Health plans and fluke and worm control

Tim Geraghty

SAC Consulting is a division of Scotland's Rural College

Leading the way in Agriculture and Rural Research, Education and Consulting

Farm Profit

1st February

Farm incomes on the up

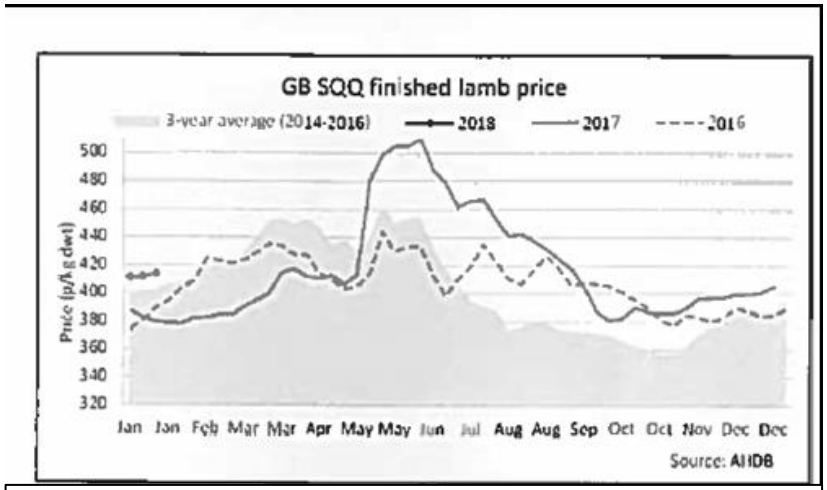
Douglas MacSkimming
News Journalist

NFUS policy director Jonnie Hall

0 comments

SCOTLAND'S TOTAL income from farming is estimated to have increased by £245million in 2017 – but NFU Scotland has insisted that this latest upbeat ScotGov figure masks a much more complicated picture at farm level.

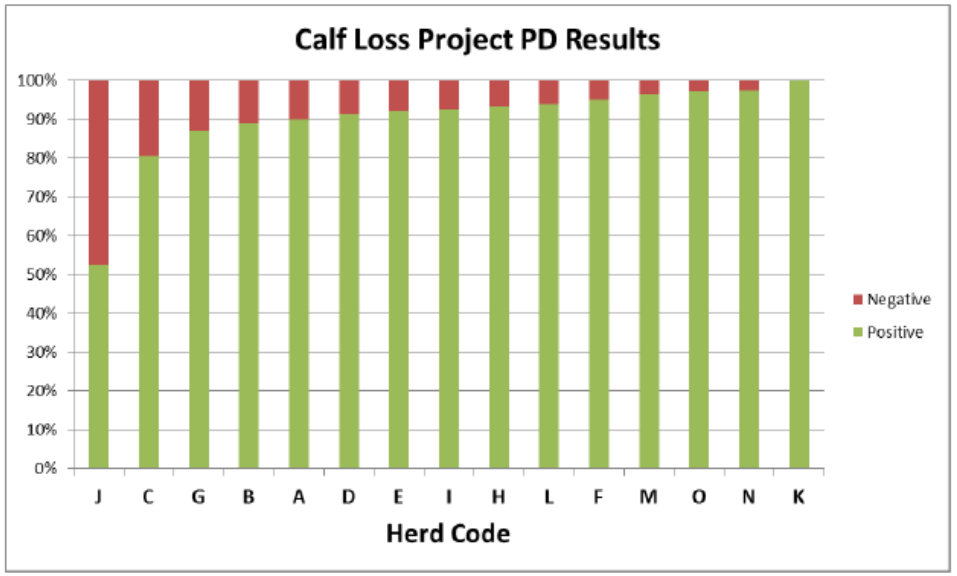
Scottish Farmer
1st February 2018



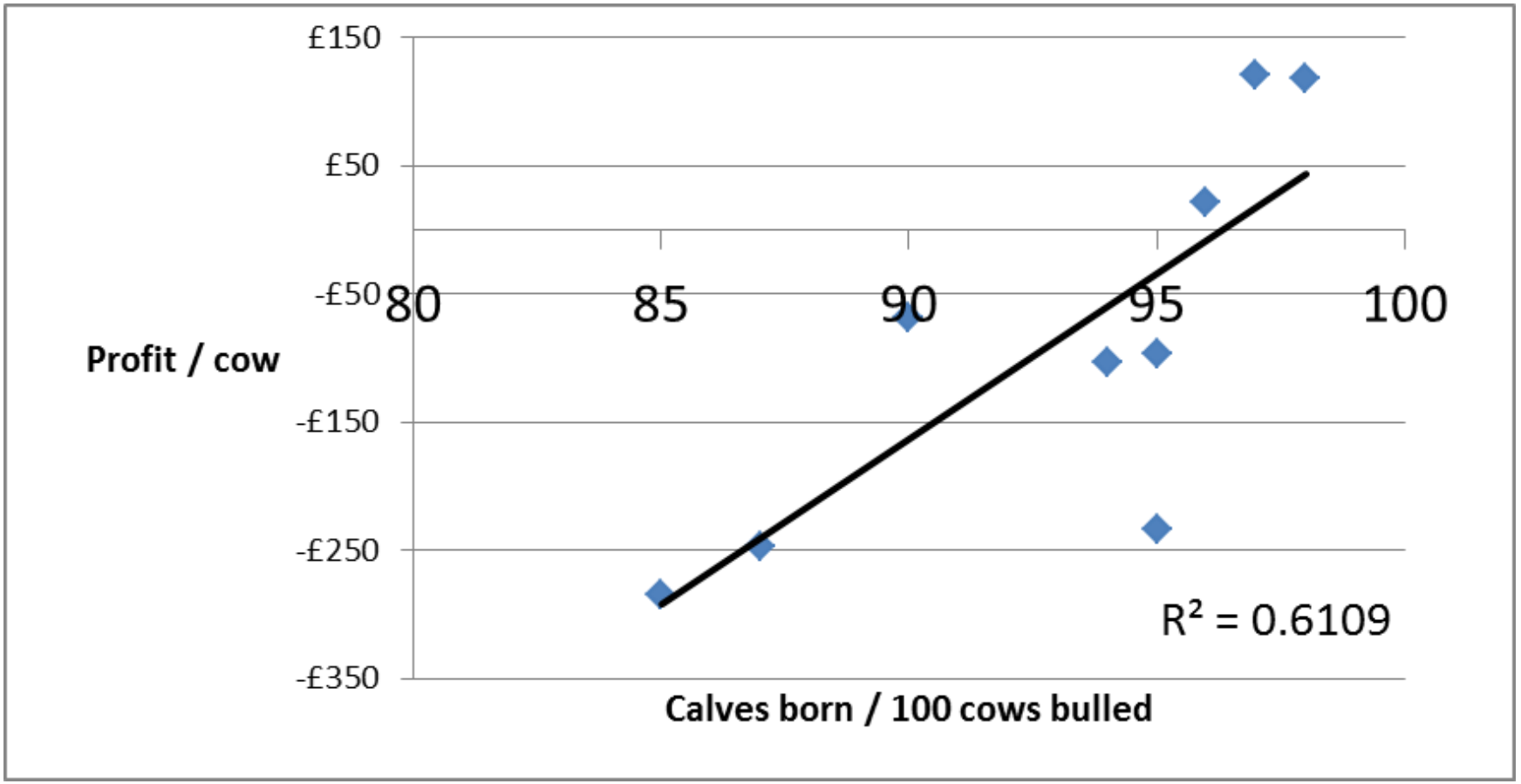
Sheep and Beef News Feb 2018

Technical performance

1. Fertility performance
2. Calf / lamb deaths birth to sale
3. Growth efficiency birth to sale
4. Breeding stock depreciation



