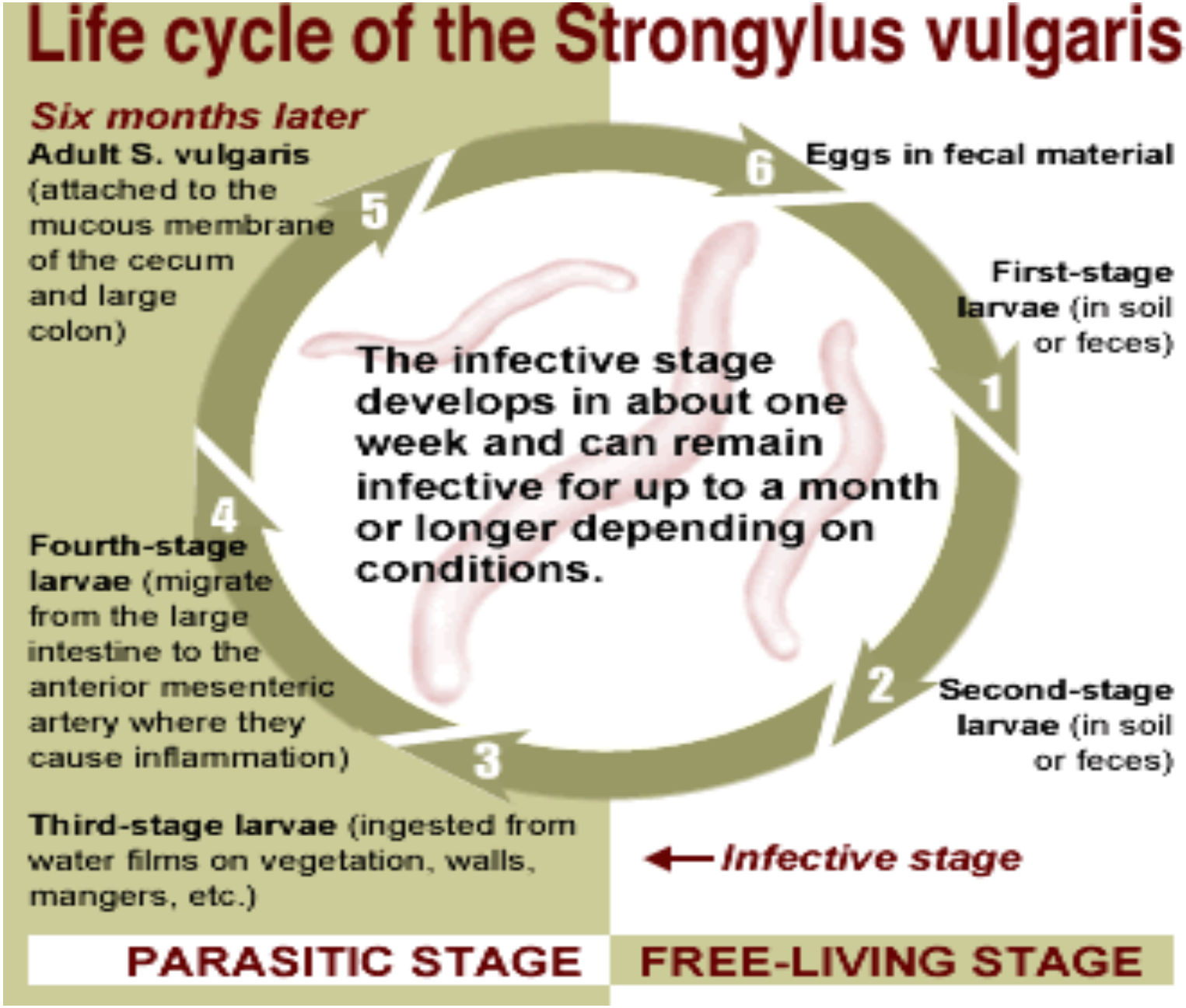
dot is an encysted small strongyle in the intestinal wall

