

Worm smarter, not harder

The modern way
to control parasites
in your horse and
on your pasture



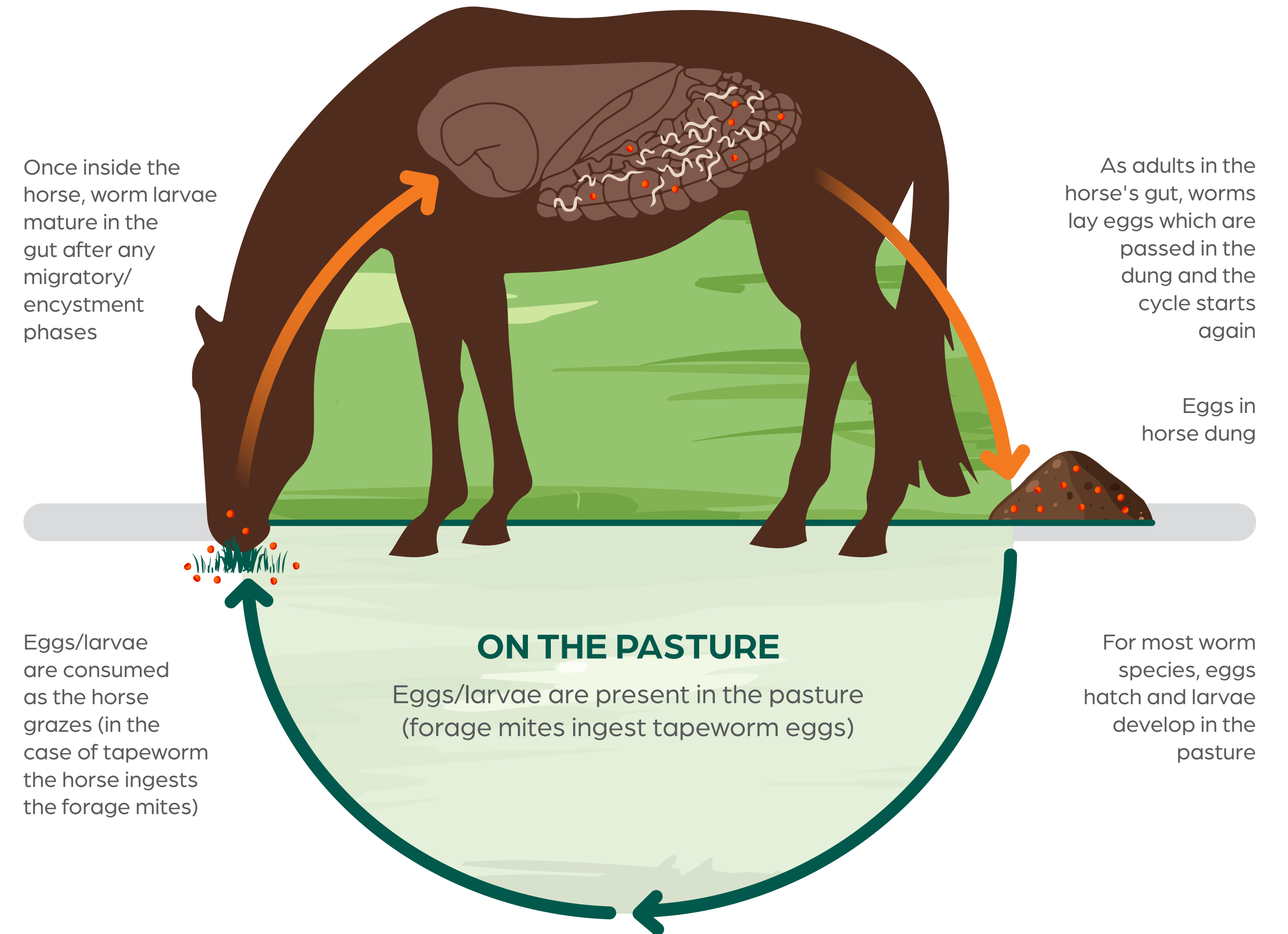
Horses and worms

- Horses have **evolved** with their parasites, and it is perfectly **normal** for horses to have a small number of worms.
- Problems start to occur when **too many worms**, or especially dangerous worms, infect your horse.
- Horses get worms from their **pasture**.