Profit V Technical performance



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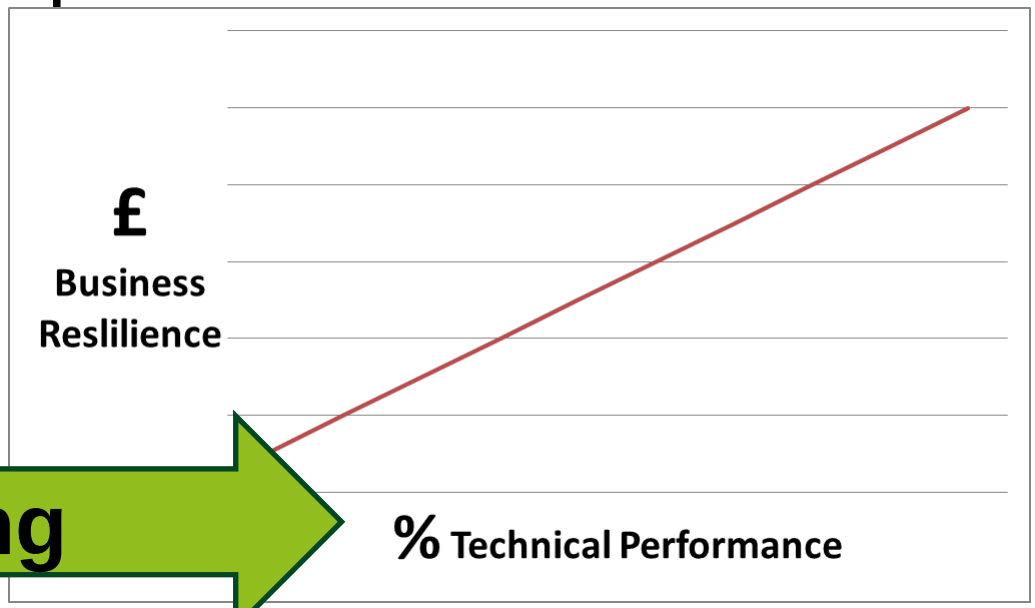
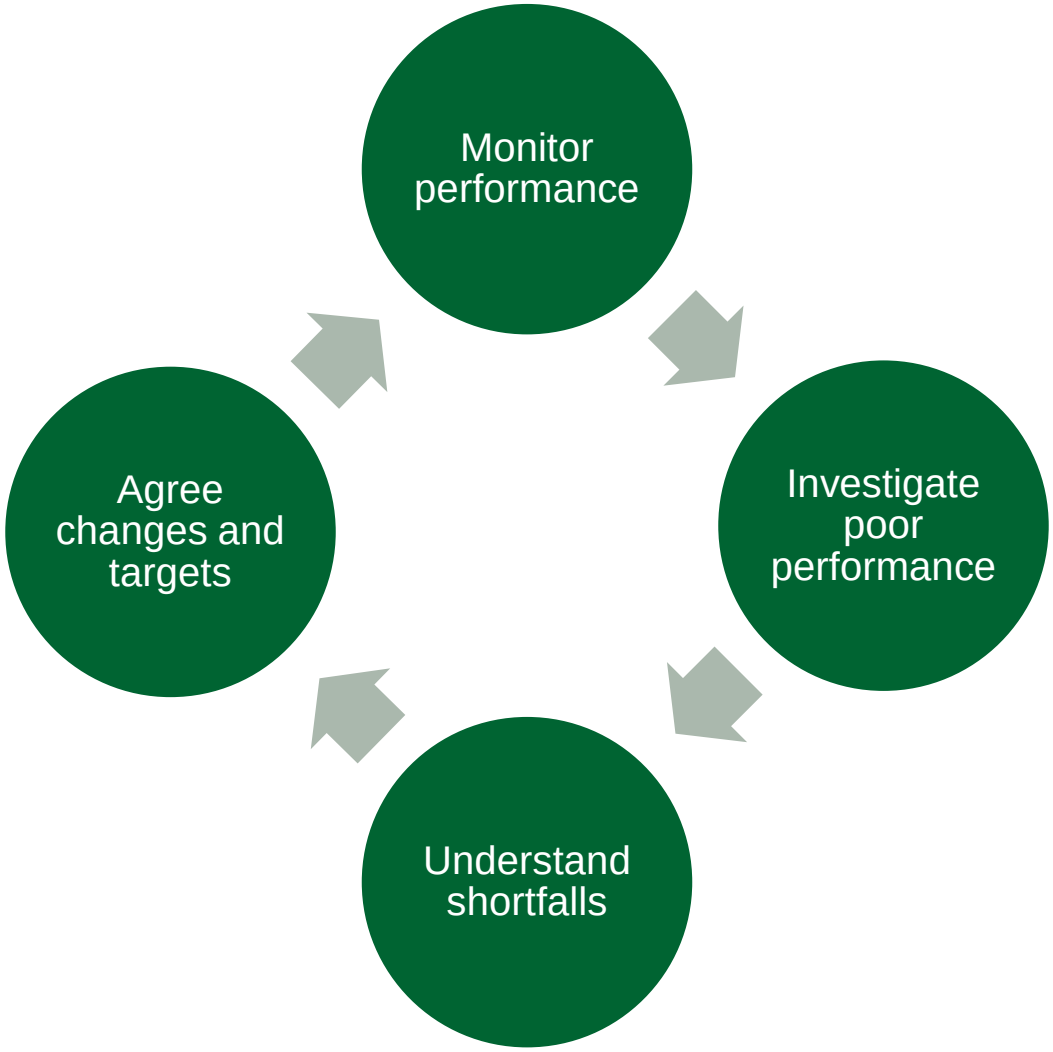


Vet health planning

Heath planning to improve performance



Fluke and worms

1. Clinical impact
2. Think like a worm!
3. Tools for health planning

COWS
Control Of Worms Sustainably
Promoting sustainable control of cattle parasites