Infective larvae

Small Strongyles

- Live in caecum and large intestine
- 40 species
- Diameter of a hair and half an inch long
- Encysted larva in the wall of the large intestine and can interfere with absorption of nutrients.
- Diagnosis: Fecal egg counts

Life cycle of the Strongylus vulgaris



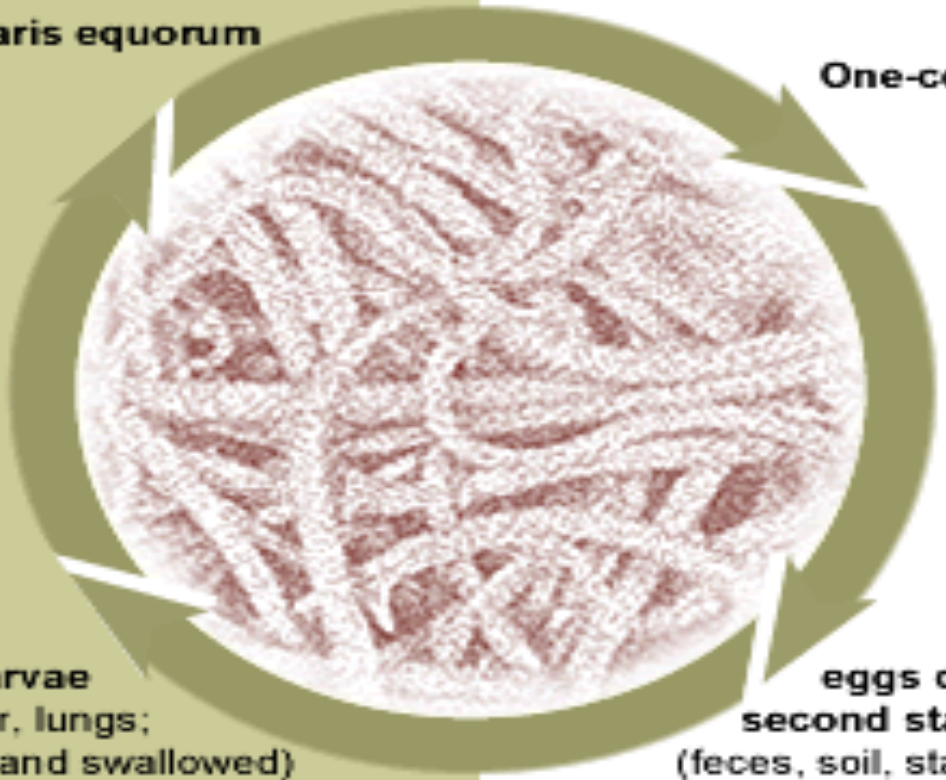
Same route of infection

Redworm in manure

Large Strongyles

- Live in intestine and caecum.
- Three species, all called redworm or bloodworm.
- Infection begins when infective larvae are eaten.
- Pass to intestine and then migrate through the instetinal wall and wander through host tissues until ready to become adult.
- Migrate through blood vessels, liver and pancreas.
- Problems! Can block blood vessels, cause inflamation and clots.
- Adults move back into large intestine and begin to lay eggs.
- Detected by fecal egg counts.

Life cycle of the Parascaris equorum
(Ascarids)



Adult Pascaris equorum
(in the small intestine)

3 months

Migrating larvae
(through liver, lungs; coughed up and swallowed)

Horse ingests eggs

One-celled eggs
(in feces)

1–2 weeks

Infective eggs containing second stage larvae
(feces, soil, stable, walls, mangers, etc.)

