Behandelingsstrategieën

Peter Geldhof

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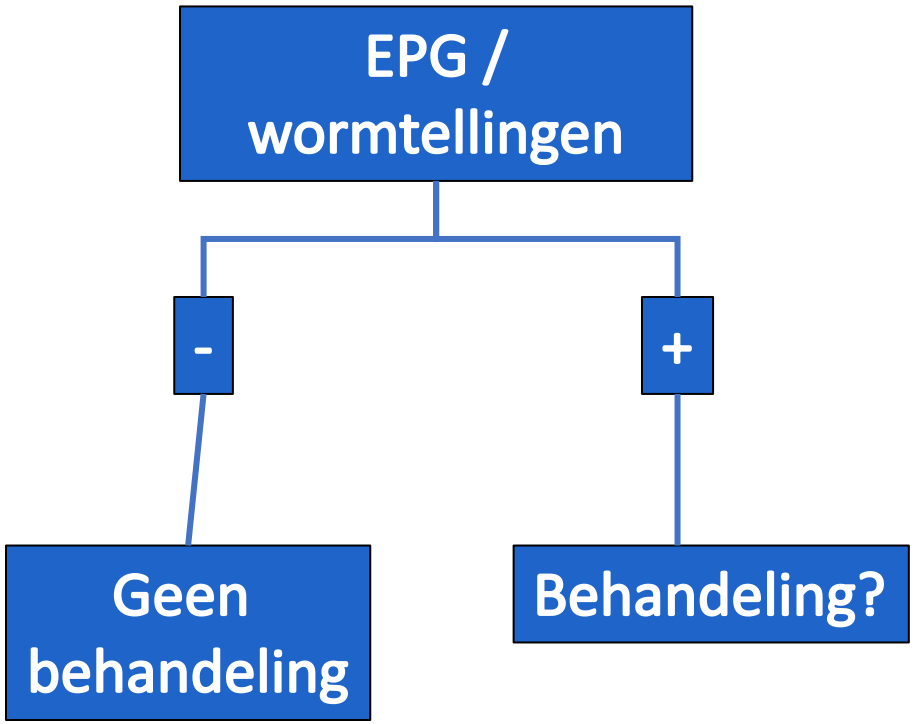
Huidige aanpak



Ascaridia & Heterakis

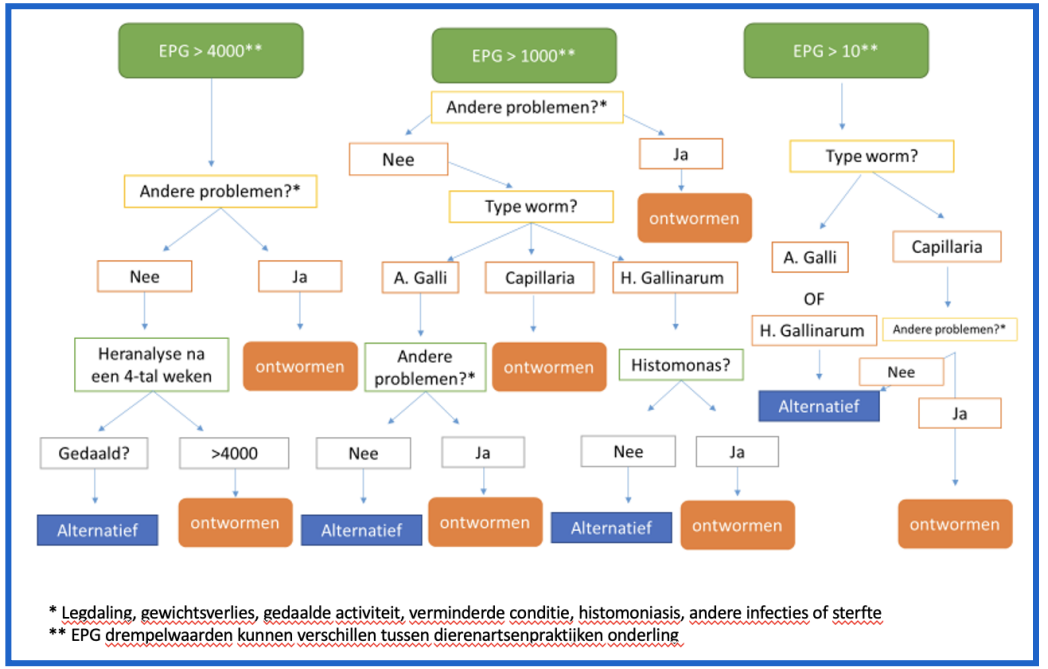
0<EPG<50	*Geen behandeling*
50<EPG<300	*Behandeling en EPG herhalen na 6 weken*
EPG > 300	*Behandelen en 4 weken later herhalen*