The basic worm lifecycle can be seen to the right

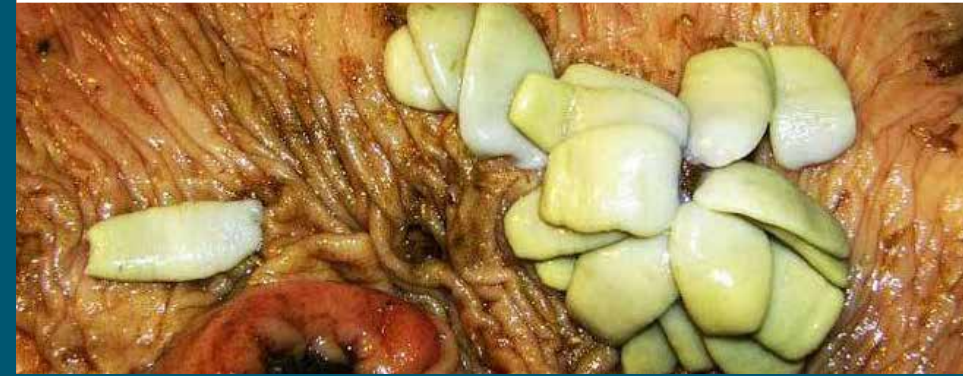
- Theoretically, if you were able to keep your paddock totally clean, by picking up all manure within a few days (and your horse never grazed anywhere else), you could eventually eliminate worms in your horse.

The Worm Lifecycle



Which worms are the problem?

- There are **many** different parasites that can affect horses; some are relatively harmless, but some can cause **terrible damage** or even be **fatal**. Some are very common, and others quite rare.
- The most dangerous worms are the worms that are both **common** and potentially **harmful**.
- In 2014 a large scale study was performed in Australia to assess the prevalence of various worm species on horse farms.¹
- There is **no perfect way** of assessing how many and what types of worms are present in your horse, so we look at **worm eggs** in horse **faeces** as a guide. We call this procedure a 'Faecal Egg Count' or **FEC**.



Equine Parasites Found

Incidence on Australian Farms¹

Small Strongyles
(*Cyathostomins*)

100%

Ascarids (% of all farms)
(*Parascaris equorum*)

12.7%

Ascarids
(% of farms with horses <2yrs)
(*Parascaris equorum*)

33.3%

Large Strongyles
(*Strongylus vulgaris*)