PARASITIC STAGE | **FREE-LIVING STAGE**

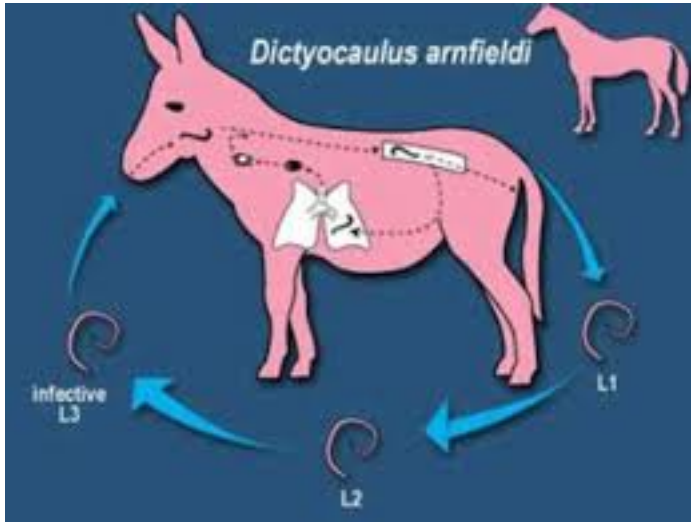
Ascarids in Manure

Ascarids

- Big worms – the size of a pencil
- Ripe eggs are eaten by horse, hatch, penetrate intestinal wall, migrate through tissues and blood vessels.
- Mature larvae end up in lungs and are coughed up and swallowed.
- Adults live in small intestine, mate, lay eggs.
- Can cause scarring and tissue damage and blockage of small intestine
- Hard on young horses

Lungworm

- This is a nematode parasite of donkeys and mules – similar life cycle to equine Ascarids.
- Infects horses grazing with donkeys and mules
- Causes respiratory distress in horses.

