a practical approach to equine parasite control

Claire Shand

Director & SQP | Westgate Laboratories

Westgate LABS

Our mission to help demystify parasite control for horses and other grazing animals.

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eew... what's this in my horse's poo?

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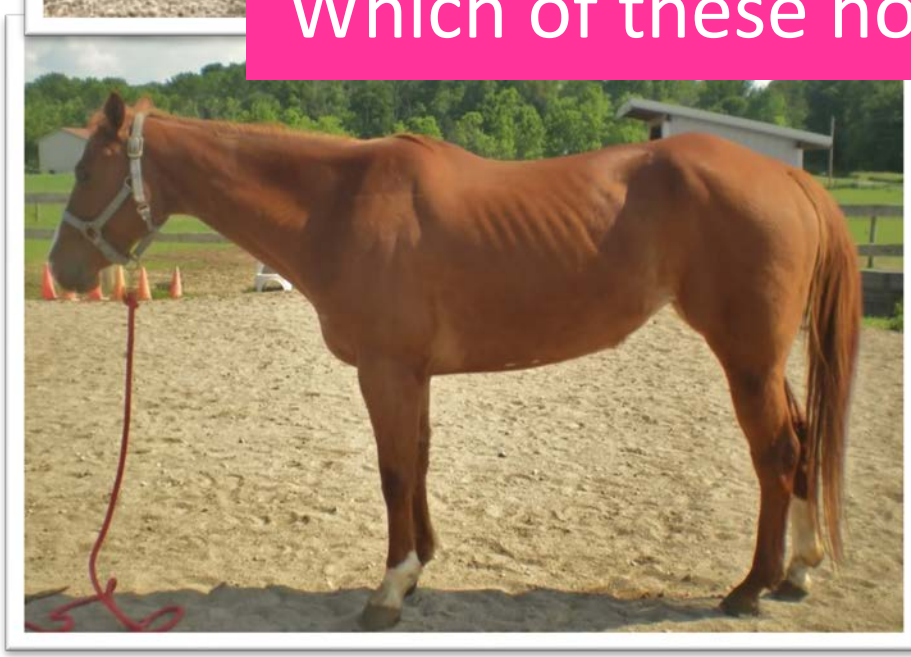
Which of these horses have worms?



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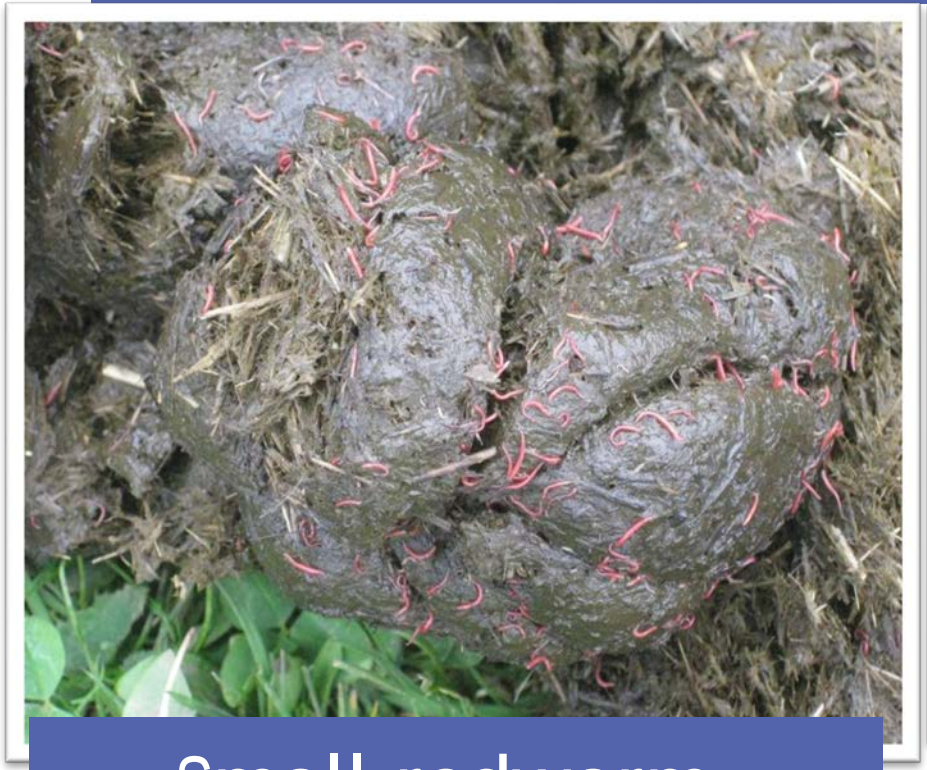
Strongyles



Small redworm

Cyathastomins

5 week lifecycle

Large redworm

Strongylus vulgaris

6-11 month lifecycle

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95%

of intestinal horse worms are

small strongyles

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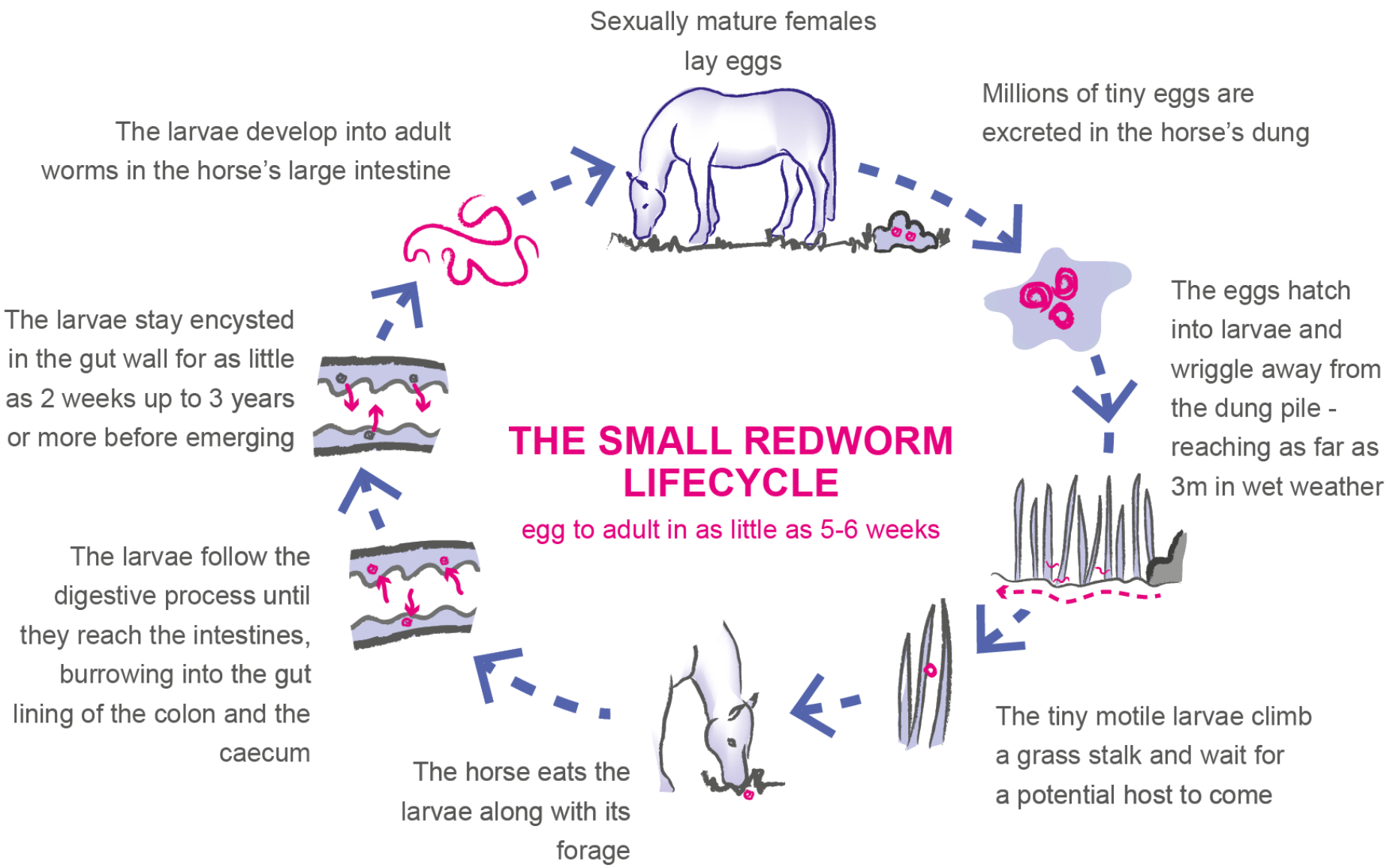
Redworm lifecycle



The weather & worms

- Warm wet weather increases risk of parasite infection
- Spring & autumn highest risk times
- Extremes of weather help to break lifecycles

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Encapsulated larvae of the small redworm

- Millions can exist in dormant stage known as inhibited encysted larvae
- Impair absorption of nutrients,
- ‘Mass emergence’ can cause life-threatening bowel inflammation, known as colitis (larval cyathostominosis)

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Strongylus vulgaris and a thickened cranial mesenteric artery

LIFECYCLE:
larval stages of the parasite migrate to the major arteries in the abdomen (mesenteric) and live in the artery walls. This can cause blockages, aneurisms, blood vessel rupture and sudden death.

The pre-patent period of large strongyles is 200-332 days and the infective stages are during late summer/autumn period.