What's common? Sheep

Gut parasites	**186**
Fluke	**59**
Toxoplasma	**48**
Coccidiosis	**40**
Hyposelenaemia	**36**
Chlamydophila abortus	**33**
Cl. perfringens D infection	**29**
Pneumonia dt Mannheimia spp	**27**
Pregnancy toxaemia	**22**
Trauma/fracture NOS	**22**
Poisoning dt copper	**20**
Bibersteinia trehalosi septicaemia	**20**

Parasites
Fluke
Infectious abortion
Low trace elements
Clostridial disease
Pasteurella
Preg tox
Copper toxicity

What's common? Cattle

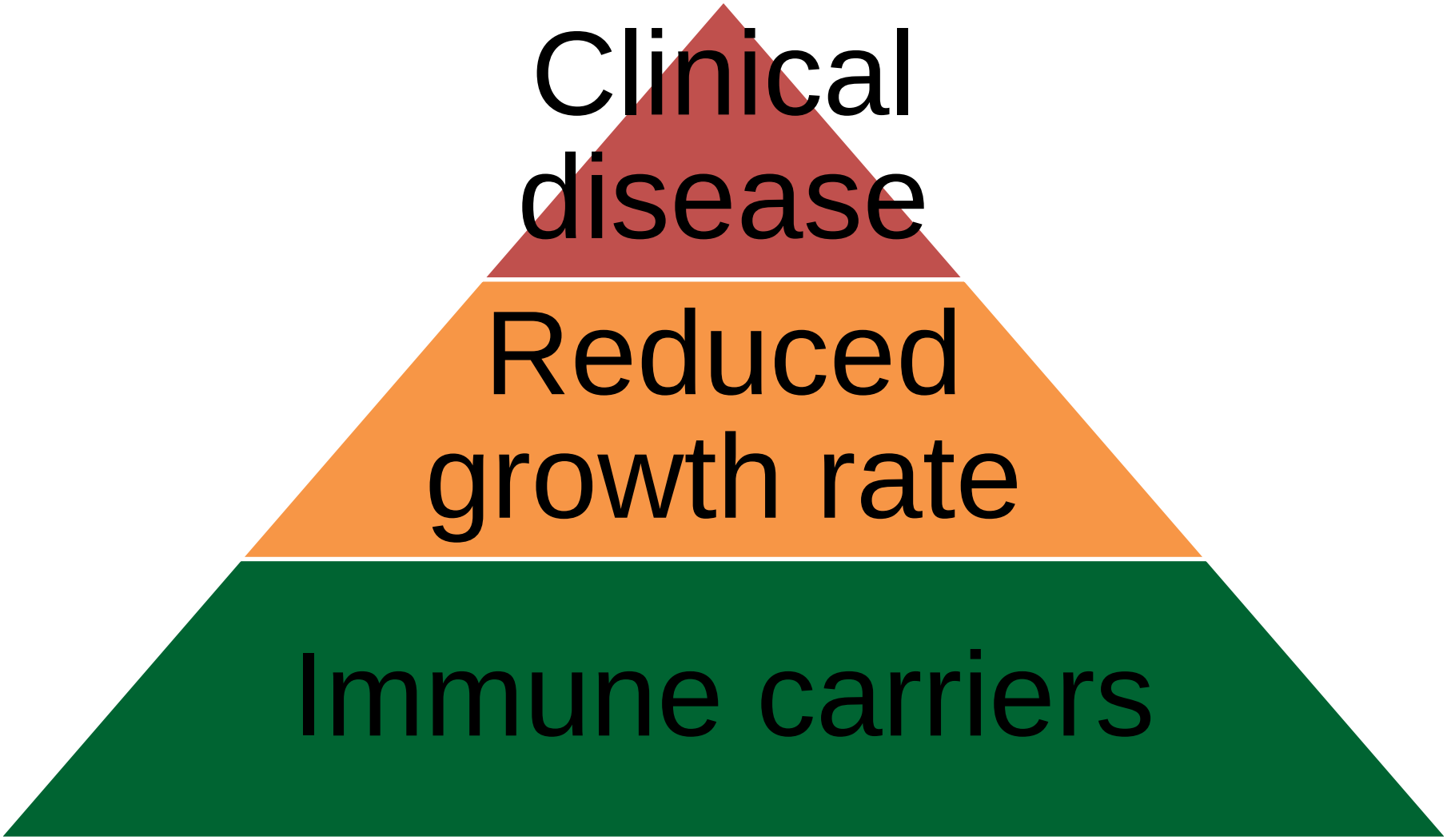
Johne's Disease	547
Cryptosporidiosis	190
Rotavirus disease	142
Fasciolosis	126
Hypogammaglobulinaemia	120
Hyposelenaemia/Hyposelenosis	72
Hypomagnesaemia/Hypomagnesosis	71
Pneumonia dt Mannheimia spp	65
BVD Viraemia	65
Bovine Neonatal Pancytopenia (BNP)	65
IBR	57
Colisepticaemia	55
Pneumonia dt Pasteurella multocida	54
Coronavirus infection: neonatal enteritis.	54

Johne's disease
Calf scour
Fluke
Other calf disease
Low trace elements
BVD
Pneumonia