Capillaria

0<EPG<50	*Geen behandeling*
EPG>50	*Behandelen en 3 weken later herhalen*

Raillietina

EPG>0	*Behandelen en 2 weken later herhalen*



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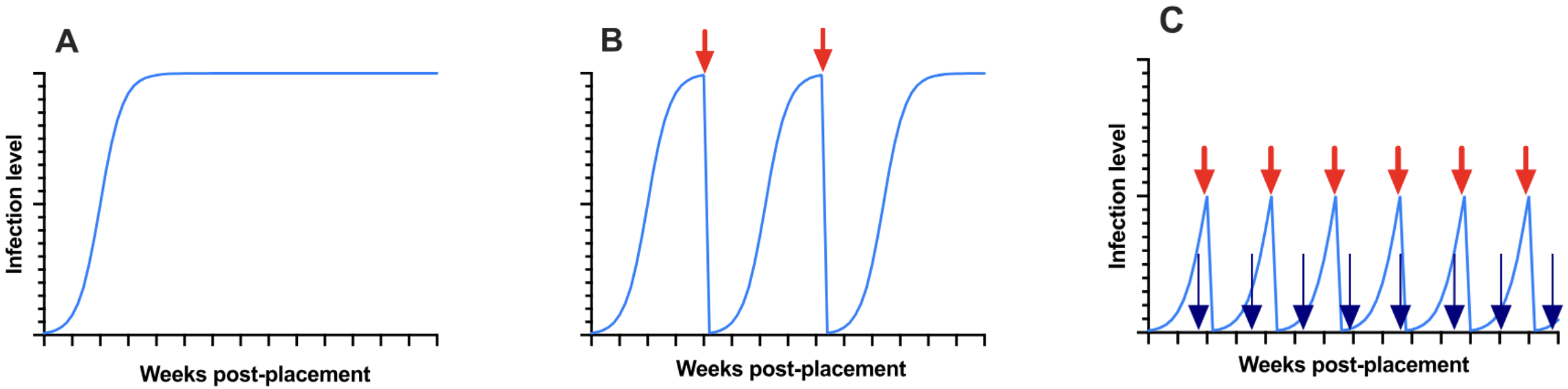
Wat is het beste ontwormingsschema?



Höglund et al. 2023

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Wat is het beste ontwormingsschema?

Contents lists available at ScienceDirect

Veterinary Parasitology

journal homepage: www.elsevier.com/locate/vetpar

Research paper

Comparison between anthelmintic treatment strategies against *Ascaridia galli* in commercial laying hens

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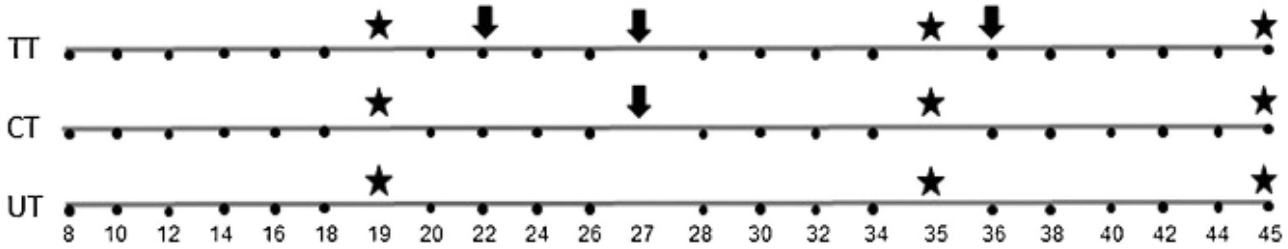