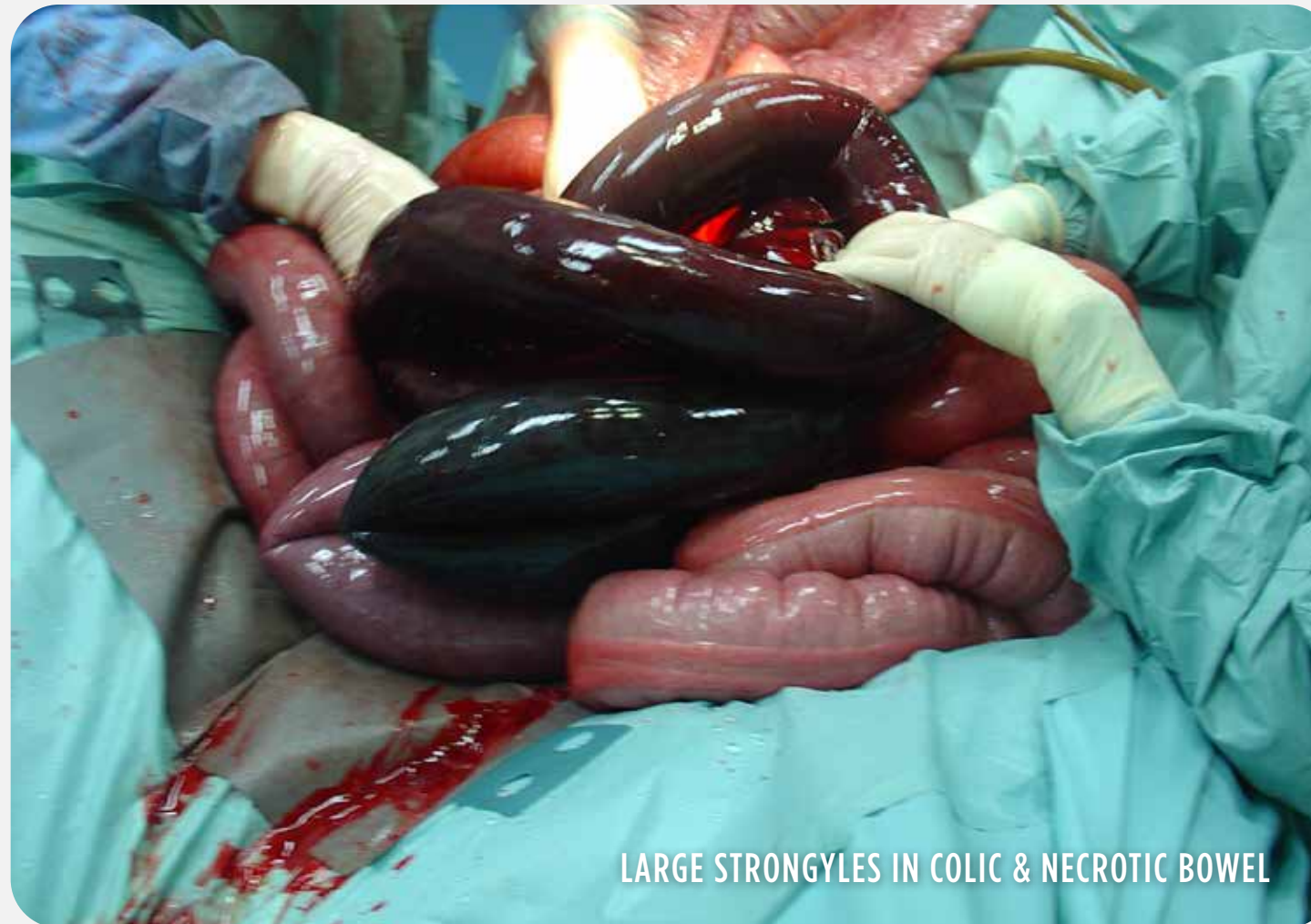
7.8%

Tapeworm

3.9%

How do worms cause damage?

- During their development some worm species leave the gut and move through the body before returning. These **migrating larvae** can cause lots of **damage** to various organs of the horse.^{2,3}
- For example, *Strongylus vulgaris* migrate up the intestinal arteries and can cause serious **colic** or even **arterial rupture**; ascarids migrate through the liver and lungs before returning to the small intestine.^{2,3}
- **Ascarids** can also cause **blockages** of the intestines and **colic**, and should be the focus in horses under 12 months of age.^{2,3}



LARGE STRONGYLES IN COLIC & NECROTIC BOWEL



ASCARIDS

ENCYSTED SMALL STRONGYLES
IMAGE COURTESY OF DR. LAURA HARDEFELDT, TARWIN VET GROUP VICTORIA

LARGE STRONGYLES

The most dangerous worms in adult horses

Small strongyle infections are extremely common and potentially fatal.²

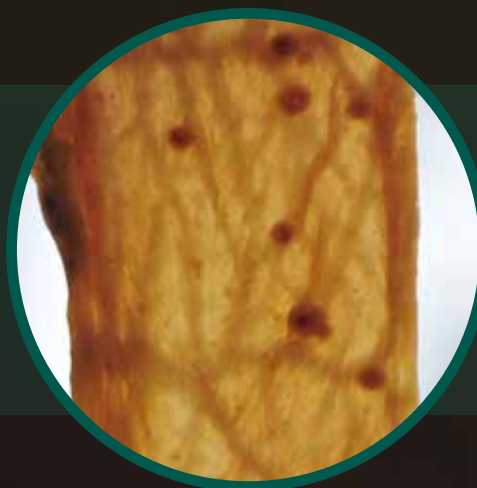
- The worms that are the major concern in horses worldwide today are the **small strongyles** or **cyathostomes**.²
- You can see from the prevalence data that they are present on **all of the farms** surveyed, in fact they are the **most prevalent worm** in horses worldwide.¹⁻⁴
- These worms are also unusual in that they **encyst**, or 'hide' in the lining of the horses gut for a period during development.²

They make small '**blisters**' in the wall of the gut, growing **10-fold** in size and then re-emerge. The problem is that if they all re-emerge **at once** it causes a great deal of damage to the horses gut. This syndrome is called **larval cyathostominosis** which can be fatal.²

- **Small strongyles** should be the focus of **all worming programs** in modern adult horses.⁴

Small strongyles are the most important parasites in modern adult horses.⁴

Small
intestines



BEFORE
THE EMERGENCE OF
SMALL STRONGYLES



AFTER
THE EMERGENCE OF
SMALL STRONGYLES

Faecal egg counts

FECs are primarily a means of detecting the presence of ascarids and measuring the level of strongyle egg shedding onto pasture.