Worms - Clinical disease

- Diarrhoea
- In-appetance
- Dehydration
- Weight-loss
- Death

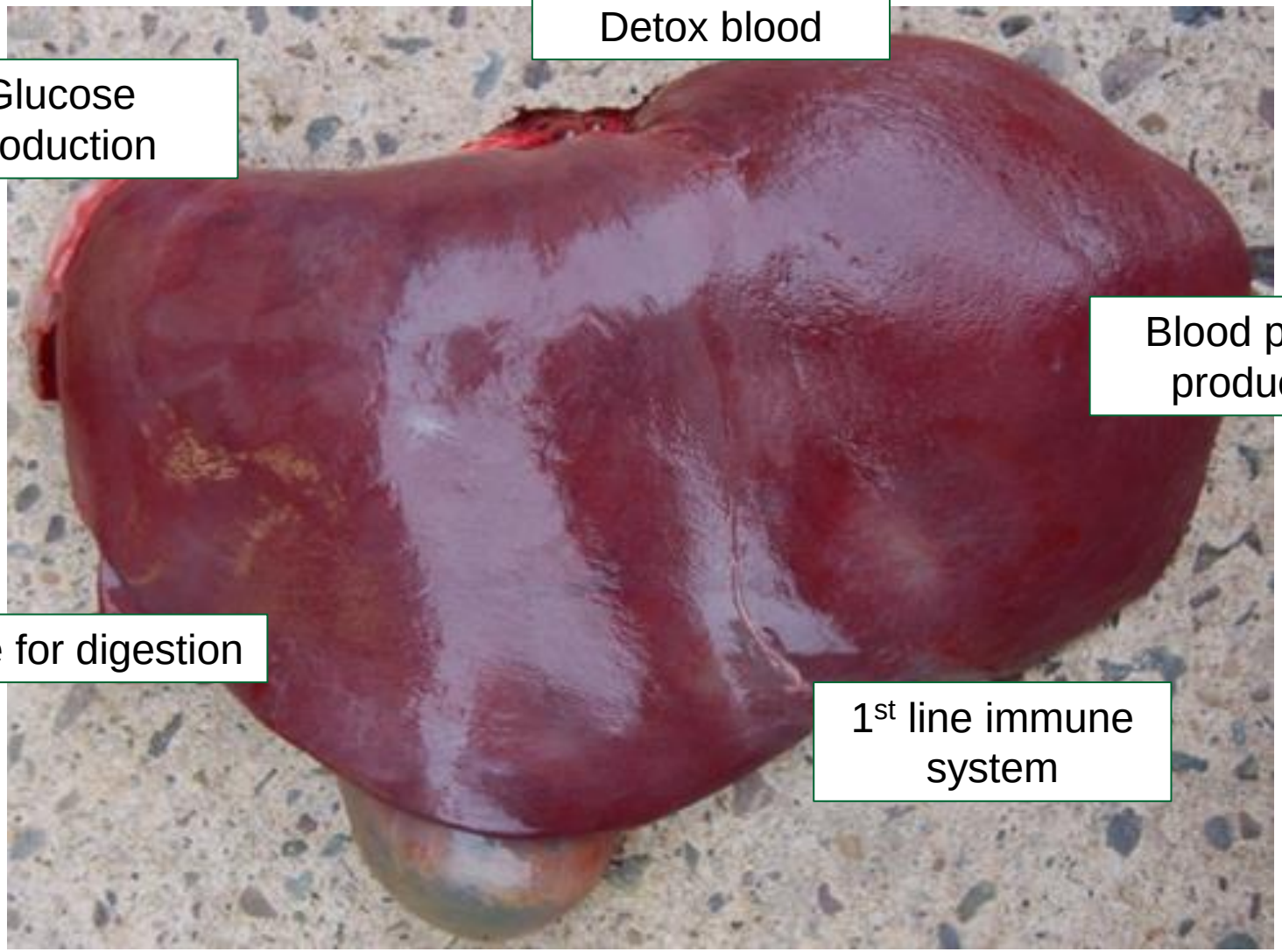
Clinical impact



Immune carriers

- Cattle and sheep gain immunity with time of exposure
  - In lambs this takes approx. 4-6 months of exposure
  - In cattle this takes approx. two grazing seasons

Fluke - what does the liver do?



Acute fluke common in sheep

Chronic fluke common in cattle and sheep

Chronic liver fluke

Poor weight gain

Weight loss

Emaciation

Swelling under jaw / brisket

Increased susceptibility to other disease

No / limited developmental immunity

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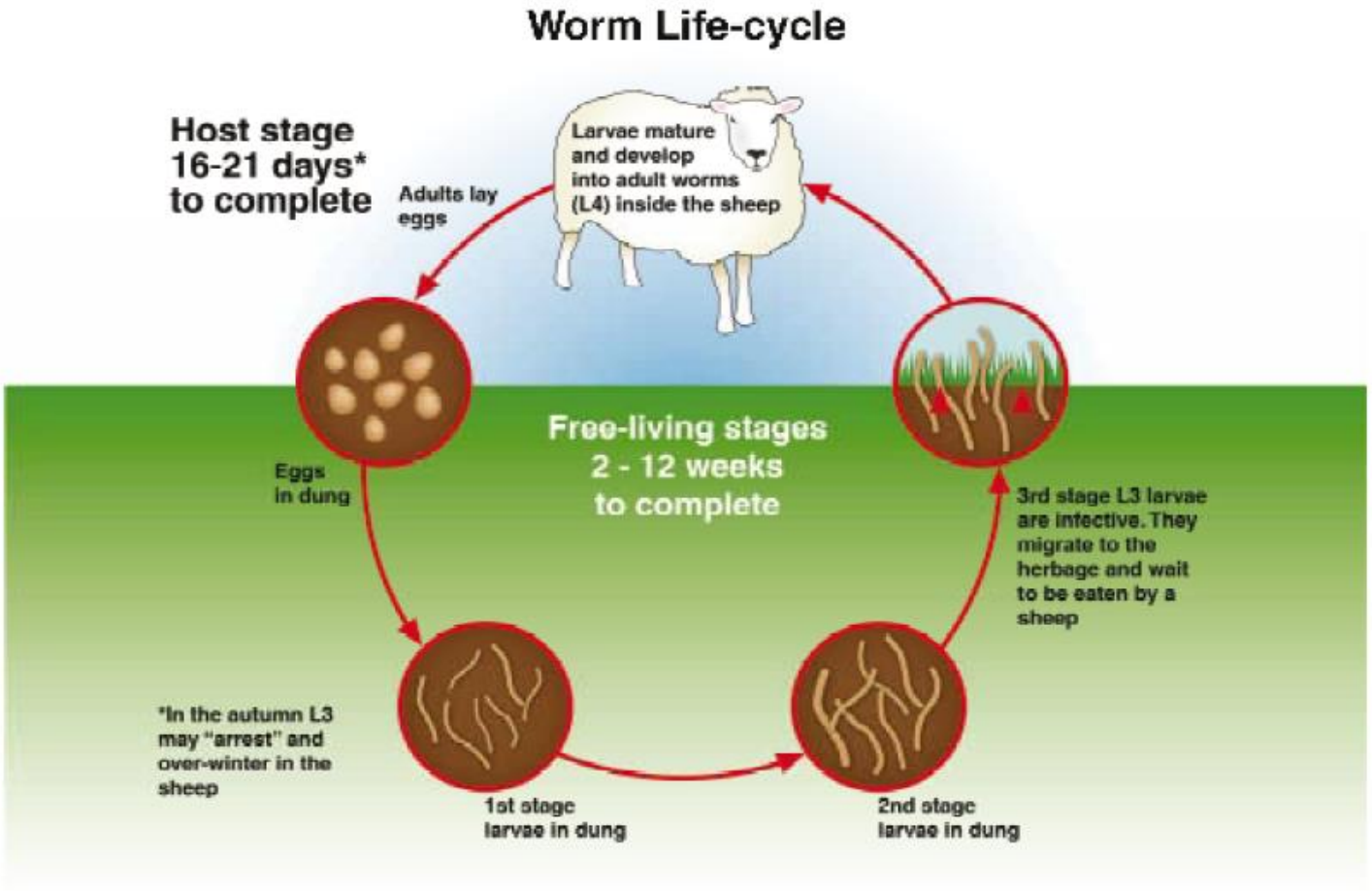
Think like a worm!



Where are the worms?