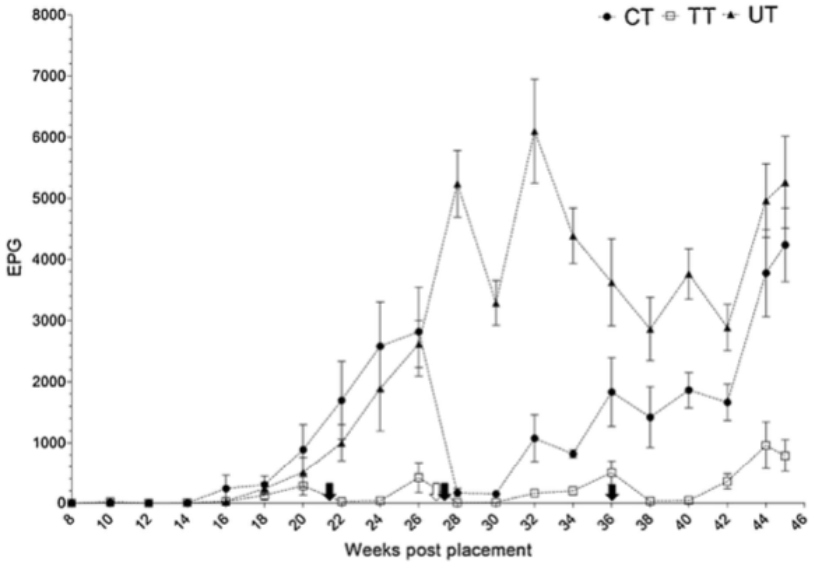

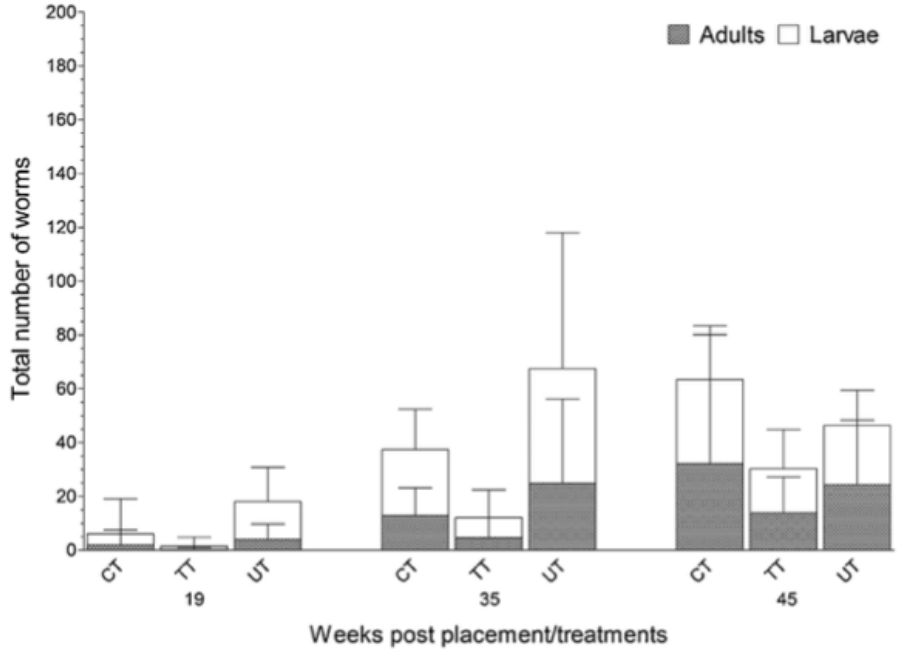

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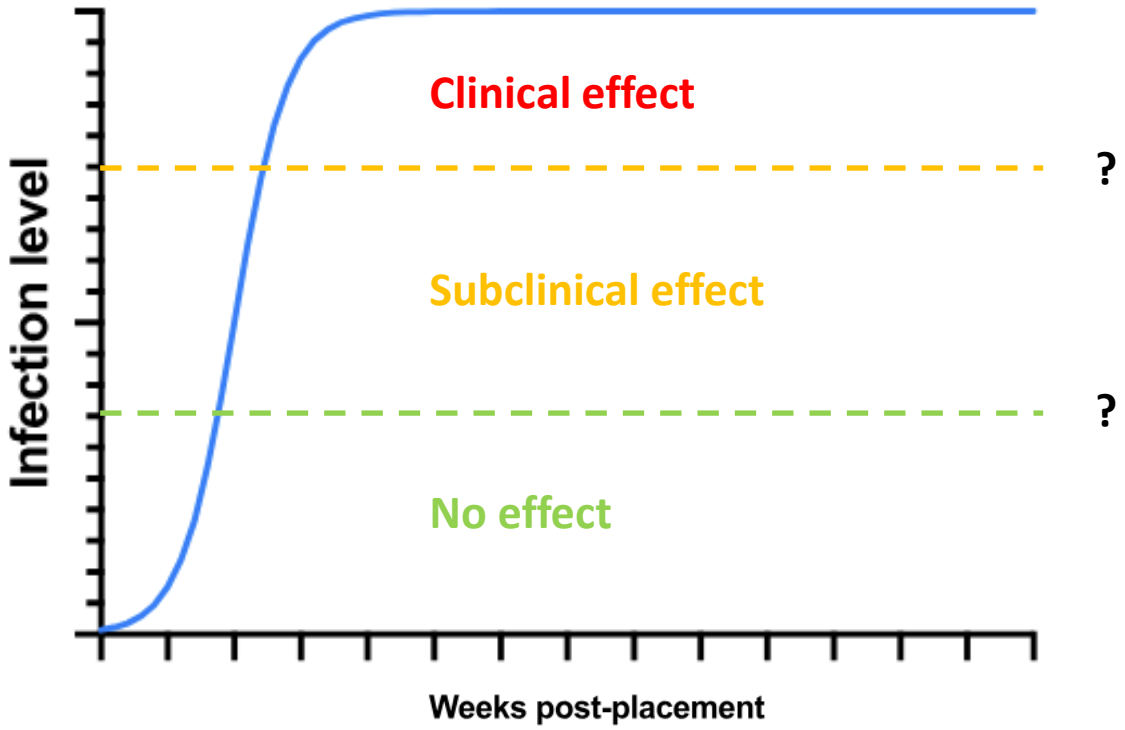
Vanaf wanneer is ontworming echt nodig ?