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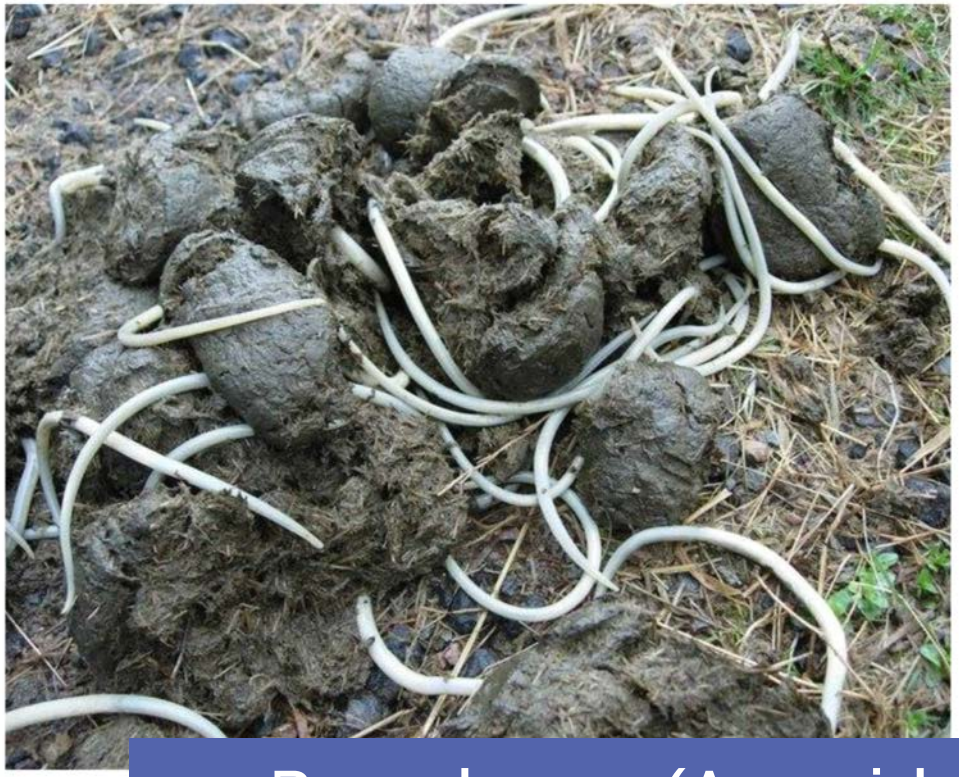
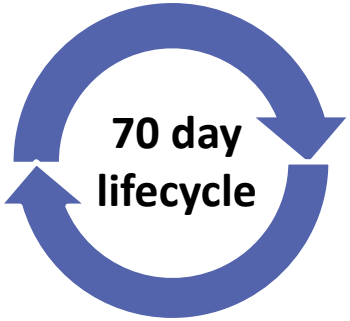


Roundworm(Ascarids)

Parascaris equorum



- Large white worms up to 40cm in length
- Eggs remain in pasture for many years
- Prevalent in young horses under 4, after which they generally gain immunity
- Infection can have a devastating effect

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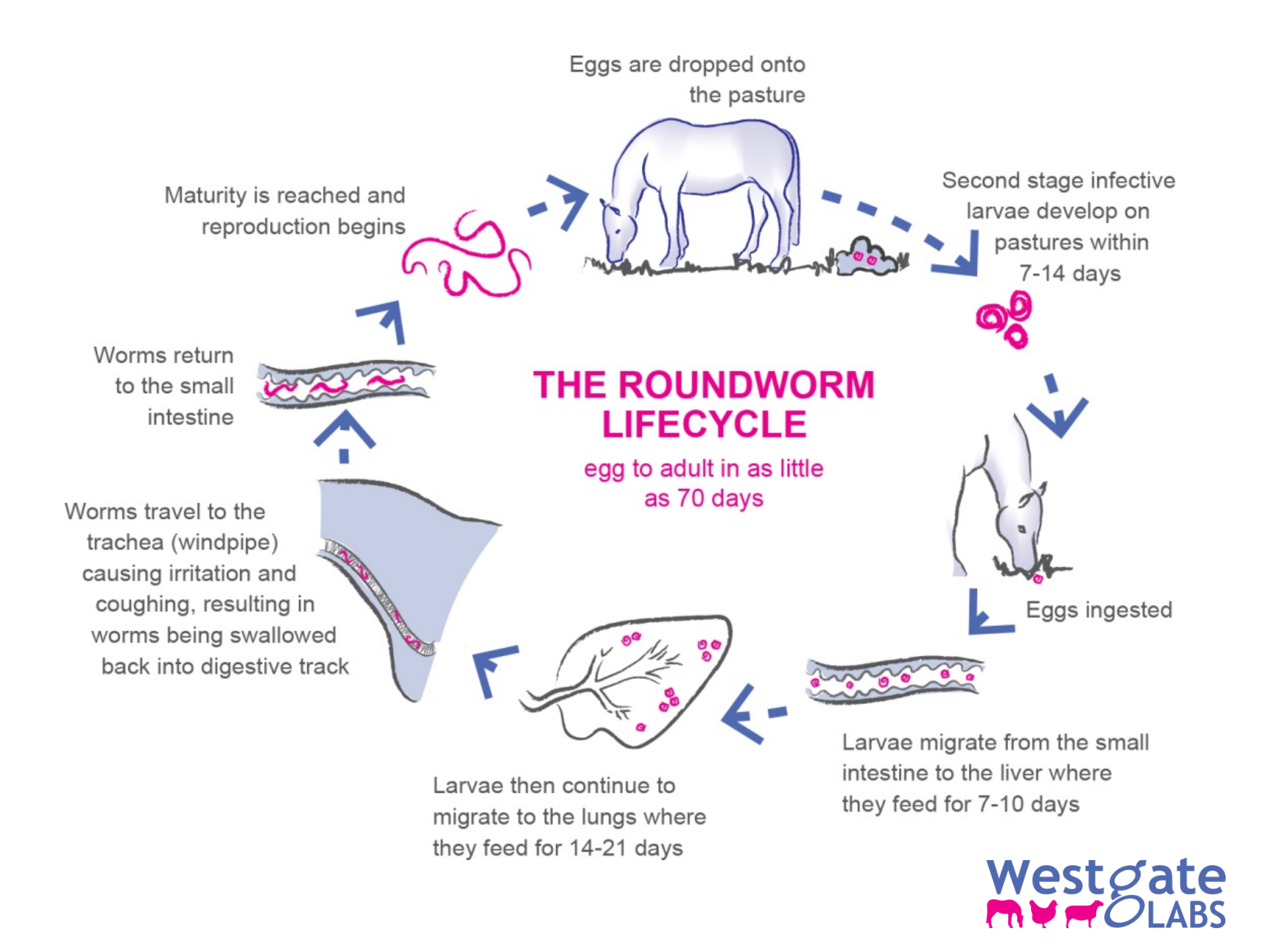
THE ROUNDWORM LIFECYCLE

egg to adult in as little as 70 days



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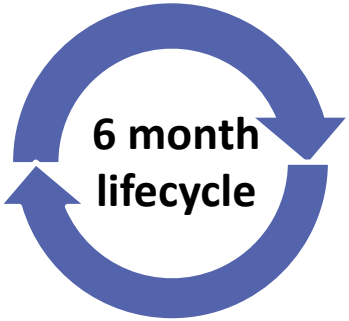
Tapeworm

Anoplocephala perfolata

- Live in the ileocaecal junction (between the small intestine and large intestine where the caecum is connected) and small intestine.
- Sucker onto the horse's gut wall and live off food that that horse ingests.
- Saliva testing of horses in the UK has shown that approx. 23% of horses are infected with tapeworm parasites.



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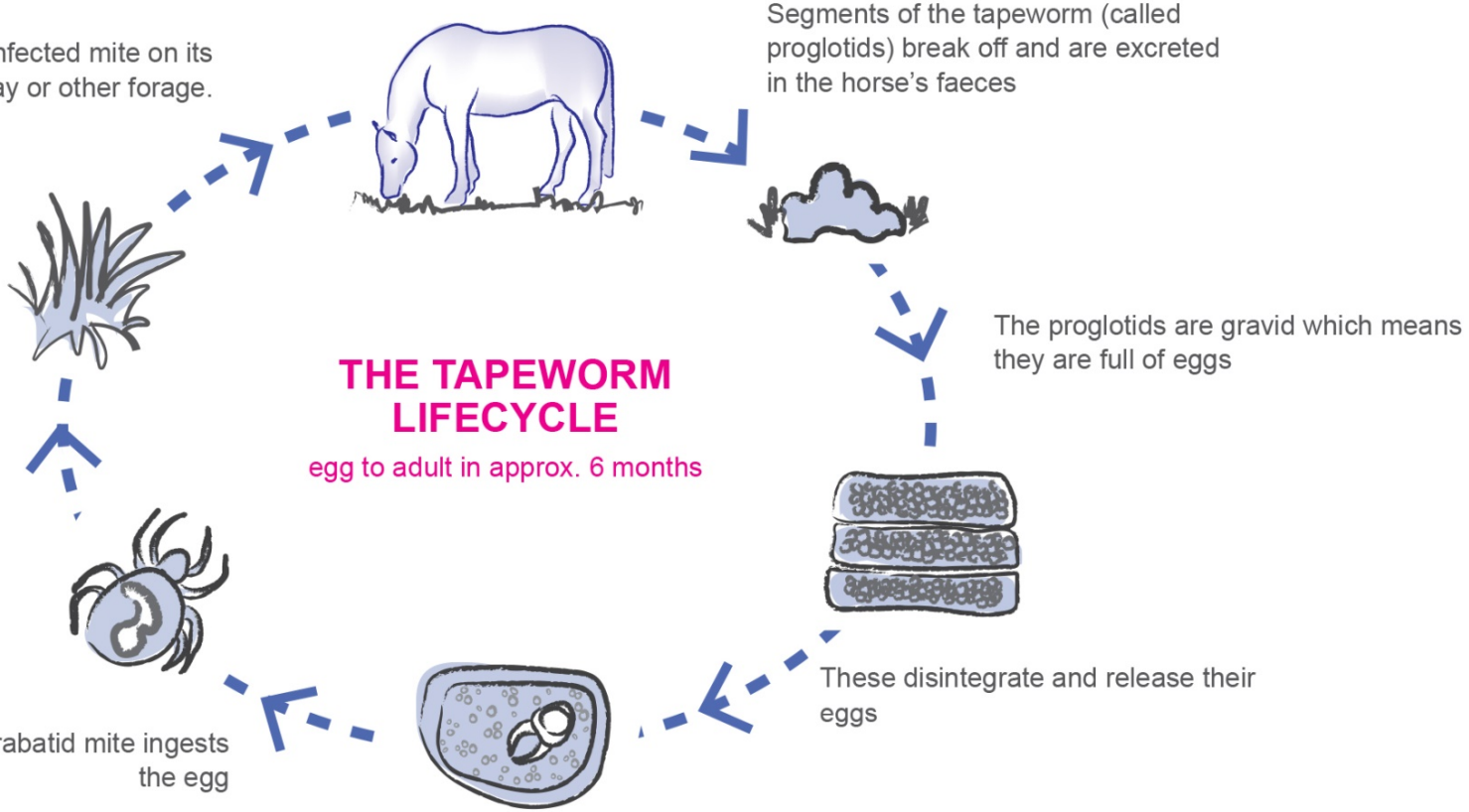
THE TAPEWORM LIFECYCLE

egg to adult in approx. 6 months



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Intermediate host

– the orabatid mite

Potential sources of infection:

- Forage such as hay and straw
- Contaminated pasture

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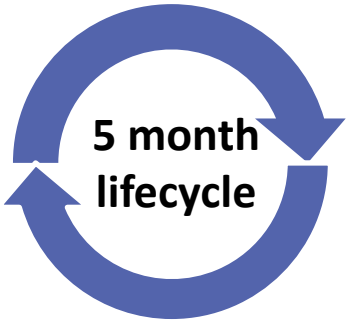
Pinworm

Oxyuris equi



- Rise in prevalence
- Not a true intestinal worm; Eggs are laid on the skin around the anus, not passed in the faeces like other worms
- Infection can cause serious irritation but is not a life threatening parasite

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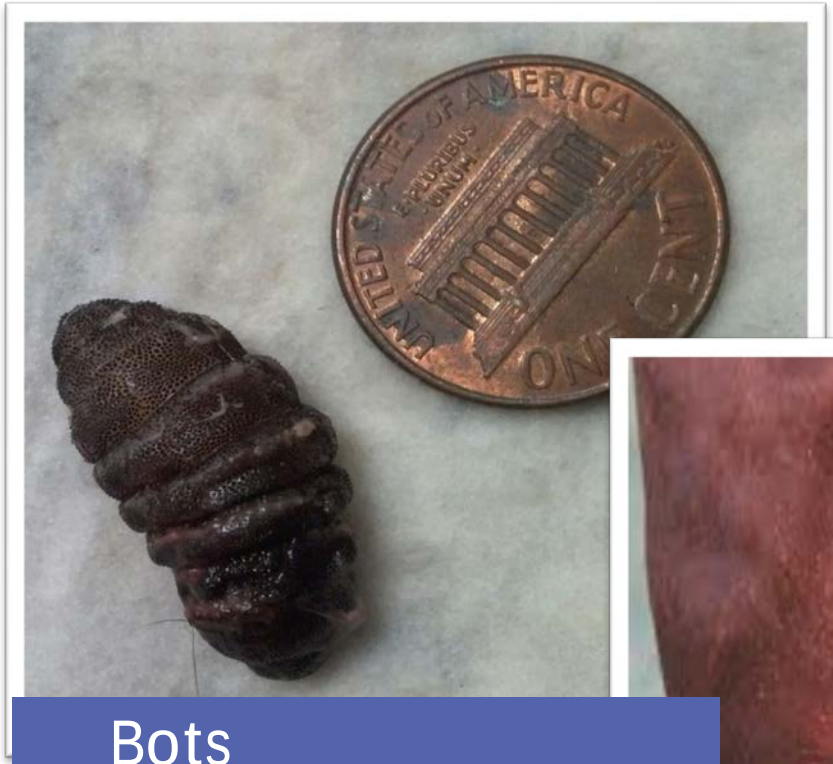
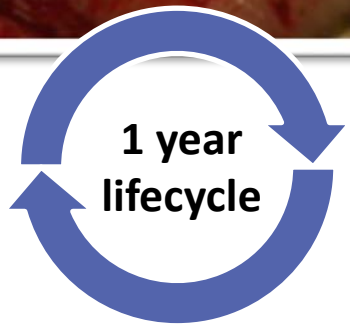


Bots

Gasterophilus intestinalis



- Geographical – not found further north than Derbyshire/Yorkshire
- Eggs can be scraped off the hairs using a bot knife or blunt metal edge.
- Ingested larvae aren't treatable until they're in the stomach of the horse. Target with a single treatment after the first frost of the winter which will kill bot flies and ensure no more reinfection.

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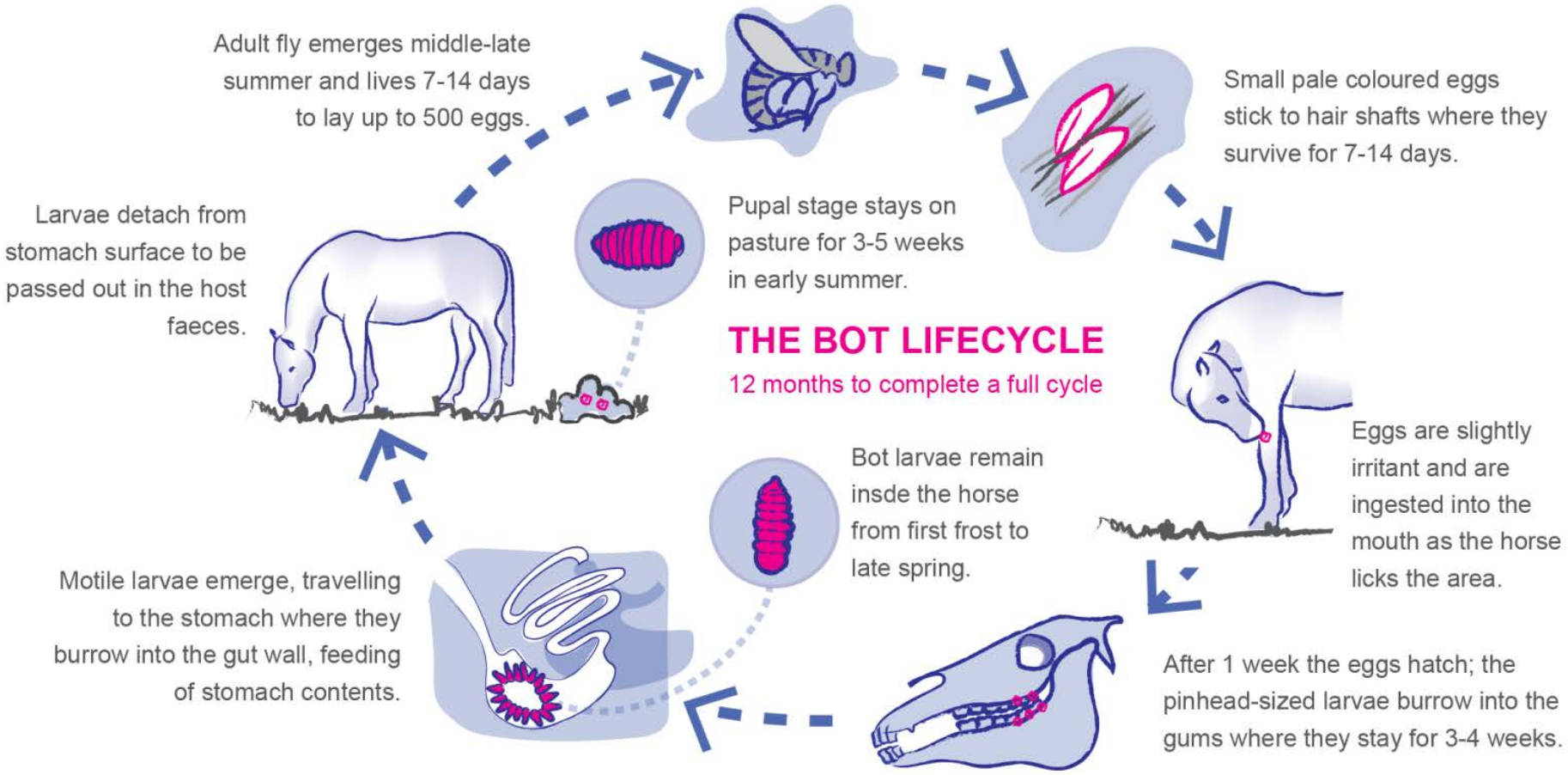

Rarely bot infections cause:

- Larval migration through the mouth - ulceration of tongue and cheeks.
- Attachment of larvae to the stomach epithelium causes ulceration and resulting loss of submucosal glands
- High burdens of *G. haemorrhoidalis* may cause rectal prolapse

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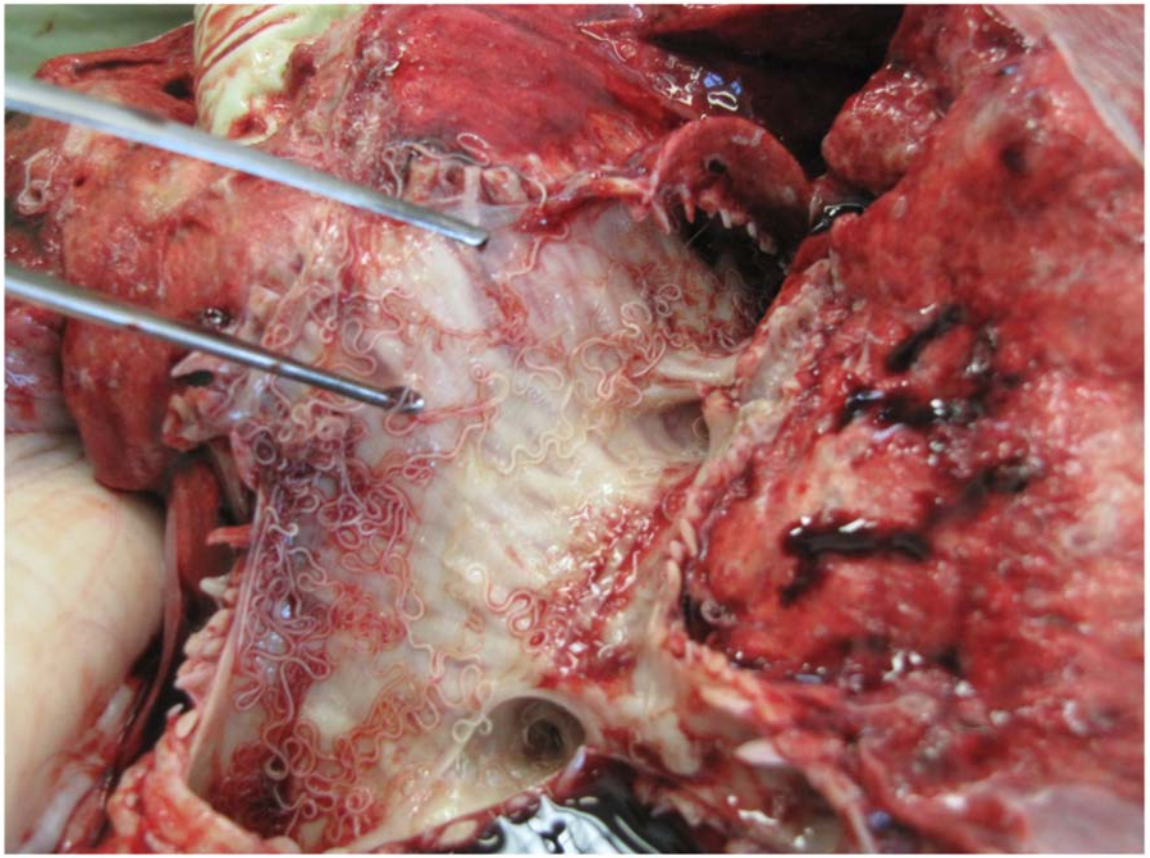