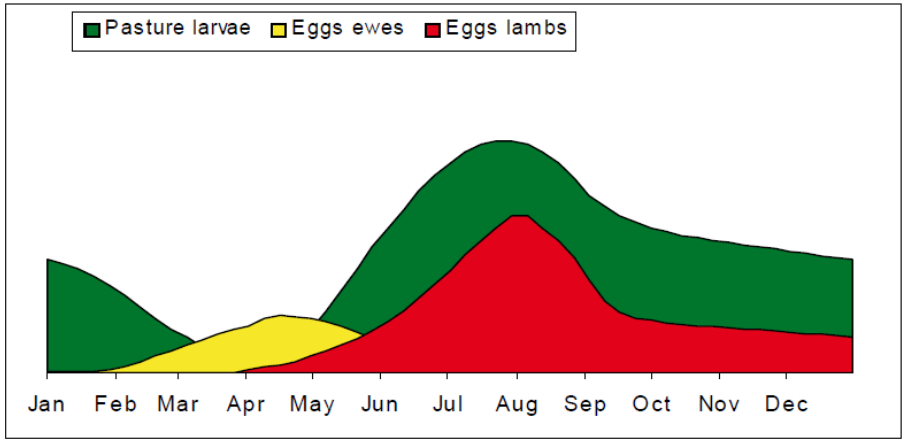
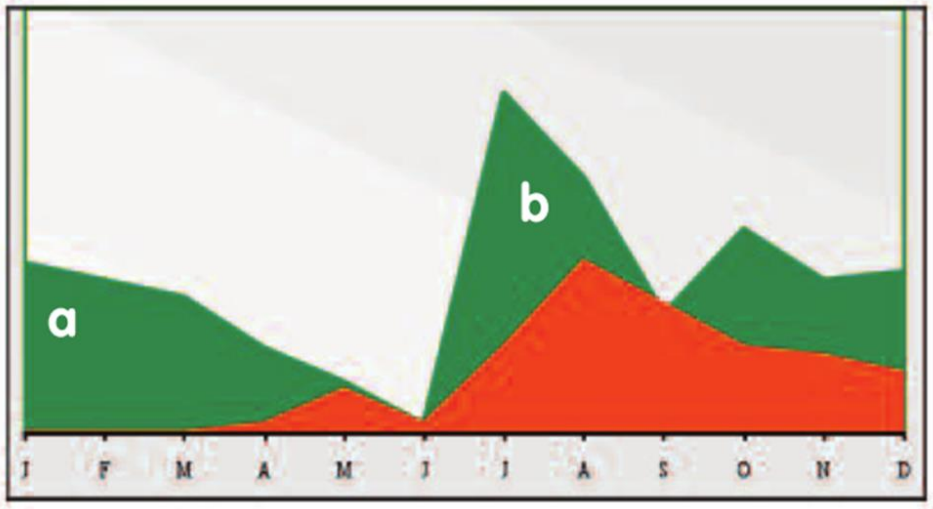


Fig. 2.2 ***The epidemiology of nematode parasitism in sheep at pasture***



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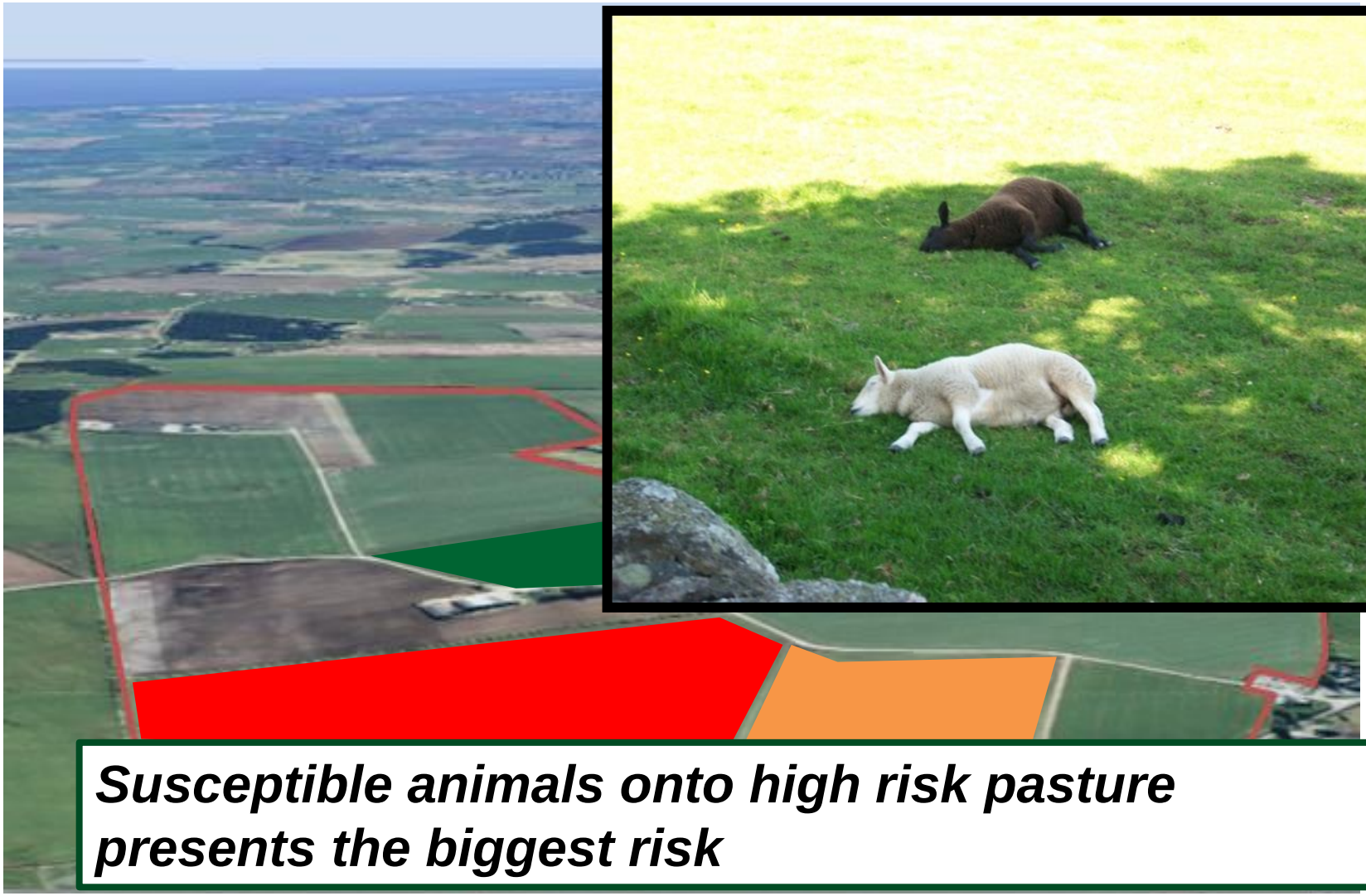