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Effecten op gezondheid en productie

Reference	Parasite species	Effect
Gauly et al. 2007	*A. galli*	Increased feed intake
Dahl et al. 2002	*A. galli + P. multocida*	84 to 60 % decrease in egg production 6 weeks after infection
Malviya et al. 1988	*A. galli*	Depressed body weight gain
Skallerup et al. 2005	Natural infection	39 % higher weight gain with anthelmintics
Hinrichsen et al. 2017	Natural infection	Higher mortality in summer not in winter
Oladosu et al. 2024	*A. galli + H. gallinarum*	Reduced feed intake & growth



	Parasite species	Effect
Sharma et al. 2018	*A. galli*	No effect
Gauly et al. 2007	*A. galli*	No significant effect
Sherwin et al. 2013	Natural infection	No significant effect
Sharma et al. 2018	*A. galli*	No effect
Collins et al. 2024	*A. galli + A. dissimilis*	No effect on growth

Anthelmintica beschikbaar voor leghennen in de EU

Stof	Formulatie	Dosis	Werkzaamheid
Fenbendazole	Water soluble Premix	1 mg/kg BW for 5 days 2 mg/kg BW for 5 days 3 mg/kg BW for 10 days	*Ascaridia & Heterakis* *Ascaridia, Heterakis & Capilliaria* *+ Raillietina*
Flubendazole	Water soluble Premix	1,43 mg/kg BW for 7 days 1,43 mg/kg BW for 7 days	*Ascaridia, Heterakis & Capilliaria* *Ascaridia, Heterakis & Capilliaria*

WARNING !
Alle risicofactoren op de ontwikkeling van resistentie zijn aanwezig

- Slechts 1 klasse van anthelminticum beschikbaar
- Parasieten met een korte levenscyclus
- Lange productieronde
- Hoge ‘dichtheid’



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Verminderde efficaciteit

Study	Drug evaluated	Type of birds	% Efficacy
Yazwinski et al. (2013)	Albendazole Fenbendazole	Laying hens Turkeys	*Ascaridia*: 86 % *Heterakis*: 90 % *A. dissimilis*: 0-83 %
Collins et al. (2019)	Fenbendazole	Turkeys	*A. dissimilis*: 64 – 99 %
Yazwinski et al. (2020)	Levamisole Fenbendazole	Laying hens	*Ascaridia*: 82-87 % *Heterakis*: 63-84 %
Soudklaei et al. (2021)	Levamisole Fenbendazole	Hens	72 - 84 %
Collins et al. (2022)	Fenbendazole	Broiler breeders	*Heterakis*: 54 %
Collins et al. (2025)	Fenbendazole	Artificially infected chicks	*Ascaridia:* 66-100 % *Heterakis*: 0-59 %