Lungworm

Dictyocaulus arnfieldi

5-6 week lifecycle

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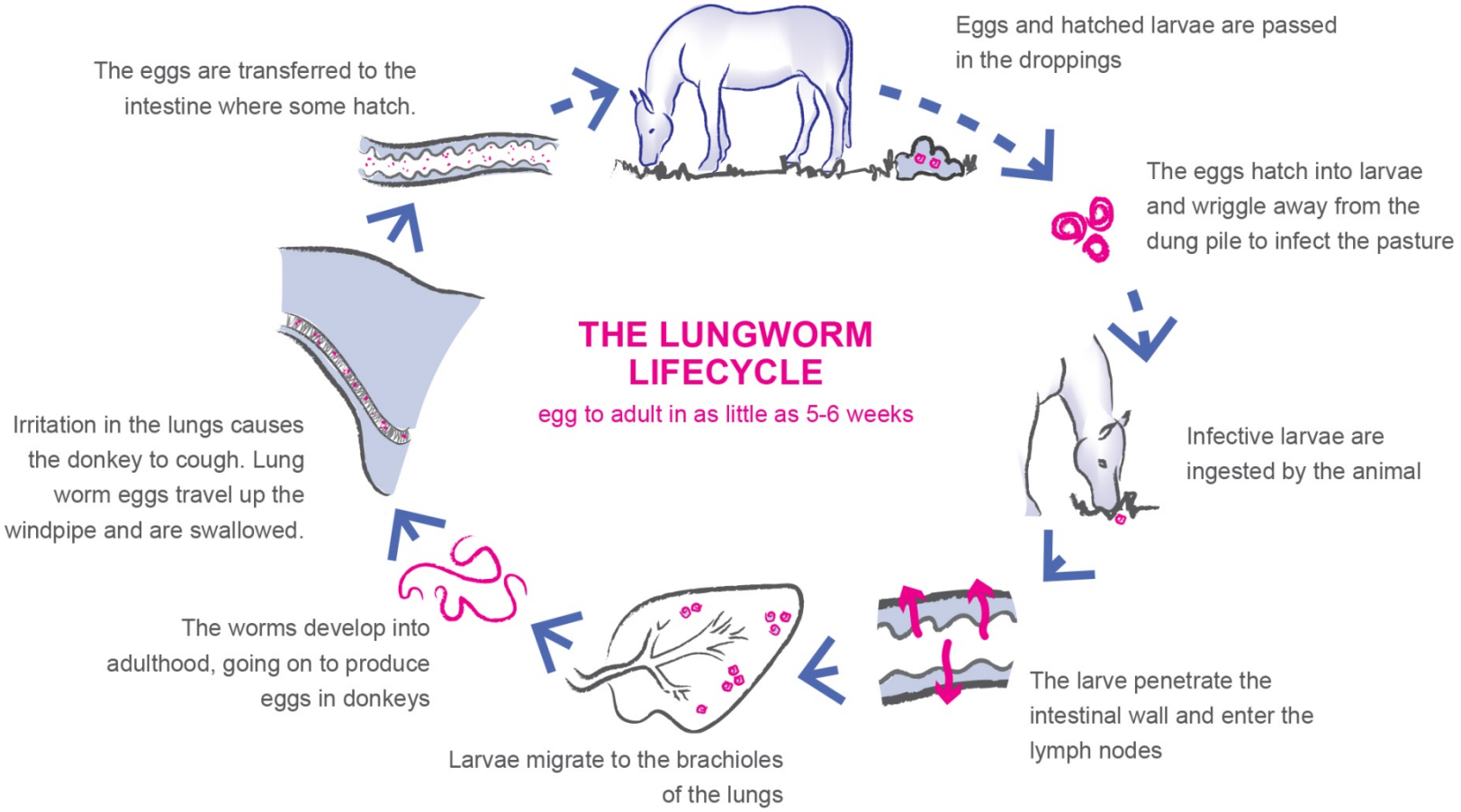

- Quite uncommon – Donkey Sanctuary quote only 4% donkeys infected
- Horses much more sensitive to the effects of a lungworm infection and show signs very similar to Recurrent Airway Obstruction; a chronic cough, nasal discharge and shortness of breath.

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1 year lifecycle

Liver Fluke

Fasciola hepatica

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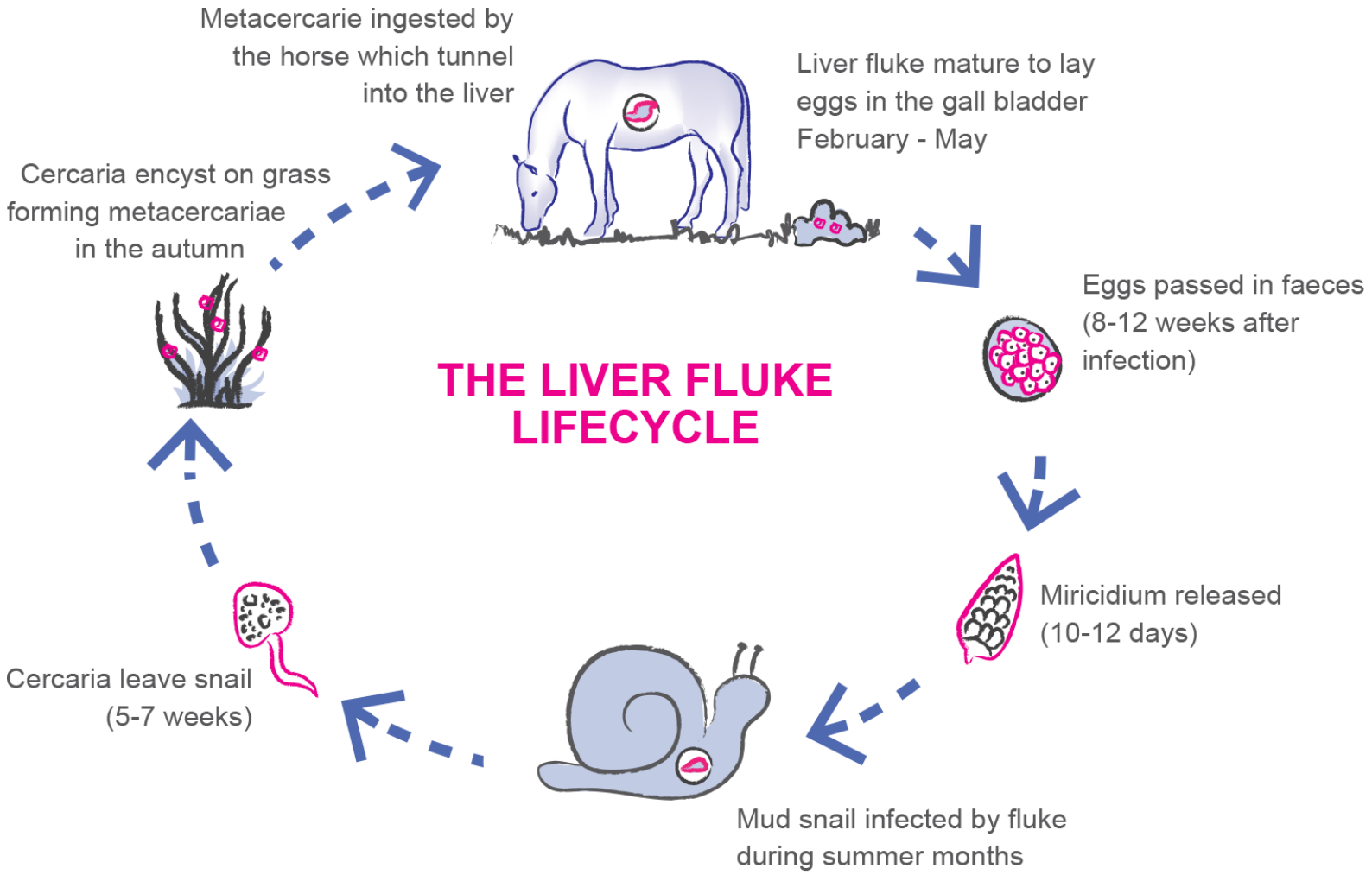

- most common in sheep and cattle, however it can also infect horses
- animals kept in wetter, warm locations with reedy grass being more at risk
- No licenced flukicide treatment for horses

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Drug	Adult redworm	Larval small redworm	Roundworm	Tapeworm	Pinworm	Bots	Lungworm	Liver fluke	Strongyloides
Fenbendazole	√*	√5*	√	X	√	X	X	X	√
Pyrantel	√*	X	√	√2	√	X	X	X	X
Ivermectin	√	X	√†	X	√†	√	√	X	√
Moxidectin	√	√	√†	X	√†	√	√	X	√
Praziquantel	X	X	X	√	X	X	X	X	X

√ Licenced
* Known resistance
5 Five Day Course

X Not licenced
† Anecdotally less effective
2 Double dose

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BENZIMIDAZOLES

IVERMECTIN

MOXIDECTIN

PYRANTEL

PRAZIQUANTEL

Horse wormers

Licenced in the UK

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IVERMECTIN + PRAZIQUANTEL

MOXIDECTIN + PRAZIQUANTEL

Combination wormers

Licenced in the UK

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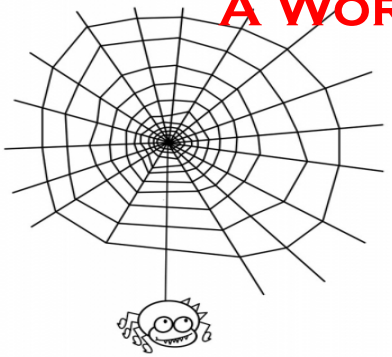
KILL THEM !

JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
WORM	WORM	WORM	WORM	WORM	WORM	WORM	WORM				

A Worming Programme From the Good Old Days



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Moxidectin based

Worming programme

Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec

Worm → Worm → Worm → Worm →

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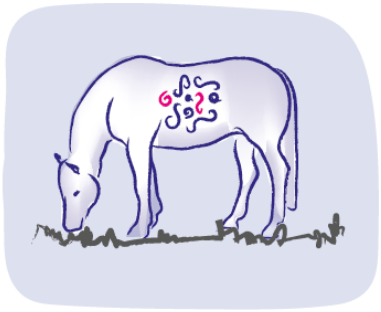
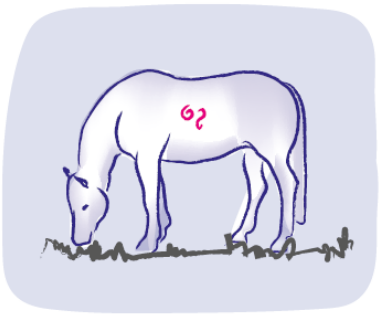
Wormer Resistance and how it develops

A horse naturally has a worm burden of non-resistant and some resistant worms

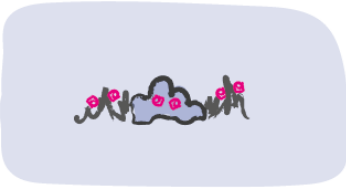


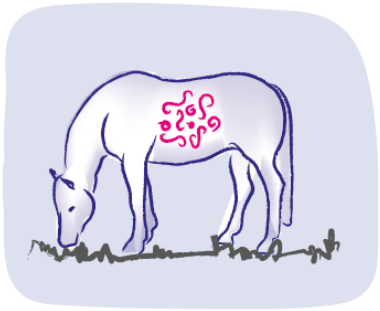
The horse is wormed



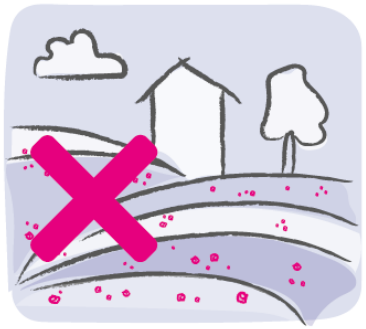
Drug exposure kills all but the small number of resistant worms

Eggs from resistant worms are shed onto the pasture to continue the lifecycle





The population of resistant worms increases as the horse is repeatedly exposed to wormer



Worms on the horse pasture are resistant to the available wormers and do not respond to treatement

Worms never regain their sensitivity to drugs once resistance develops

If this happens with all drugs then keeping horses here in the future would be difficult

what will you do when the **wormers** don't work anymore?

#slowdrugresistance

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“Think twice before prescribing wormers!”

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Evidence based control

- **Worm egg counts**
  – basis of any targeted programme

PLUS

- Equisal tapeworm test
- Sellotape pinworm tests
- Lungworm sedimentation tests
- Liver Fluke tests

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WESTGATE LAB'S | Targeted Worm Control

A veterinary approved programme for healthy adult horses

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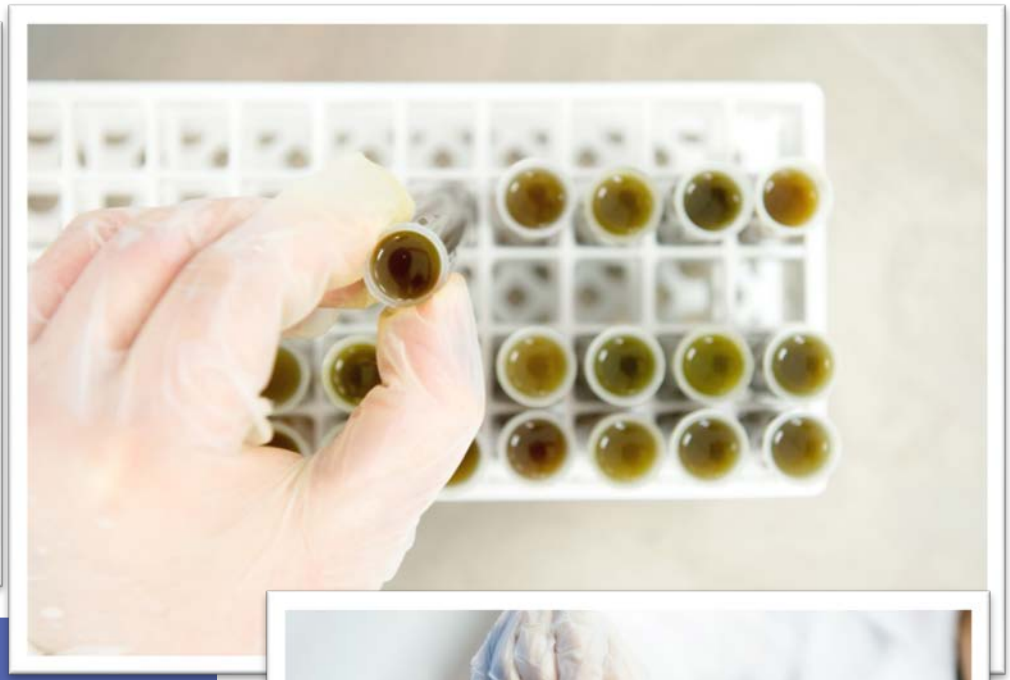
SPRING	Worm egg count for redworm and ascarids	Saliva test for tapeworm
SUMMER	Worm egg count for redworm and ascarids	
AUTUMN	Worm egg count for redworm and ascarids	Saliva test for tapeworm
WINTER	Worm for possible encysted redworm, resistance test to check drug efficacy	

Test kits and FREE worming advice all available from your friendly team of SQPs at Westgate Labs backed by our veterinary approved advice. Contact us today:

Using worm egg counts effectively



- Test regularly, at least every 3 months through the grazing season
- Quarantine new horses until tested and treated accordingly.
- Test for resistant worms

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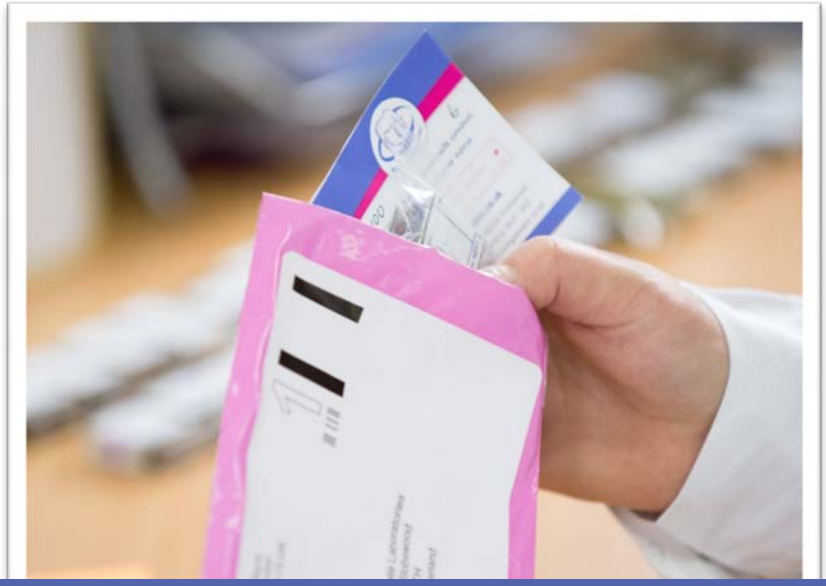
Taking a worm count

1. Pick up pinches of poo

2. Label with your horse's name

3. Seal in the plastic bag



4. Post in the prepaid bag

Modified Macmaster technique

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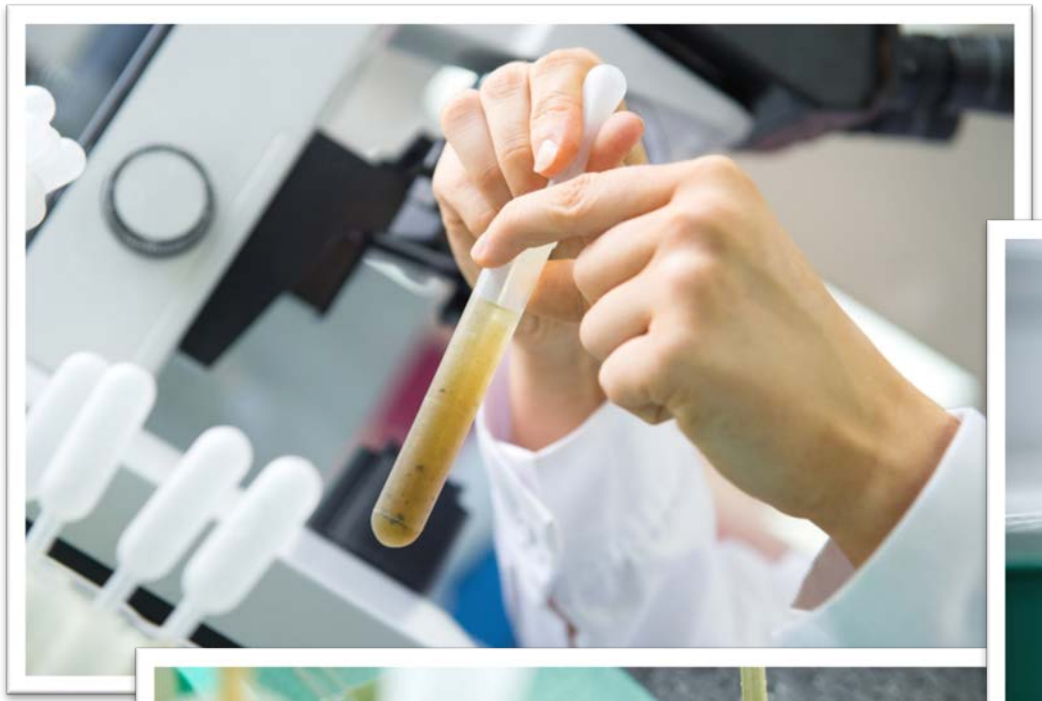