Susceptible animals onto high risk pasture presents the biggest risk

Think like a fluke

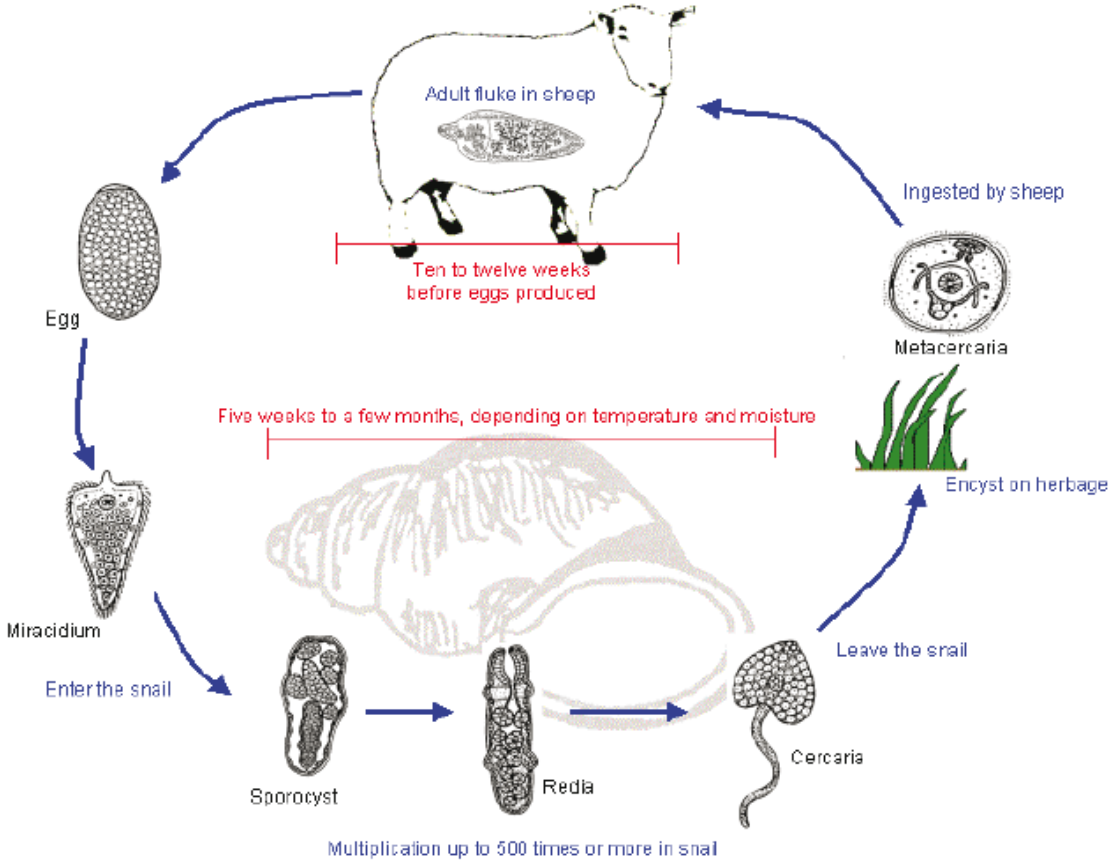

Fig. 7.1 ***Life-cycle of the liver fluke, Fasciola hepatica.***
(Drawings courtesy of Drs Oldham, Jacobs and Fox)

How many fluke in the liver?

Number in liver

Number ingested

Number on grass

Snail

ONE EGG IN

500 CYSTS OUT

How many fluke in the liver?

Number in liver

Number ingested

Number on grass

Number of snails

Snail

How many fluke in the liver?

Number in liver

Number ingested

Number on grass

Snail

Number of snails

Warm, wet ground

100,000 OFFSPRING IN THREE MONTHS

How many fluke in the liver?

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Number in liver

Number ingested

Number on grass

Warm, wet ground

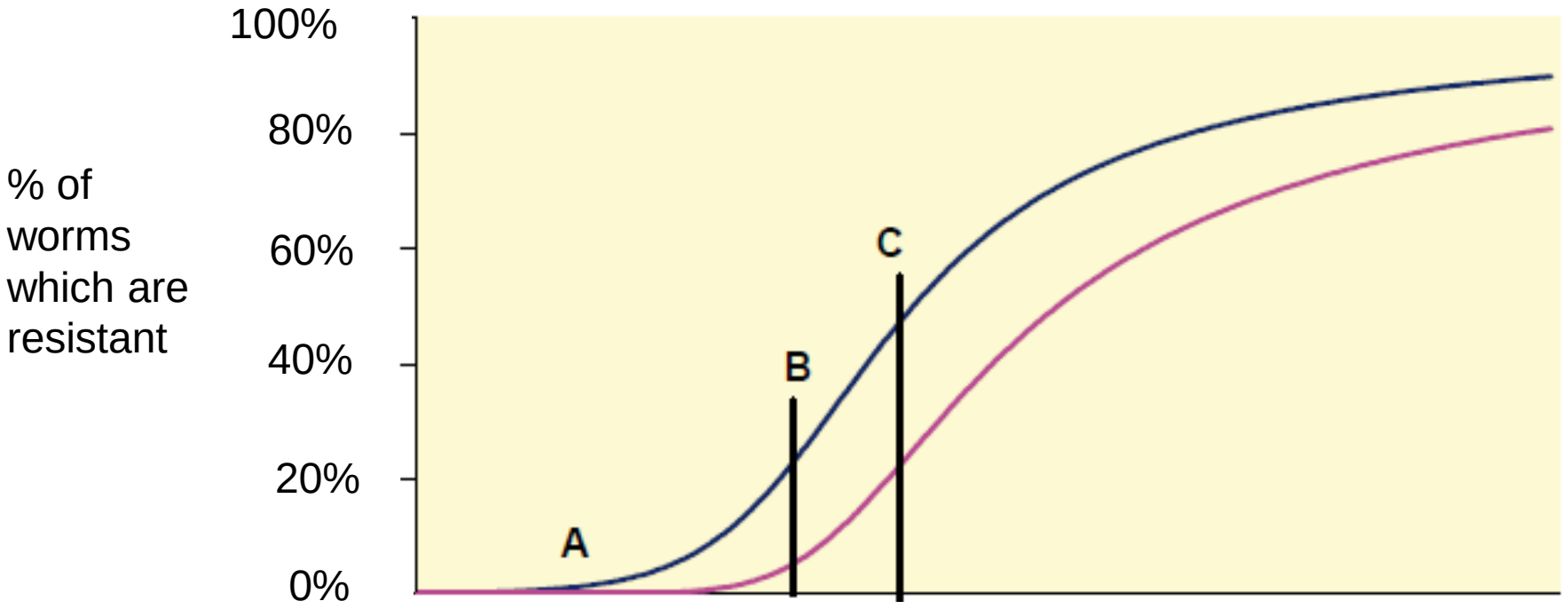
Warm, wet weather

Where are the fluke?