FECs are not perfect, as they can only measure the egg production of adult female worms – and therefore don't detect **immature worms** (which may also be migrating or encysted), and of course **male worms** don't lay eggs at all. Some worms do not lay their eggs inside the horse (pinworms) and some shed eggs unreliably, such as tapeworms.

Remember to leave time after the last worming before you do a FEC:

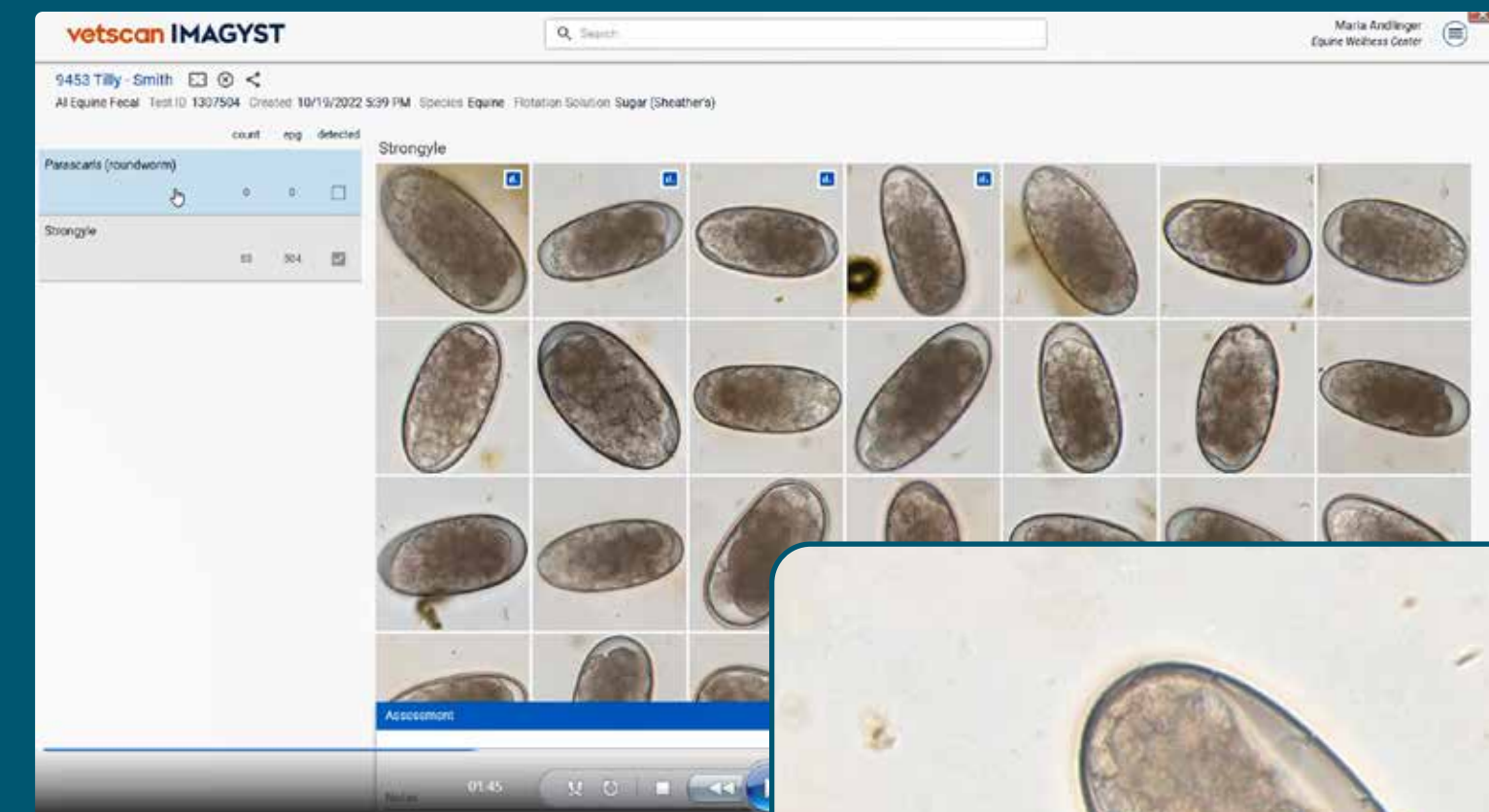
- If moxidectin was used, leave at least 12 weeks
- If ivermectin/abamectin was used, leave at least 10 weeks
- If oxfendazole, fenbendazole or pyrantel was used, leave at least 8 weeks

A FEC is performed by **microscopic** examination of a sample of your **horse's manure** mixed with a salt solution that causes worm eggs to float. The eggs are counted and will give a measure of '**eggs per gram**' (epg) of faeces.