‘Verminderde efficaciteit’ van Flubendazole tegen *Heterakis*

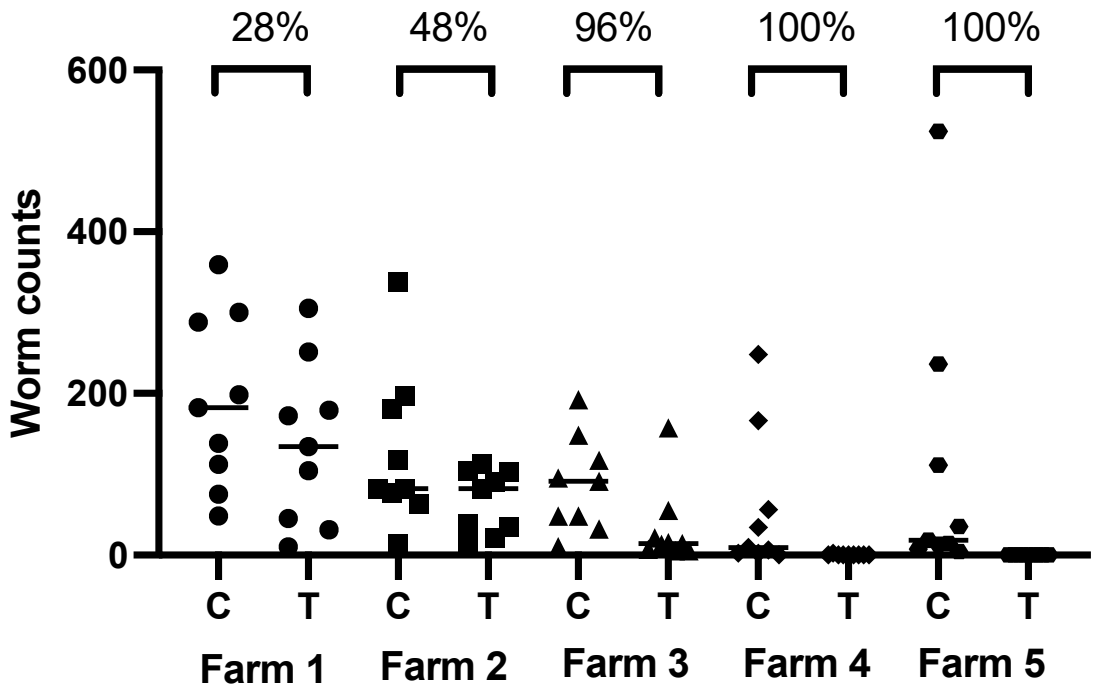

Figure 1: Reduction in *Heterakis* worm counts following anthelmintic treatment on 5 farms in Belgium and the Netherlands. Naturally infected birds were randomly selected and either treated with flubendazole (group T, n=9) or mock-treated with water (group C, n=9). % reductions are indicated above the graph.

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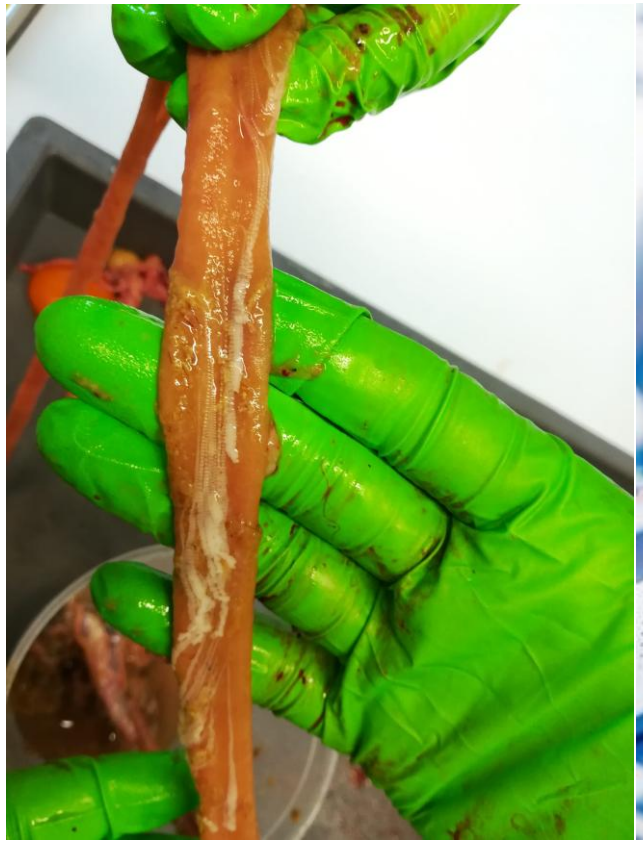
Factoren die de efficaciteit kunnen bepalen

- **Anthelminticum resistentie**
- Onderdosering
- Gevoeligheid van de diagnostische methode
- Tijdstip van staalname na behandeling

Wat is de beste manier om infecties te detecteren?