Control using drugs

- Chemical wormers are the main mechanism we use to control production losses
- Use of drugs leads to drug resistance

Control with drugs leads to resistance



We can influence the speed at which this happens

Drug groups and resistance

WHITE	**1**	**BZs**	**Resistance widespread**
YELLOW	**2**	**LVs**	**Resistance widespread**
CLEAR	**3**	**MLs**	**Resistance growing**
ORANGE	**4**	**ADs**	**No known resistance**
PURPLE	**5**	**SI**	**No known resistance**

Flukicides

Active ingredient	Administration route	Stage of fluke killed
Triclabendazole	Oral	2 weeks onwards
	Pour-on	6-8 weeks onwards
Closantel	s/c injection or pour-on	7 weeks onwards
Nitroxynil	s/c injection	8 weeks onwards
Clorsulon	s/c injection	Adults only
Oxyclozanide	Oral	Adults only
Albendazole	Oral	Adults only

Resistance on sheep farms

Farm	% Reduction in Faecal Egg Count				
	1-BZ	2-LV	3-ML	Genus	Additional Comments
A	6	80	84	*Teladorsagia*	Resistance in Cooperia to 1-BZ and to 2-LV in *Trichostrongylus on LDT*
B	0	0	0	*Teladorsagia*	Resistance to 2-LV in both *Cooperia* and *Trichostrongylus on LDT*
C	0	99	100	*Teladorsagia*	Resistance to 1-BZ in *Cooperia, Trichostrongylus & Haemonchuson LDT*
D1	60	100	36 (77)	*Teladorsagia*	(77) refers to FECRT to Moxidectin at +28days
D2	21	14	70		2007 result for D1 (same flock)
E	100	93	96	*Teladorsagia*	2-LV resistance in Trichostrongylus on LDT
F	80	100	90	*Teladorsagia*	

Slowing down resistance

- Quarantine and effective treatment
- Do not under-dose when treating
- Leave worms untreated
  - Part flock
  - Avoid dose and move

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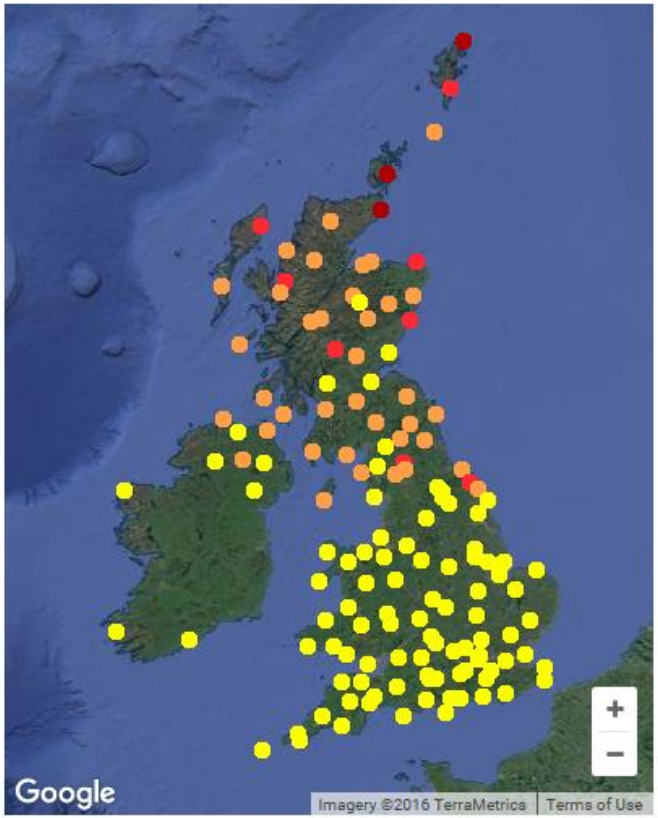
Pasture risk assessment

	HIGH	MEDIUM	LOW
SPRING	Ewes and lambs in the previous year For *Nematodirus* carried ewes and lambs in the previous spring Goats the previous year Store/ewe lambs the previous autumn/winter	Grazed only by adult non lactating sheep the previous year Grazed by ewes and lambs previous spring but then conserved and aftermath not grazed by sheep *(NB Nematodirus still high risk)*	New leys / seeds or forage crops Cattle or conservation only in the previous year
SUMMER	Ewes and lambs in the spring	Adult non lactating sheep only in the spring Cattle or conservation in the spring	Cattle or conservation only in the first half of the grazing season Forage crops or arable by-products
LATE SEASON / AUTUMN	Ewes and lambs all season	Grazed by cattle since mid season Grazed by mature dry ewes since weaning mid-season	Cattle or conservation only in the first half of the grazing season Forage crops or arable by-products