We then categorise the horse as a high or low shedder of eggs based on⁴:

- **High** >500 epg
- **Med** 200–500 epg (these can be arbitrarily assigned to high or low)
- **Low** <200 epg

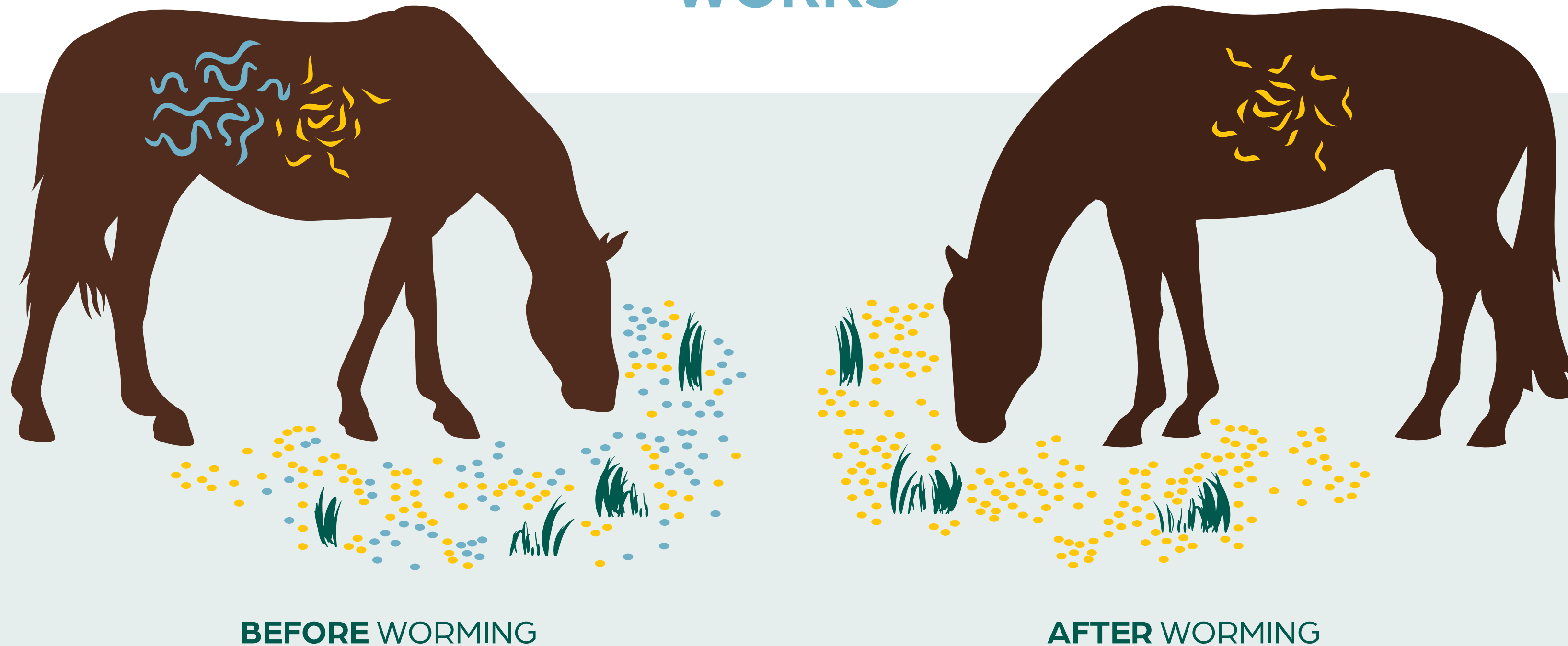
Equine faecal slide and slide preparation



Images produced by vetscan IMAGYST™ (an automated egg count system)

Worms and resistance

HOW RESISTANCE WORKS



BEFORE WORMING

AFTER WORMING

■ Susceptible worms ■ Resistant worms

The major problem with treating horses for worms today is resistance to chemical wormers.

- Unfortunately, we have **over-used** our wormers. Treating **every 4–8 weeks** has resulted in some worms developing **resistance** to the worming products we use on our horses. We can still worm our horses, but we need to **‘worm smarter, not harder’**.

Why not just rotate between wormers?