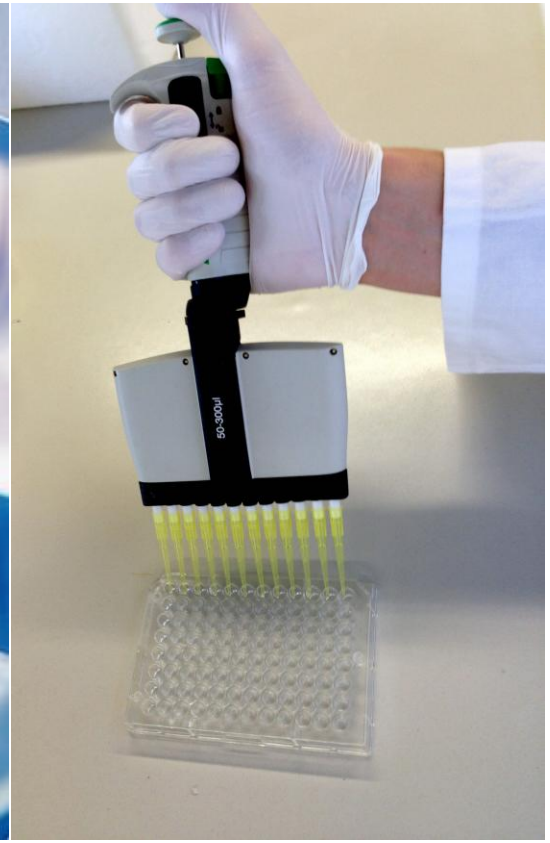
Wormtellingen



Mestonderzoek



Serologie



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Wormtellingen

‘Gouden standaard’

Nadeel:

- Opofferen van dieren
- Arbeidsintensief
- Moeilijk om juveniele stadia en *Capillaria spp.* te detecteren.



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Mestonderzoek

Voordeel:

- Niet-invasief
- Snel & goedkoop



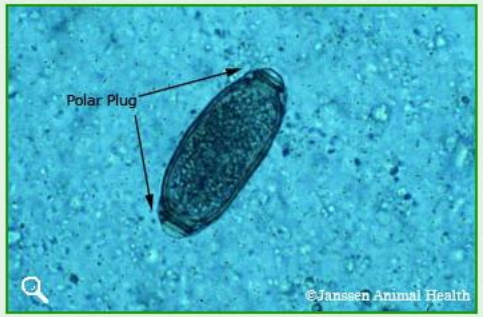
Heterakis spp.

Length 59 µm –75 µm
Width 31 µm– 48 µm
Shell thick, smooth side-walls
Contents unsegmented



Ascaridia spp.

Length 68 µm - 90 µm
Width 40 µm - 50 µm
Thick shell, smooth, three layers, slight barrel-shaped side-walls
Contents unsegmented



Capillaria spp.

Length 43 µm – 65 µm
Width 20 µm – 35 µm
Shell thick, smooth, brown
Slightly barrel-shaped with asymmetrical side-walls
Two protruding polar plugs present
Contents granular, unsegmented



Raillietina spp.

Egg 25 µm – 50 µm
Shell thick, smooth
Hexacanth embryo present
Eggs shed only when mature segment and egg capsules disintegrate

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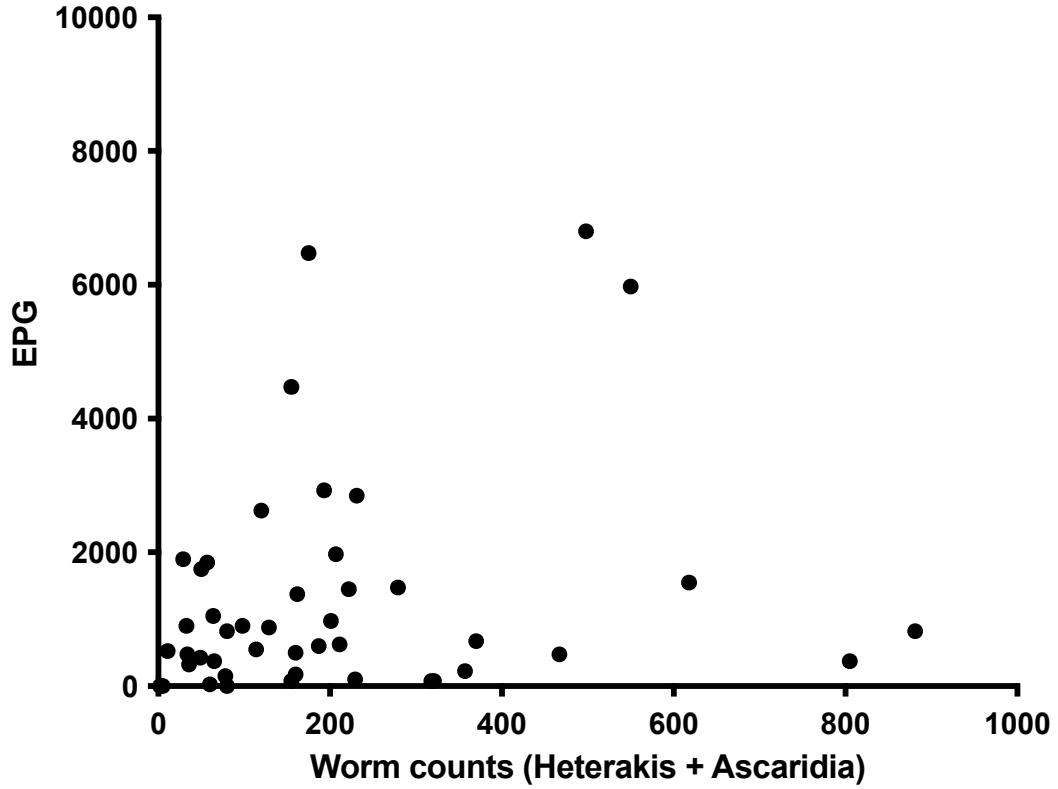
Nadeel van mestonderzoek