Nematodirus risk map

Nematodirus Forecast 2016



Powered by Forecast (forecast.io) and the Met Office Datapoint

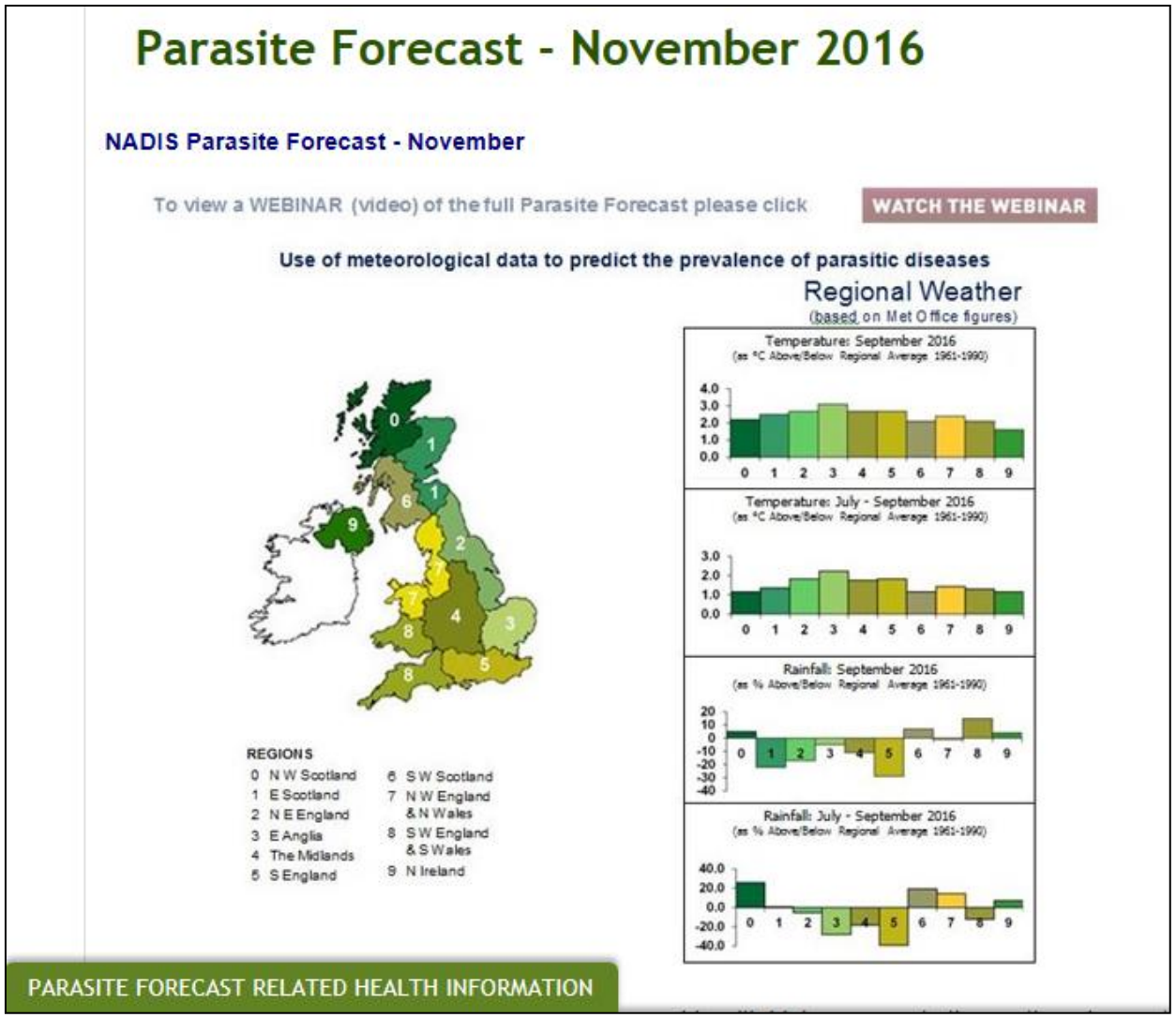
Risk Level Key

Risk level	Information
NEGLIGIBLE	Temperatures are below hatching range
LOW	Temperatures are within hatching range but hatch
MODERATE	Hatching is predicted to start within 7-14 days if updates regularly
HIGH	**Carry out a risk assessment for your farm and t** Hatching is predicted to have started. Risk will pe but may peak sooner on some nearby holdings and with south facing slopes. Lambs grazing conta young lambs last year) will be exposed to a signific Please refer to SCOPS guidance on strategies to a
VERY HIGH	**Treat now to avoid losses in at risk groups.** Peak hatch is expected and lambs grazing conta young lambs last year) will be exposed to a signific Please refer to SCOPS guidance on strategies to a

View the Risk Level Key »

Download Nematodirus The Background and Risk Assessment »

National risk forecast



Warm, wet weather in spring and summer

=

More snails

=

More fluke

=

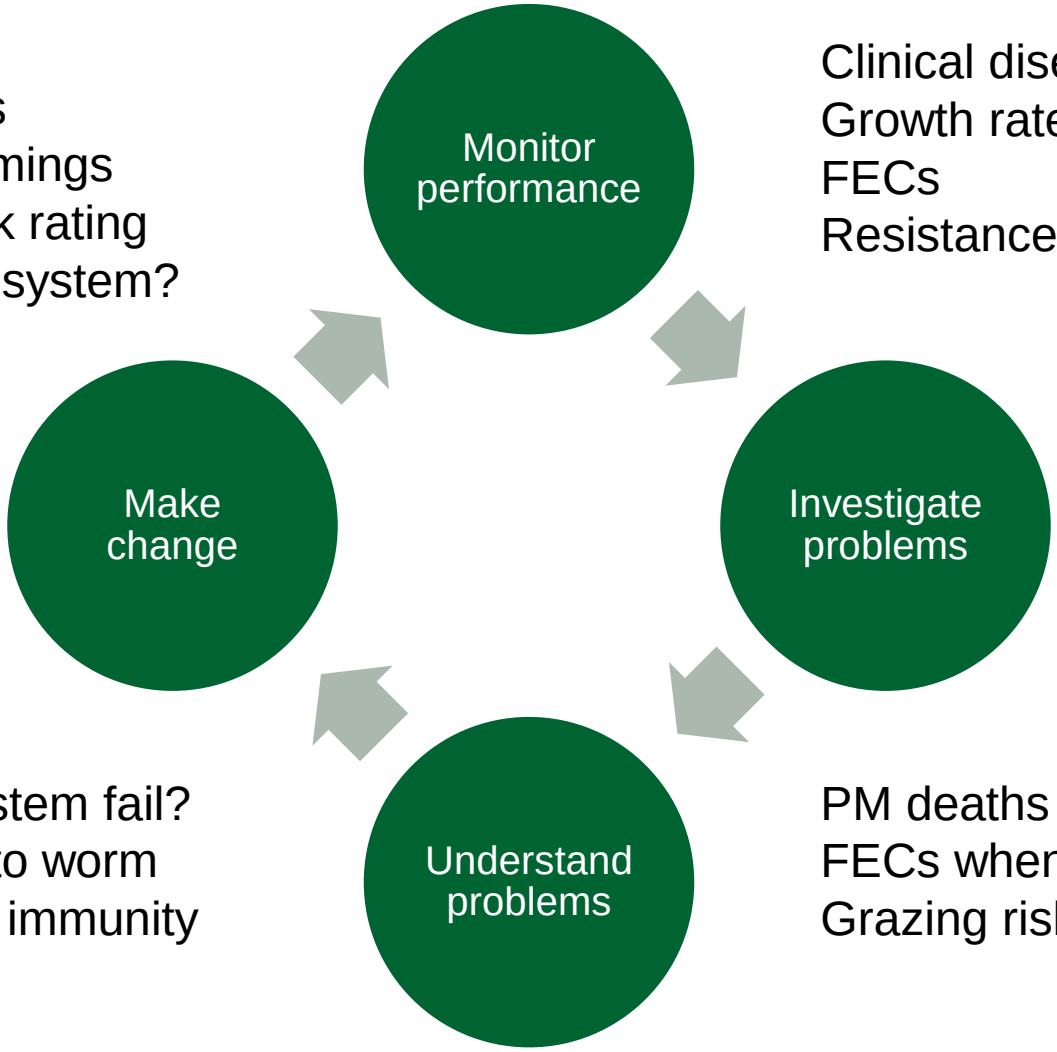
Higher risk

Worm faecal egg counts

- What challenge does the group face?
  - Fresh faeces from 10 animals
  - Send for pooling
  - £25 per group of 10
- Can be used to monitor a group and select whether a treatment is required

Stage	Test		Becomes Positive	Becomes Negative	Cost
Early immature	Blood	Liver enzymes	1 – 2 days	5-14 days	£7.20 per animal
Late immature	Blood	Antibody	2 weeks	10 months	£7 per animal
	Dung	Antigen	9 weeks	2 weeks	£16 for 10
Adults	Dung	Eggs	12 weeks	Variable	£23 for 10

Plan by your own system



Clinical disease
Growth rates
FECs
Resistance checks

PM deaths
FECs when scouring
Grazing risk history

Where did the system fail?
Overuse leading to worm resistance / poor immunity
Specific problem (nematodirus)

Use risk forecasts
Change dosing timings
Better pasture risk rating
Bigger change of system?

References

- SCOPS

- COWS

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