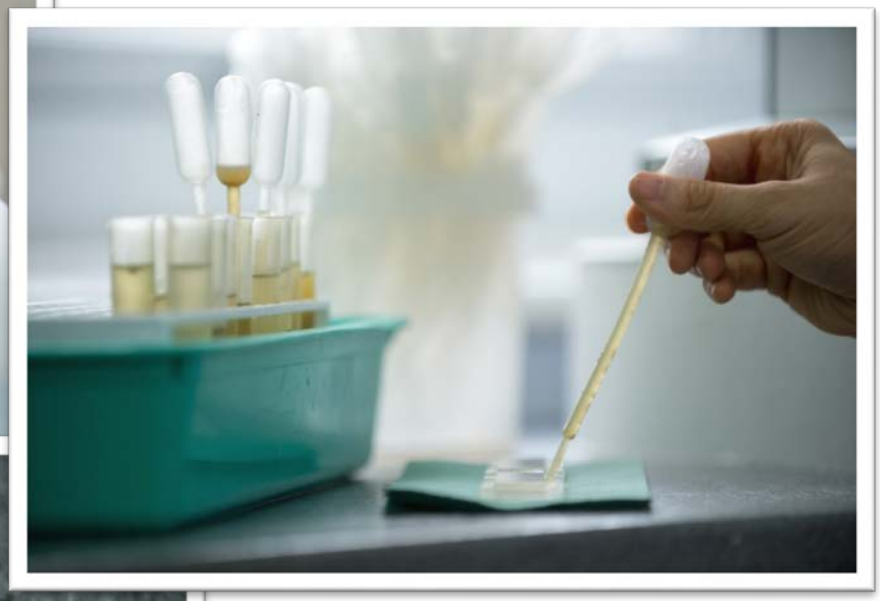

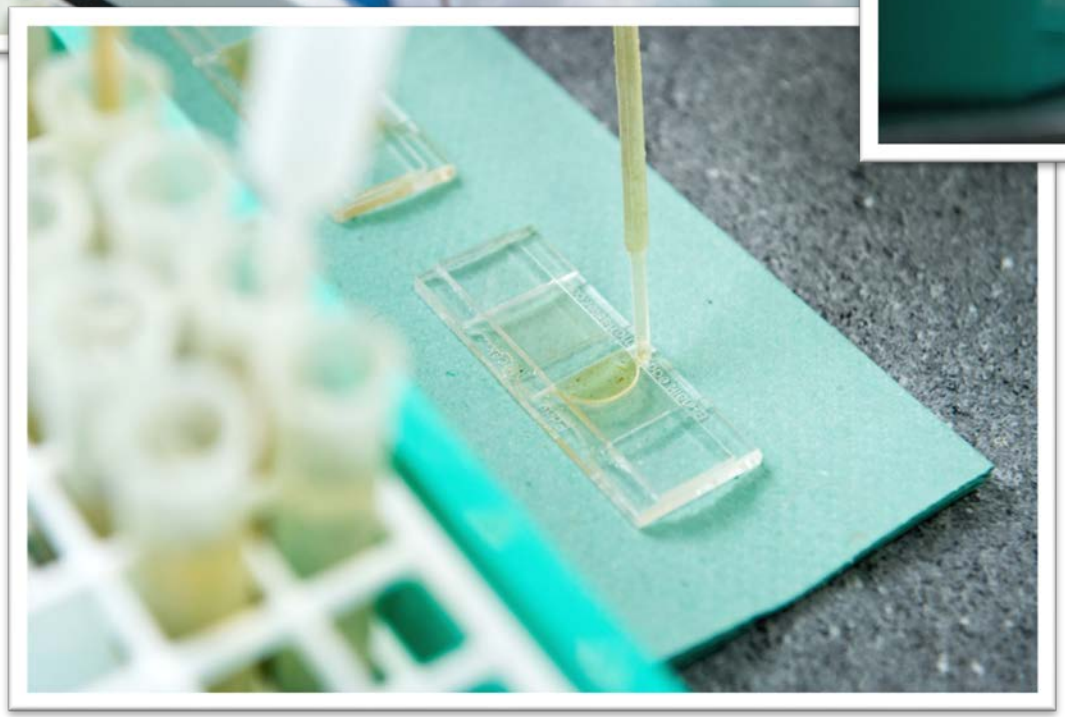

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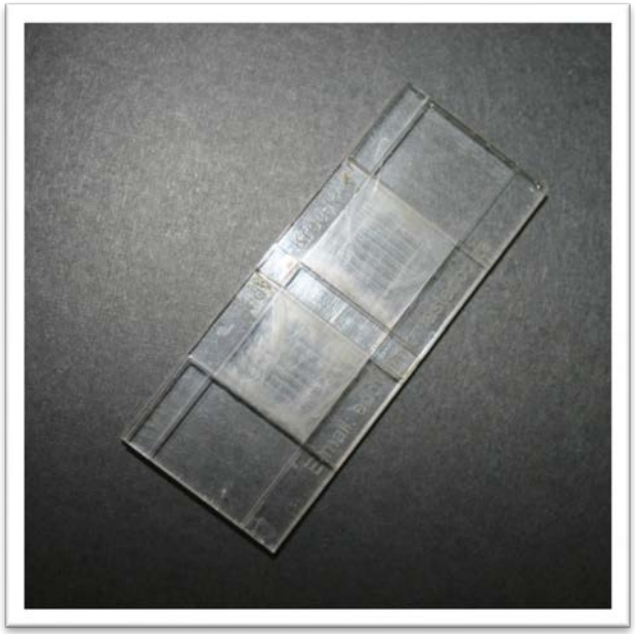