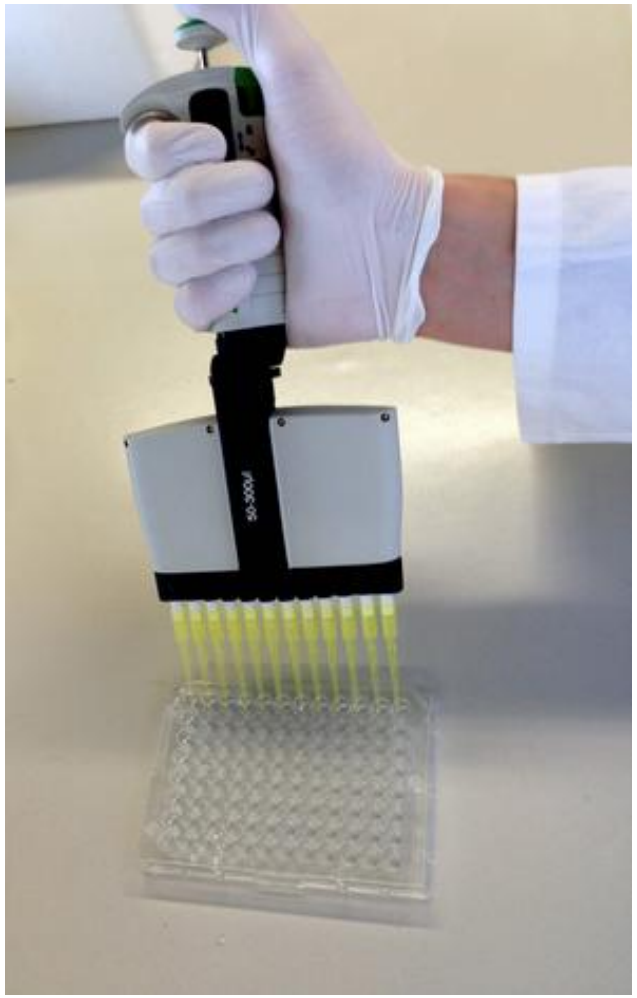
- Moeilijk voor lintworminfecties
- Slechte correlatie tussen EPG en wormtellingen
- *Ascaridia* en *Heterakis* moeilijk van elkaar te onderscheiden
- Herhaalbaarheid