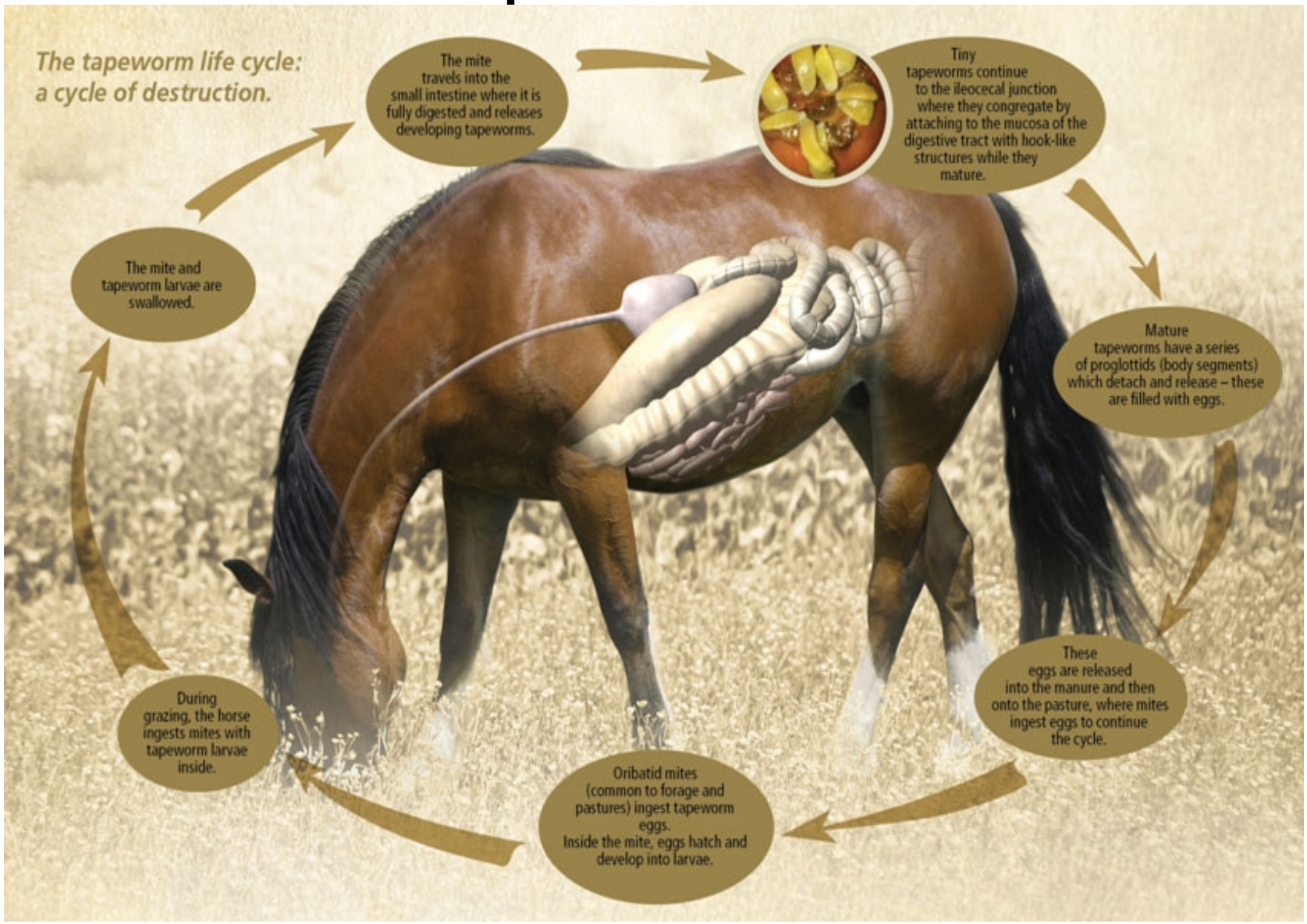


Pinworms

- Not dangerous, but can cause intense itching of the anal area and anemia.
- Adult worms live in the rectum and lay eggs around the anus.
- Symptoms include tail rubbing and yellow crusty discharge on dock and around anus.
- Eggs are ingested directly. Larva mature in rectum. No migration.

Pinworm symptoms

Tapeworms


The tapeworm life cycle:
a cycle of destruction.
The mite travels into the small intestine where it is fully digested and releases developing tapeworms.
Tiny tapeworms continue to the ileocecal junction where they congregate by attaching to the mucosa of the digestive tract with hook-like structures while they mature.
Mature tapeworms have a series of proglottids (body segments) which detach and release – these are filled with eggs.
These eggs are released into the manure and then onto the pasture, where mites ingest eggs to continue the cycle.
Oribatid mites (common to forage and pastures) ingest tapeworm eggs.
Inside the mite, eggs hatch and develop into larvae.
During grazing, the horse ingests mites with tapeworm larvae inside.
The mite and tapeworm larvae are swallowed.