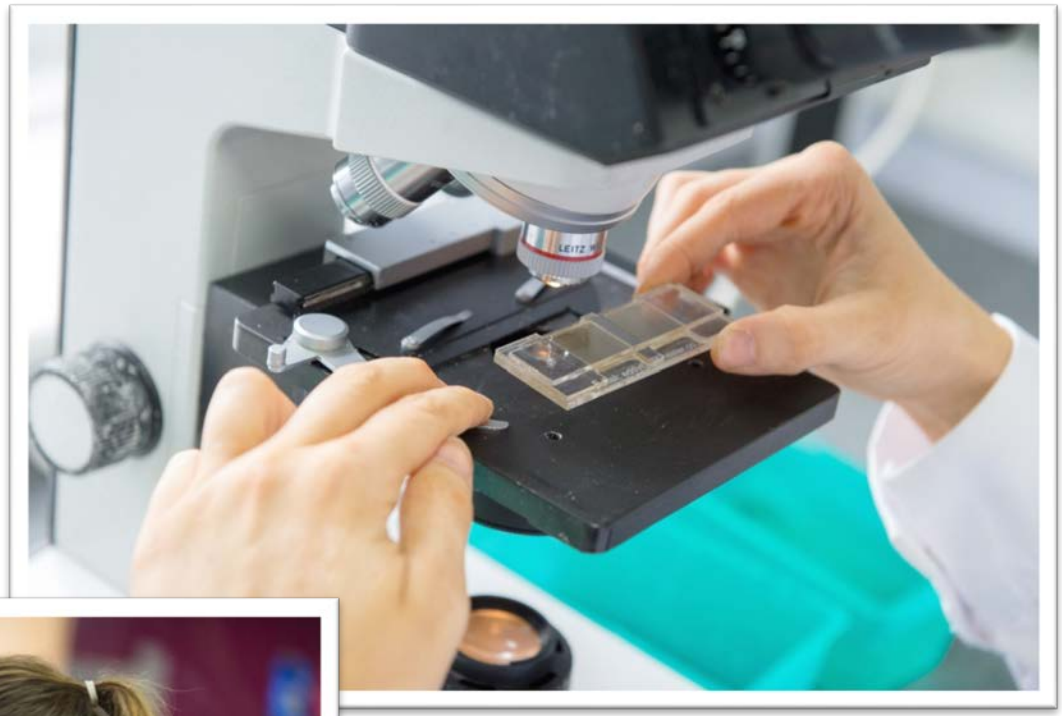

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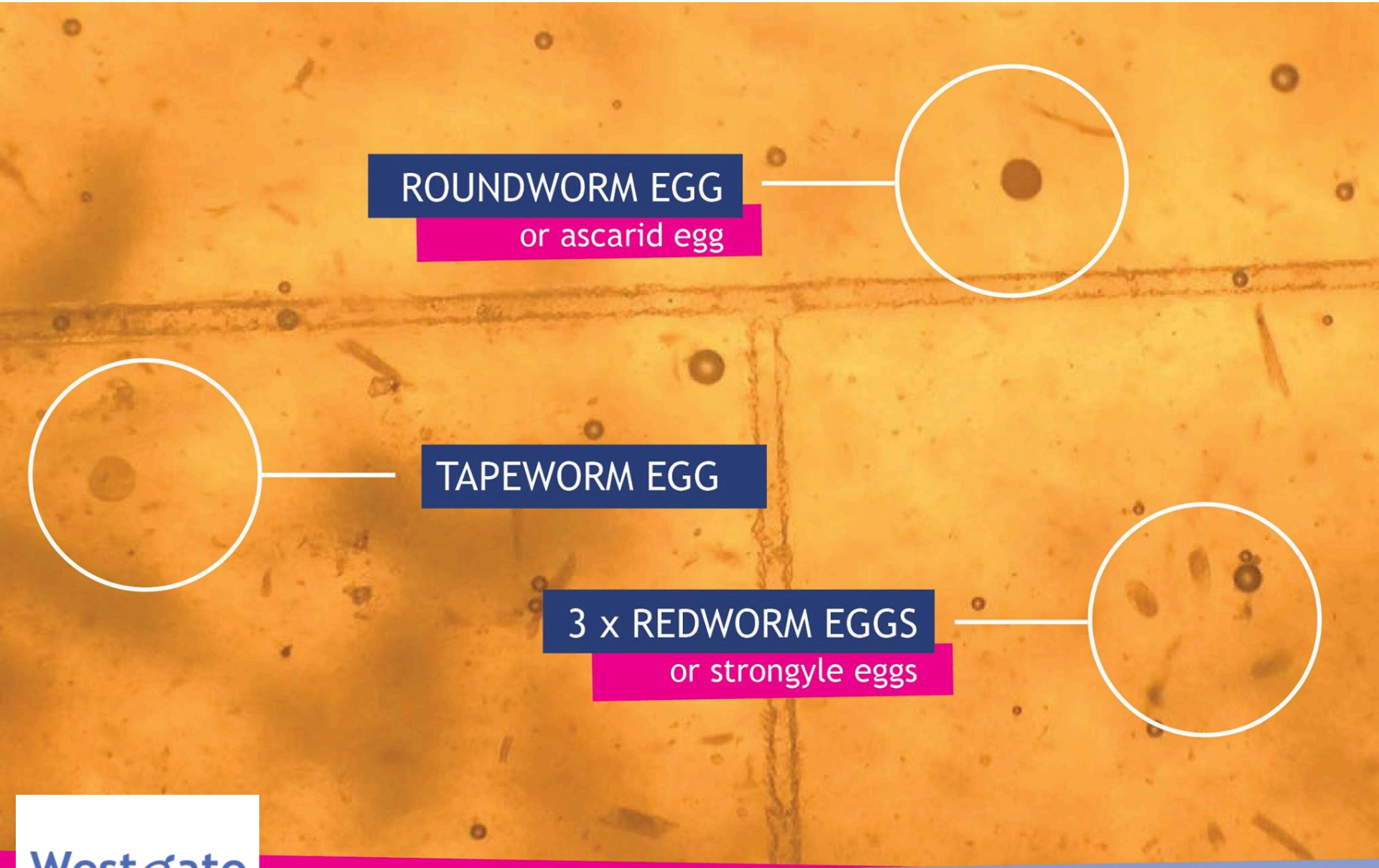

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common horse worm eggs seen in a faecal worm count

www.westgatelabs.co.uk

What a worm count will do

- Gives a snapshot of the likely parasite burden of the horse at the time of test.
- Will show strongyle eggs.
- Will show ascarid eggs.
- May show tapeworm eggs.
- Use as a test for resistance.
- Use to identify the wormy horses in a herd.

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What a worm count cannot do

- It cannot show encysted stages of redworm
- It is not a definitive test for tapeworm
- Bot and pinworm eggs will rarely appear in a dung sample

Worm count results

epg = eggs per gram

- The sign < means 'less than', so a result of **<50 epg** means no eggs seen in the sample.
- Up to **200 epg** is a LOW count, your worming measures are working. If you are following a reduced worming programme you will not need to worm at this level.
- Between **200 epg** and **1200 epg** is a MEDIUM count and the horse needs worming.
- Over **1200 epg** means a HIGH count, the horse needs worming and the worming programme needs attention.

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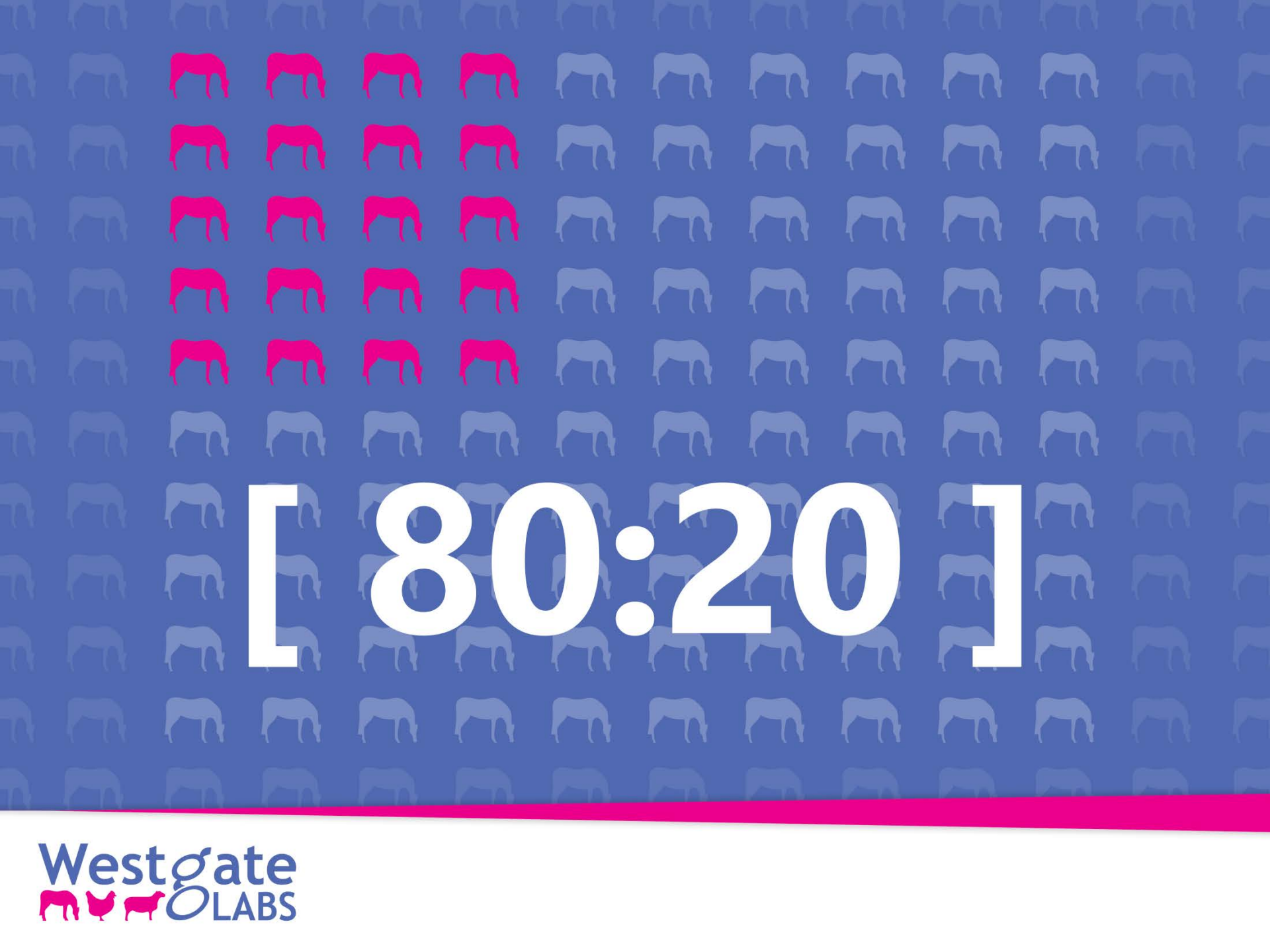

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750 e.p.g.
<50 e.p.g.
50 e.p.g.
100 e.p.g.
<50 e.p.g.
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Testing for tapeworm

The EquiSal test

- Measures antibodies in the horse's saliva
- Non invasive – horse owners can take the sample themselves
- Test every **6 months**
- Wait until **4 months** have elapsed since your last tape wormer or **2 months** for resistance test

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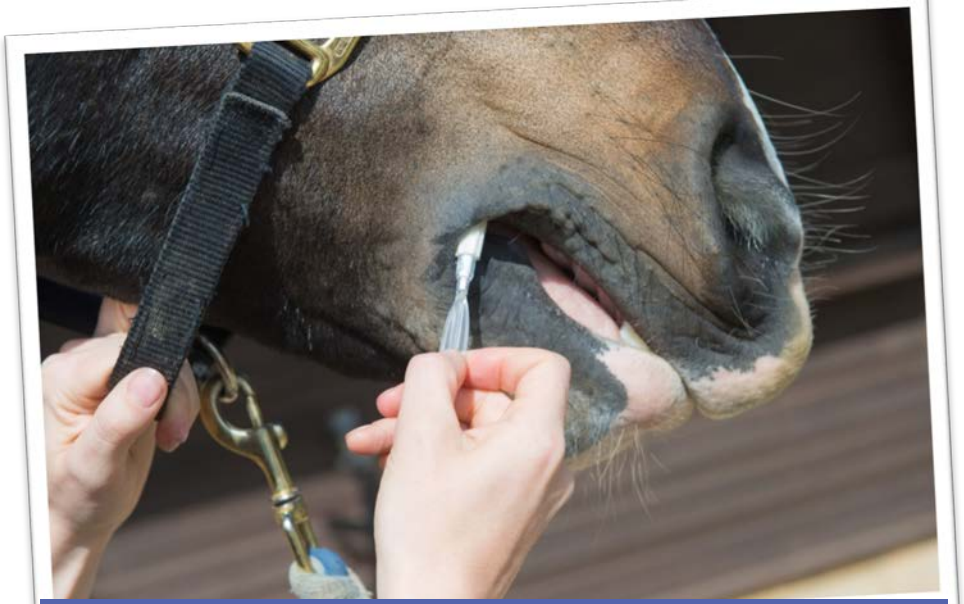

Put the swab in the horse's mouth

Until the indicator turns pink; success!

Return in the tube of preservative

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The liquid handling robot at Austin Davis Biologics

Bob!