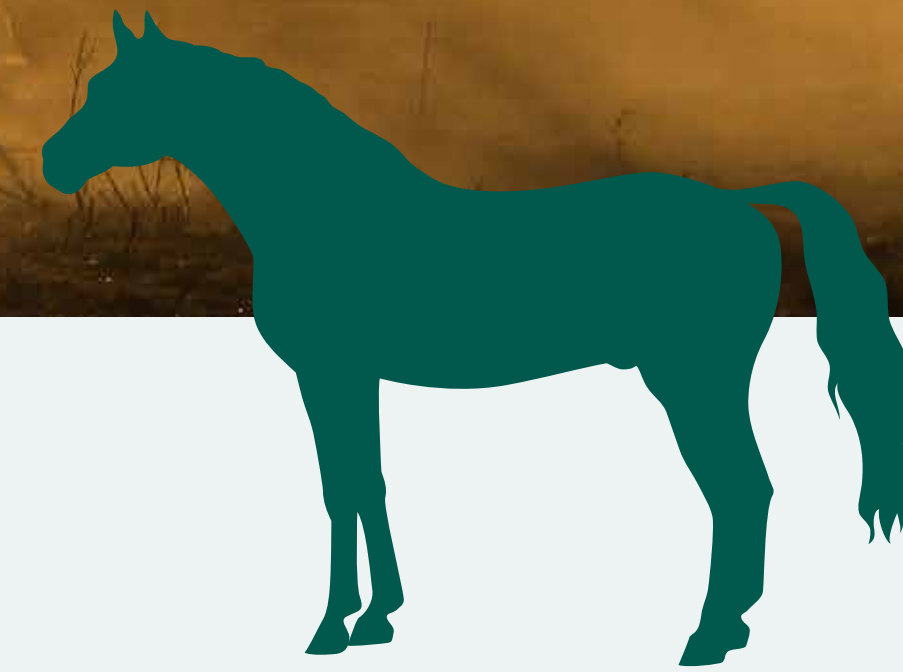
- Unfortunately, rotation has **not been effective** in horses and is **not recommended** anymore as a resistance prevention strategy for horses.⁵
- So what do we do? We **worm less**, we **worm smarter**, and we try to prolong the useful life our active chemical ingredients, as sadly it is over 20 years since the last new drug was developed for horse worming, and there are no new ones on the horizon.

What to do instead of rotating

Experts now recommend we focus on keeping a balance between worm burden and horse health. In other words, don't try and eliminate worms altogether, but control them enough so our horses don't get sick.⁵

Strategic worming

- We do this in adult horses by using FEC results (test at least annually) to minimise 'pasture burden' or numbers of worm larvae available for horses to re-ingest, while simultaneously worming less to ensure that the worms stay 'susceptible' to our available drugs. This is called 'strategic worming', the basics of which are as follows.⁴
- Approximately **80%** of horses will be 'low shedders', so we only worm those horses twice a year, to keep on top of encysted small strongyles, as well as bots, tapeworms and large strongyles. This infrequent worming helps preserve the susceptibility to wormers.⁴
- The 'high shedders' are the ones that are going to contaminate our pasture with lots of eggs, so we can worm those horses four times a year if we choose.



Adult horses

Control today's most threatening parasites

The best way to create a parasite control program is to perform FECs at least annually and treat based on the results. However if this is impossible, twice yearly treatments with Equest® Plus Tape is the strategic way to ensure horse health and protect against resistance development.

