



World Technical Support Team

Worms, Revisited!

Scott J. Gustin DVM, MAM, dipl. ACPV
Veterinary Services, World Tech Support
Cobb-Vantress, Inc.

Have we lost focus... on worms!?

- Elanco ceased production of Hygromix™ (Hygromycin B)
- Move towards concrete floored pullet houses
- No recent research on impact of worm burdens (last published 1966!)
- Decreased efficacy of current labeled products (piperazine)



Who are the players?

- Roundworms
- Capillaria
- Cecal Worms
- Tapeworms



Roundworms

- Roundworms (*Ascaridia galli*)
- Prepatent period (PP)= 35-42 d.
- Enteritis, flushing, malabsorption, stunting, death



Capillaria

- "Caps" (*Capillaria obsignata*)
- Prepatent period= 21-28 d.
- May cause flushing, malabsorption, stunting, egg production drops and egg shell quality problems
- Pale hens?
- "The silent killer of pullet uniformity"
- Diagnosis= microscopic, screening, fecal flotations



Capillaria contorta—
crop worm in quail.
But you can see how
difficult they are to
see!



Cecal Worms

- Cecal worms (*Heterakis gallinarum*)
- Pre-patent period=14-21 d.
- Carrier for *Histomonas meleagridis*— lots of cases of Blackhead recently



Tape worms

- Tapeworms (over 6 species)
- Questionable significance in all animal species
- "...that worm didn't get that big off of nothin..."



Our Weapons

- Numerous piperazine preparations
- Synanthic® (oxfendazole)-- FDAH
- Valbazen® (albendazole)-- Pfizer
- Prohibit (levamisole)— Agri-labs
- Safeguard (fenbendazole)— Intervet
- Ivermectin 1%- injectable



Which are legal?

- Only approved wormer for use in poultry is piperazine (roundworms)— it is "over the counter (OTC)"
- AMDUCA (1994) specifies that "When a veterinarian judges an approved drug to be ineffective for its intended use... extralabel use of that drug or another approved drug is allowed."
- Allows prescriptions of certain drugs in an extra-label fashion—
- **You need a vet script for all dewormers besides piperazine!**



Withdrawal times

- **Withdrawal times must be strictly enforced!**
- Tissue residues are not of major concern (we do not worm birds close enough to processing)
- Withdrawal time for eggs, only extrapolated data exists.
- If ivermectin is used— 30 days W/D



Dosages of commonly used dewormers (Note: these are extra-label and must be prescribed by a licensed veterinarian!)

Product	Conc. of product	Dosage	Amt. of prod. per 1000 2 kg pullets
Valbazen®	113.6 mg/ml	10mg / kg	~176 mls
Synanthic®	90.6mg/ml	4.5 mg / kg	~100 mls
Prohibit®	46.8 g/pack or 46800 mg	17.6-35 mg/kg	0.75-1.5 packs

Dewormers

- All of the aforementioned products (except piperazine) have some activity against the worms of concern
- Cost from \$7.50 to \$24.00 to treat 1000 2 kg pullets
- Some reports of settling in stock bucket with oxfendazole, fenbendazole (need agitation)
- Some like to administer wormer in a 3-4 hr. bolus in DW

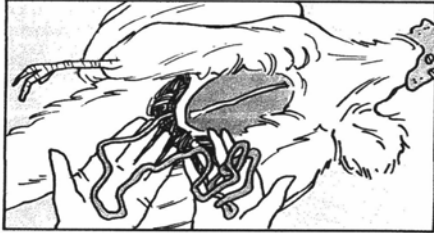


Should you deworm?

- Need to diagnose presence of worms in your operation (pullet and/or hen house)
- For caps this can be more difficult– but more worthwhile
- Consider if dirt-floor houses, built up litter
- Is there a problem with flushing, enteritis, poor production or un-thriftiness? You may get a response



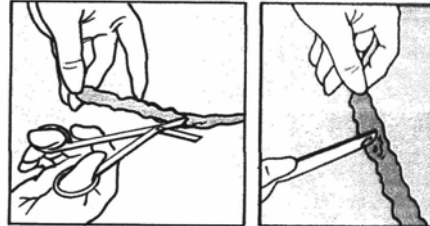
Step 1 – Remove about two feet of intestine, beginning at the gizzard, include the duodenal loop and about one foot of the small intestine. The worms are most commonly found in this section of the intestine if the bird is infected.



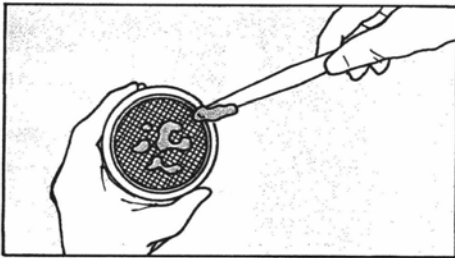
Courtesy of Elanco Animal Health, Indianapolis, IN



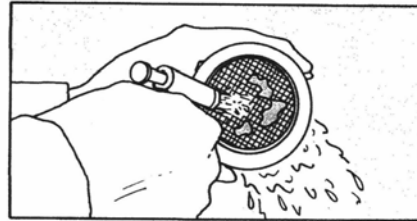
Step 2 – Slit the intestine and carefully rinse away fecal material with low-pressure water. Lightly scrape the inside of the intestine – about half-way through the lining. For best results, scrape “down” the intestine, collecting the scrapings on the instrument being used.



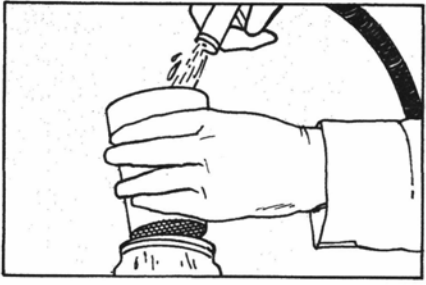
Step 3 – Put scrapings in the filter. Then scrape in the opposite direction – “up” the intestine and put the scrapings in the filter.



Step 4 – Wash scrapings through the screen of the filter using hose nozzle or sprayer head to increase water pressure. High water pressure is necessary to flush away mucus and other material. It will not harm the worms or wash them through the fine screen.



Step 5 – Back-wash worms and other material remaining in the strainer into a clean, glass pint jar.




Technical Support

Step 6 – Hold jar up to the light to look for the very small, threadlike capillaria worms in the water.




Technical Support

Cap checks

- How many birds is enough?
 - Cull birds not accurate representation
- When to check?
 - You are evaluating your worming program
 - During routine necropsy, look for all worms
- How many Cap worms is too many?
- “20% of the birds have 80% of the eggs”


Technical Support

Other Methods for Estimating *Capillaria* infestation

- J. Smith and J. Davis, 2003
- Used fecal flotation to determine Cap egg counts (no dead birds!)
- Detecting infection= good correlation
- Infection level= crude correlation with screen technique
- Significant bird to bird variation in infection level


Technical Support

Deworming programs

- Remember ruminant strategic deworming?
- Need knowledge of Pre-patent period and environment
- “Dose and Move”?
- Probably no earlier than 4 wks, no later than 40 wks.?


Technical Support

Deworming programs

- Programs
 - 9, 15, 20 weeks?
 - 10, 20 weeks?
 - As needed?
- Probably get the best response when birds are treated and moved into a clean environment (hen house)!
- Worming hens in production can be detrimental
 - Too concentrated solution can impact water consumption


Technical Support

Immunity

- Is there some need for immunity early? May seed down house...
- Historical evidence suggests that birds become immune, but late
- We probably spend time and money best by concentrating on the pullet