Forage mites

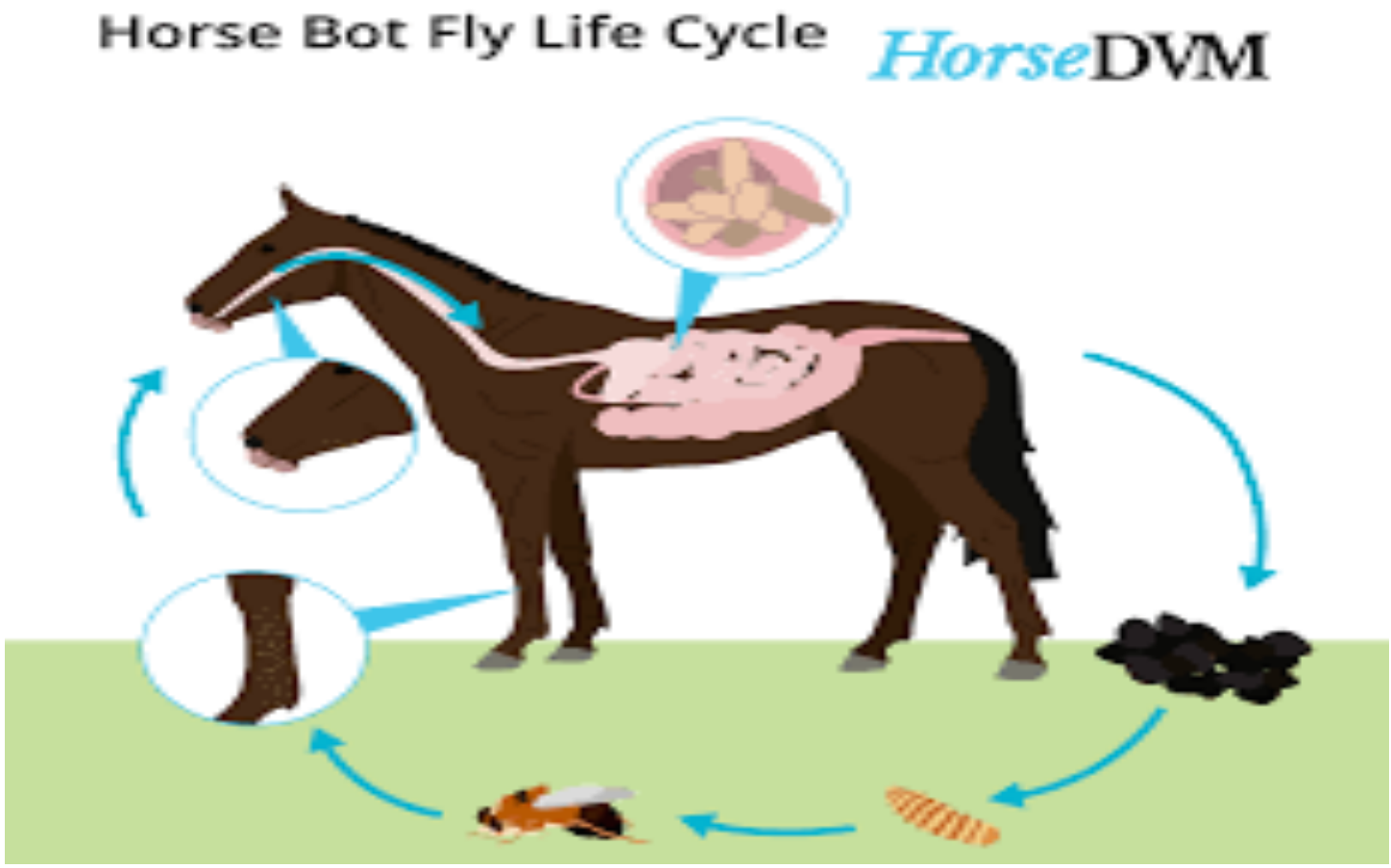

2
3
4
5
6

In Manure - rare

Tapeworms

- Adults reproduce sexually in horse's intestine.
- Segments containing eggs pass out in manure.
- Eggs ingested by tiny arthropods called forage mites.
- Larvae reproduce again asexually (by cloning) inside the mites (the intermediate host).
- Horses become infected when they eat the infected mites.

Bots – endoparasitic fly larvae



Bot Fly adult

Laying eggs

Eggs on hairs

Hatched egg
(note the open operculum)

Bot larva

Bot larvae attached to the stomach wall

Bots in manure – orange, upper left

Bots

- Bot adults are flies
- Larvae are endoparasitic
- Cause irritation and inflamation when travelling through oral tissues
- Can cause blockage and scarring in stomach

Current problems with parasites

- Many parasites have developed resistance to dewormer drugs.
- Frequent use of dewormers combined with the huge reproductive potential of parasites have resulted in the evolution of **resistant parasites.**
- In response to this problem, dewormers will soon only be available from your vet.

What to do now?

- **Reduce the use of chemical dewormers**. Twice a year is often enough.
- **Have manure samples from your horse analyzed** to find what parasites your horse carries and how many eggs are being passed. Do this before and after deworming to find if dewormer has the desired effect.
- **Change the deworming active ingredient** (not just the brand name) between subsequent dewormings.
- **Identify** those horses in the herd who shed a lot of eggs.
- **Isolate** heavy parasite shedders.

Think – be proactive!

- Your horse will never be parasite free.
- At best we can only manage the parasite load.
- Control the biggest threat: Adults? Larvae?
- **Think larval control** and how to accomplish that.

Larva control

- Remove manure from paddocks and pastures. This is the single most effective thing you can do.
- Rotate other grazing animals on horse pastures (sheep, cattle).
- Don’t overgraze pastures.
- Don’t pasture heavily parasitized horses.

Things to know

- We used to think that allowing the poop (and parasite larva) to dry out, killed the larvae. This is a myth. Many parasites just enter a dormant state.
- Simply breaking up piles of droppings does not kill the larvae (harrow/boot harrow).
- Some parasite eggs can remain viable for years.

Reducing Risk