Spring



Summer



Autumn

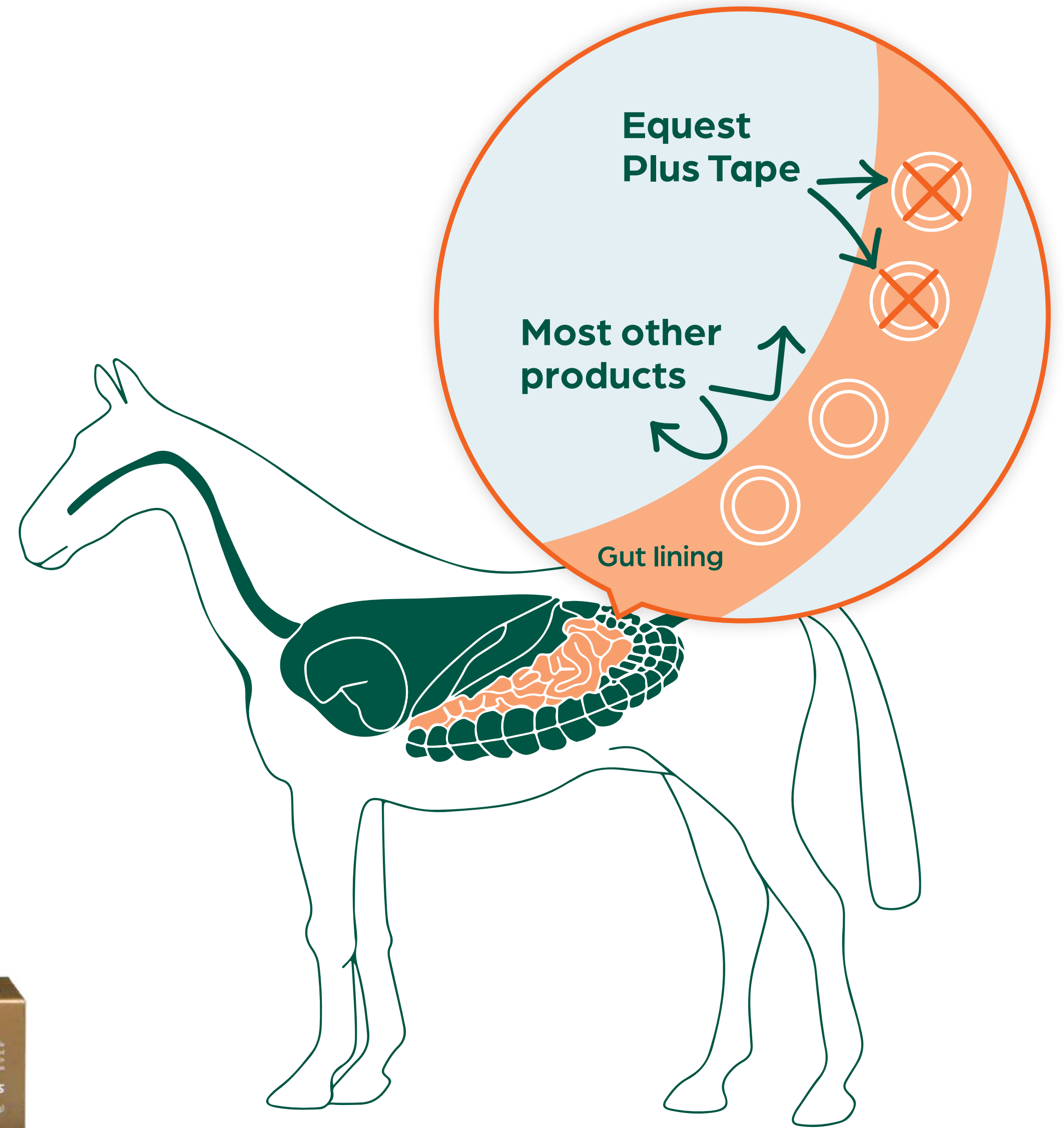


Winter



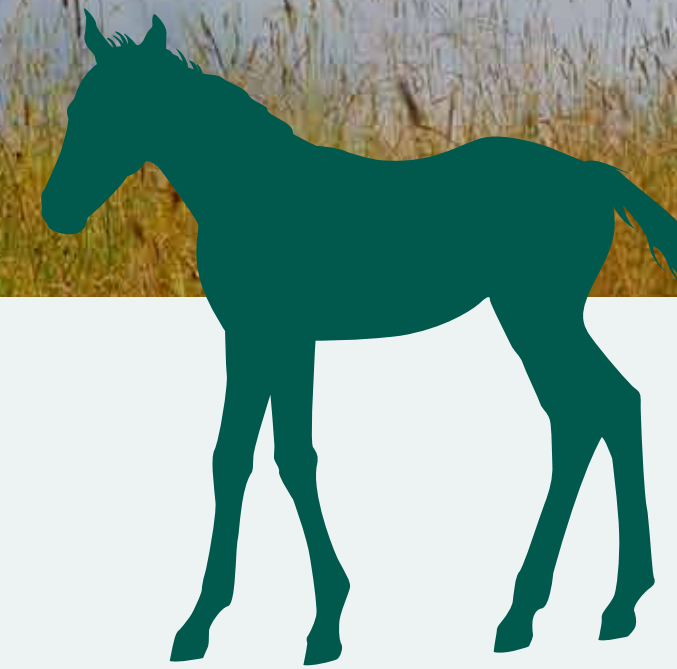
The Equest Plus Tape[®] difference

- ▶ **Equest Plus Tape[®]**, containing **moxidectin** and **praziquantel**, is an excellent choice for strategic worming.
- ▶ We know that **small strongyles** are the most important worms for most horses, so they should be the focus of your worming treatments.
- ▶ **Most wormers** are **ineffective** against encysted stages.
- ▶ Only **moxidectin** can kill encysted **small strongyles** in a single dose.
- ▶ **Equest Plus Tape[®]** contains moxidectin.
- ▶ All **adult horses** should be treated with Equest Plus Tape[®] **twice a year** to control encysted small strongyles.
- ▶ Only high-shedding horses need extra treatments, which can be with other wormers, such as Axis[®].