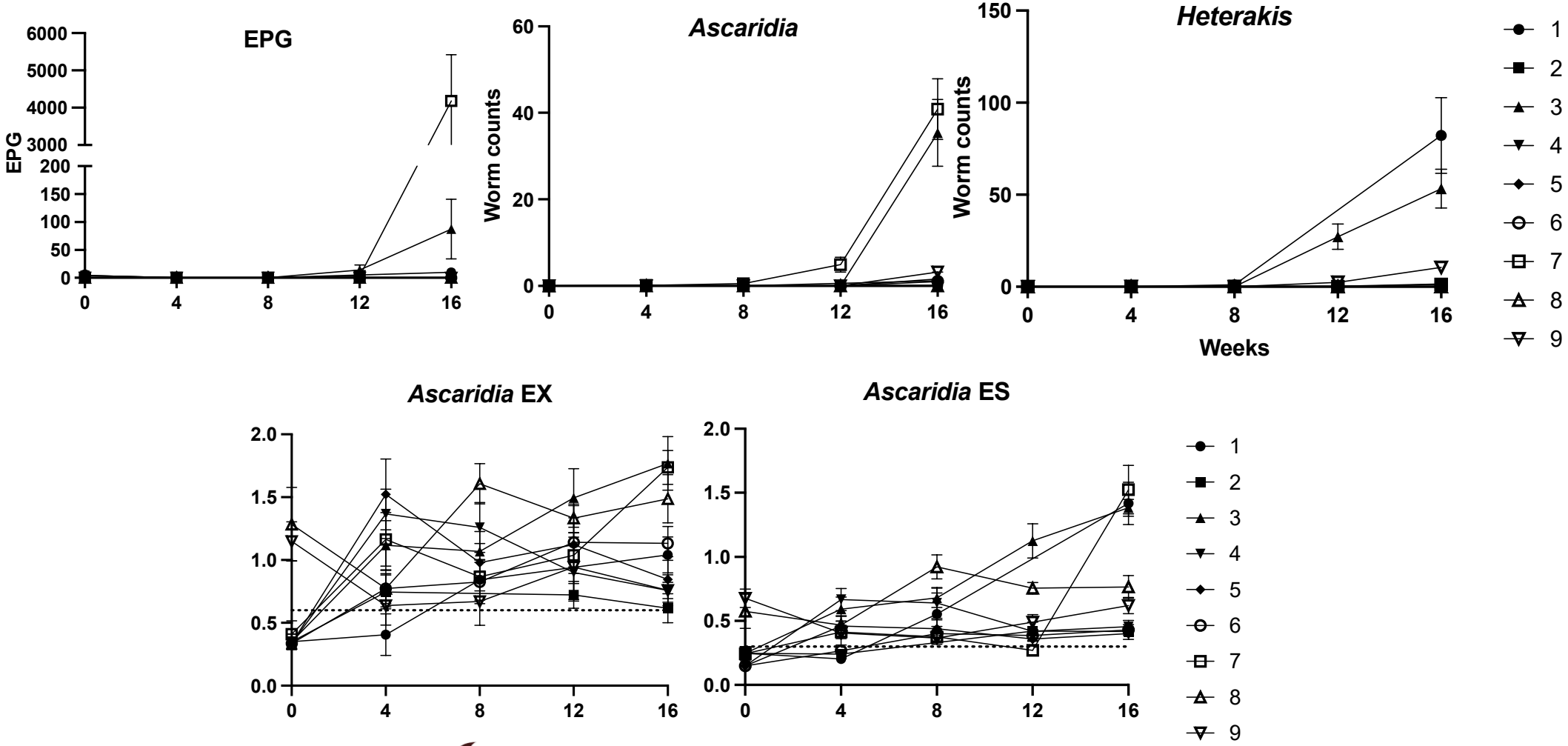
Serologie

Voordelen:

- Snel & goedkoop
- Non-invasief via het ei
- Kwantitatief



Evaluatie serologie in de praktijk



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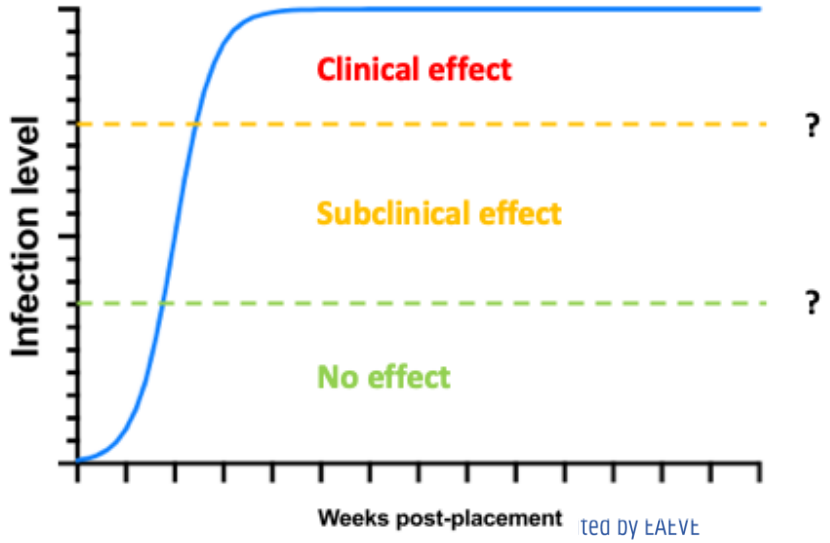
Toekomstig onderzoek

PARAHEN project (2026-2030) – FOD België

- On-farm evalutie van anthelminticum efficaciteit
- Vergelijkende analyse van de verschillende diagnostische methoden en hun correlatie met gezondheids- en productieparameters.
- Bepalen van behandelings-threshold



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