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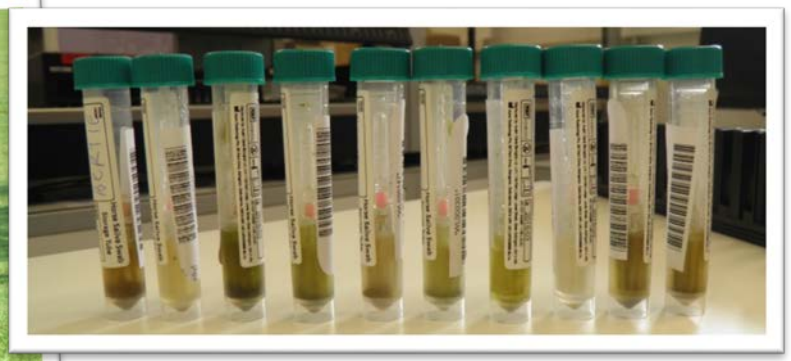
EquSal Saliva Score results

will determine whether the horse needs treatment

	EquiSal Tapeworm Saliva Score	Tapeworm diagnosis	Tapeworm treatment recommended
	< -0.09	Low	No
	-0.09 – 0.6	Borderline	Yes
	> 0.6	Moderate/High	Yes



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Pinworm sellotape test

- Sellotape impression test
- Best taken in the morning before 9am
- Looks for the presence of pinworm eggs

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Liver Fluke tests

- Worm egg count
- Horses aren't natural hosts
- Take 3 samples over 3 days to maximise detection

Lungworm tests

- Sedimentation test
- Test the donkey and the horse
- Supply 2-3 sample pots of dung

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WESTGATE RETAIL POUCH; *the easy way*

- Promotes responsible worming
- Good markup
- Backup of award winning laboratory

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WESTGATE BESPOKE VET SERVICE

- You deliver the results
- Good markup
- Use as backup service

the slightly harder way

Reducing reliance on chemicals

Keep horses with the same field companions. Rest and rotate grazing

- Poo-pick as much as possible, at least twice a week to keep parasite levels down.
- Don’t worm and move; after worming ensure horses stay on the same pasture for a few days to help slow down resistance.

Targeted worming for yards

The more horses kept together the more important good parasite control becomes.

‘Worm counts don’t show everything’

‘I’d rather worm him regularly and be sure’

‘My new horse doesn’t look wormy’

‘We’ve never had a worm problem’

‘Its going to cost too much, I’d rather just worm’

Mares & Foals

Threadworm or *Strongyloides westeri* can be passed through the mare's milk to infect the foal causing chronic diarrhoea. Treat the mare with moxidectin (Equest) four weeks before the foaling due date or an ivermectin based wormer around foaling time.

- Youngsters are especially vulnerable to parasites especially ascarids
- When the foal is a month old treat with fenbendazole
- Worm the foal every 4-6 weeks alternating between pyrantel and fenbendazole until the foal is six months old
- Tapeworm test at 6 months old
- Worm for the possibility of encysted redworm in winter

!

Moxidectin is not a suitable drug for young foals until they have a sufficient covering of body fat.

Ivermectin is not the best choice of product for routine dosing of young horses as there is some known resistance to ascarids.

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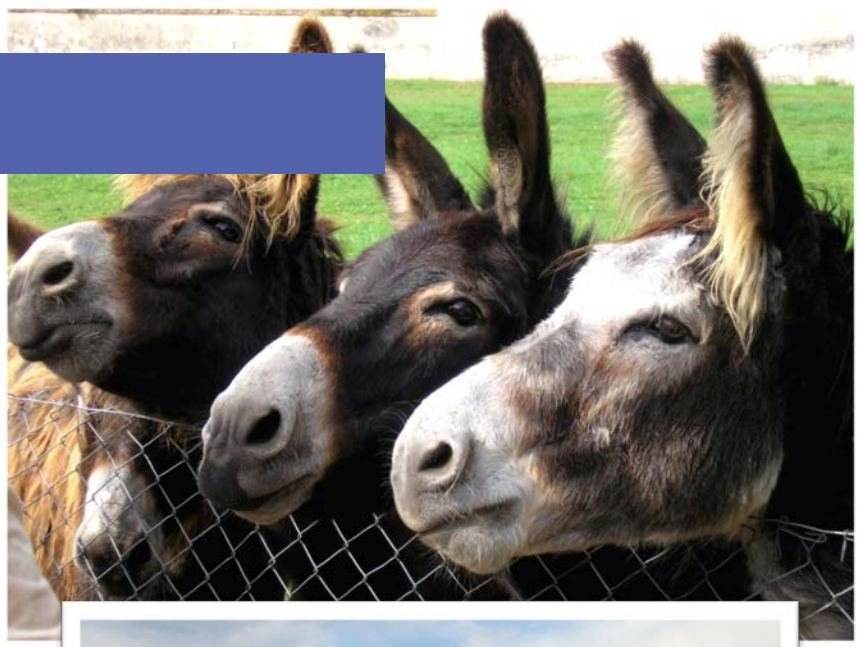
Donkeys & Mules

In line with all equines the British Equine Veterinary Association advocate a targeted worming approach.



- EquiSal test not scientifically validated on donkeys at post mortem level but used with good effect.
- Encysted redworm dose December - February with 5 day fenbendazole plus a resistance test - **moxidectin NOT licenced for donkeys.**
- For tapeworm treatment double dose with pyrantel - **praziquantel NOT licenced for donkeys**.
- Treat MULES in line with donkeys.

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Giving worming advice

QUESTIONS TO ASK

- **Age of animal?**
- **Last wormer given/when?**
- **Grazing with many others?**
- **Wormed for encysted redworm in the winter?**
- **Body condition/health issues?**

- Sex – if it's a mare check it's not pregnant
- Tapeworm- tested or treated?
- Check that they know the weight of the horse? Weigh bridge or weigh tape reading plus 10%
- Is the horse destined for the food chain?

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Scenarios: Mabel, new horse JULY 2017

Mabel 8 years old no worming history. She's been in isolation and her worm egg count is 950 e.p.g. strongyle eggs and a mod/high EquiSal test.

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Scenarios: Mabel, new horse JULY 2017

Avoid moxidectin where possible

DOSING OPTIONS

- Ivermectin/praziquantel

OR

- Double dose pyrantel

OR

- Praziquantel then ivermectin if sensitive with probiotic

PLUS RESISTANCE TESTS

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Scenarios: Annie, NOVEMBER 2016

Annie is a 30 year old TB who has Cushings and is laminitis prone. She has a count of 3,600 e.p.g. Last wormed 3 months ago with ivermectin.

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Scenarios: Annie, NOVEMBER 2016

Avoid combination wormers where possible

PREFERRED ROUTE

- Fenbendazole 5 day + resistance test 10-14 days later
- If clear test again 6-8 weeks
- If count is + 200 e.p.g. consider Equest plus Protexin Quick Fix
- Test again in 10-14 days

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Scenarios: Bertie, MARCH 2017

Bertie is a 6 year old Highland pony who was wormed in December with Equest Pramox. It's March now and he has a count of 2000 e.p.g.

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Scenarios: Bertie, MARCH 2017

PREFERRED ROUTE

- Question correct amount given? Did he get the full dose? How much does he weigh?

- Question potential parasite challenges? Husbandry? Other health issues?

No concerns – ivermectin & retest

Any doubts – moxidectin & restest

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Scenarios: Sparky, OCTOBER 2017

Sparky is a 16.2hh riding club horse. He recently had a clear worm egg count and tapeworm test but his owner is alarmed to see white worms in his poo that look like beansprouts. She says she can't trust the worm count and wants to know what to worm with.

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Scenarios: Sparky, OCTOBER 2017

PREFERRED ROUTE

- No need to pinworm test if worms identified.
- Reassure owner about worm egg counts.
- Prescribe 5 day fenbendazole
- Advise on hygiene and topical applications

- Sellotape test 4-6 weeks and consider re-dosing if needed

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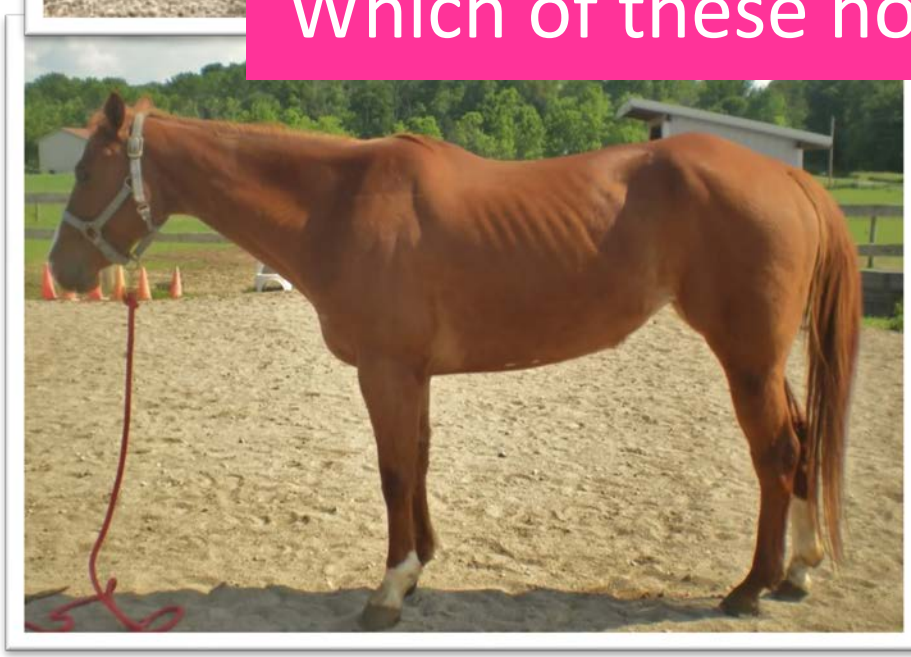
Which of these horses have worms?



Westgate LABS

EQUINE PARASITE CONTROL

common worms to test or treat for in a targeted programme

Test routinely; Treat if required

worm count x 4 a year

EquiSal test x 2 a year

Treat routinely

1 x winter wormer

Test only if necessary; Treat if required

wet grazing with sheep
test December-May

grazing with donkeys
test May-September

rubbing tail head
sellotape test

Treat if required

bot eggs on hair
1 x winter wormer

More information at **www.westgatelabs.co.uk**

SUMMARY

1. Avoid regular dosing, reserve moxidectin
2. Make testing the centre of a worm control programme
3. Remember the limits of worm counts and worm once a year for encysted redworm. Look out for pinworm and bots.

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Thank you!

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