What about foals?

- The major worm of concern in foals is the **ascarid**.⁴
- **Axis**® (oxfendazole and pyrantel) is an excellent choice for treating ascarids.
- A FEC can be used any time from **3–4 months of age** to check if your foals have ascarids, and if no ascarids are present then **Equest Plus Tape**® would be a suitable wormer.
- We **don't** use 'strategic worming' in foals.



Foals

Babies need special deworming care

Foals are vulnerable to ascarids and require specialised deworming. FECs allow you to plan your treatments according to the parasites present on your farm.



*FEC = Feecal Egg Count



Horses that aren't foals but are not yet adults



- Young horses have **grown out** of the risk ascarids, but their **immune systems** are not yet able to **control strongyles** as an adult horse would, therefore we treat all horses between 12 months old and 3 years old as a **'high-shedder'**.⁴
- Young horses should be treated with **Equest Plus Tape**® twice a year to control encysted small strongyles but also need extra treatments, which can be with other wormers, such as **Axis**®.

Young horses

Protecting the health of your young equine

Young horses under 3 are more susceptible to parasites. The treatment program below is suitable for horses between 12 months and 36 months of age.



Modern worming

Our equine wormers are trusted by vets and horse owners alike.

Zoetis recommends that you work with your vet and use regular FECs to understand the parasite profile of your horses and your property.

Zoetis also recommends you base a program on the age of your horse and the worms that they are most likely to have.

Equest Plus Tape® (moxidectin & praziquantel)

- All adult horses need 2 treatments a year
- Broad spectrum of action including bots and tapeworms
- Kills encysted small strongyles in a single dose

Axis® (oxfendazole & pyrantel)

- Excellent efficacy against ascarids and pinworms
- Good choice for those extra treatments given to high-shedders

Promectin Plus® (abamectin & praziquantel)

- Good choice for those extra treatments given to high-shedders
- Broad spectrum of action including bots and tapeworms



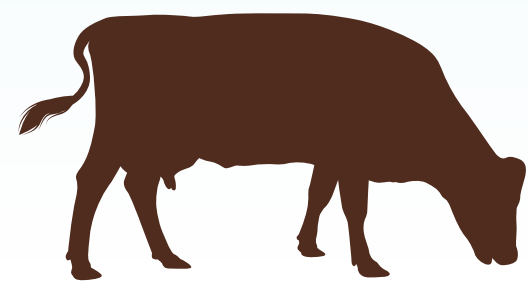
What else can be done?

In the battle against resistant worms, we should also look to add non-chemical methods to our programs.⁴

- One of the most effective ways to eliminate worms is to **pick up manure regularly** so that eggs are removed from the environment altogether
- Twice weekly is ideal, **once a week** is the minimum
- Special machinery can be purchased to help make this easier
- '**Cross grazing**' with cattle or sheep can reduce worm burdens on pastures
- Rest your paddocks** to give them a break and allow worm larvae to die off before re-introducing horses
- Consider new **feed-based biological controls** such as Bioworma®, a fungus that eats worm eggs and larvae



REMOVE MANURE WEEKLY



CROSS GRAZING WITH CATTLE



REST YOUR PADDOCKS



FEED-BASED CONTROLS



References: **1.** Beasley A. M., Kotze A. C., Barnes T. S., Coleman G. T. (2020) Equine helminth prevalence and management practices on Australian properties as shown by coprological survey and written questionnaire. *Animal Production Science* 60, 2131-2144. <https://doi.org/10.1071/AN18378>. **2.** Reinemeyer C and Neilsen M., 2018 *Handbook of Equine Parasite Control*. Wiley-Blackwell. New York. **3.** Arundel JH., 1978. *Parasitic Diseases of the Horse*. University of Sydney. Sydney. **4.** AAEP Guidelines 2019. **5.** Nielsen MK. Do's and don't's of sustainable parasite control. Presented at: 9th International Conference on Equine Infectious Diseases. October 21-26, 2012 Lexington, Kentucky, United States.

zoetis

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