

# Sheep Scab:

## Critical Points in Control

SHWG, November 26<sup>th</sup> 2014



Sheep scab mite (*Psoroptes ovis*)

Dr Peter Bates  
Veterinary Medical Entomology Consultancy  
(VMEC)

[www.vmec.biz](http://www.vmec.biz)

# Control of Sheep Scab

## (and other ectoparasites)

Active	Administration	Scab	Lice	Blowfly	Ticks	MWP
Diazinon (OP)	Plunge Dip	C/P	C/P	C/P	C/P	70
Doramectin (ML)	Injection (i/m)	C	-	-	-	63
Ivermectin (ML)	Injection (s/c)	C	-	-	-	37
Moxidectin (ML)	Injection (s/c)	C/P	-	-	-	70
Moxidectin LA (ML)	Injection (s/c)	C/P	-	-	-	104

MWP = Meat Withdrawal Period (Days), OP = organophosphate, ML = Macrocyclic Lactone  
i/m = intra-muscular, s/c = sub-cutaneous, C= Cure, P = Protection

# Non-Strategic Scab Control

- Overuse/misuse of the few existing scab treatments (OP dips and ML injections).
- Non-validated means of administration (e.g. showers).
- Potential to generate OP/ML resistance in mite populations.
- Potential effects on other non-target parasites – MLs on gut worms.
- Potential effects on human health and the environment.
- Welfare and production issues of continual scab infestations in a flock
- The cost of continual whole flock treatments – often ineffective

# Critical Control Point 1

## Eradicating Existing Scab

- Diagnosis – use your Veterinary Surgeon
- Treat **all** sheep on/off the main holding at a convenient time
  - – winter - lowest number of sheep, MWPs, full fleece for dipping.
- Treat with a product licenced to control scab.
- Always follow manufacturers instructions
- Plunge Dip
  - Calibrate bath, make up correctly, dip for 1 minute, replenish according to manufacturers instructions, PPE, protect the environment.
- ML Injection
  - Weigh all sheep, dose calculated for heaviest sheep, inject by correct method, do not mix treated and untreated sheep. Move treated sheep to new housing/grazing if product does not protect against re-infestation.

# Prevent Re-Introducing Scab

- Once eradicated from the flock – keep it out!
- Flock Health Plan
  - *Moredun Foundation News Sheet. Vol 6, No.3, August 2014*

**Which of these sheep would you allow into your flock?**



**All scab starts as small sub-clinical lesions!**

# Keeping Scab Out

Origins of Infestation	Percent*	Control
Contiguous flocks, strays etc.	33.9	Effective, well maintained fencing
Movement via Markets	22.3	Quarantine (SCOPS Principles) Disinfect transporter
Obscure	18.5	Ear mites?
Direct Movements	15.9	Quarantine (SCOPS Principles) Disinfect transporter
Under Investigation (May 1988)	7.4	
Persistent Infestations on Common Land	1.0	Common clearance and treatment (Sheep Scab Order 1997)
Recrudescence	0.7	Effective treatment.

\*Bates, P. G (2000). Ph.D Thesis, University of Wales, Bangor.

# Introduction of Scab via Animal Movement.

- Scab Eradication Campaign 5 years (“Double Dipping”) 1983 to 1988:-
- 72% of scab outbreaks occurred via animal movement:
  - **Unintentional** – via infested stray animals.
    - sub-clinically/clinically infested
  - **Intentional** – buying/selling of infested stock.
    - Stock already sub-clinically infested at sale/purchase.
    - Infested while in transit (mites infesting transporter).

## **Critical Control Point 2.**

### **Prevent Passive Introduction of Scab**

- Maintain fences – effective in keeping sheep in and out!
- Double fence if possible (1m apart).
- Secure gates – well minded people!
- Disinfest animal transports.
- Contractors/Visitors

# Critical Control Point 3

## Prudent Purchasing

- In a closed flock with well maintained fences you should never have a problem with scab!
- **Scab can only be introduced through your actions (or inaction!)**
- Consider overall health status of purchased animals – also consider EAE, MV, CLA, OPA, CODD, Orf, Roundworms, Fluke etc – you do not want these diseases either!!.
- Stock should be seen before purchase – reject the whole batch if one animal presents with signs of itching or scratching! (*It is in the interest of the seller to make sure his/her animals are sold!*).
- Tups – as above plus purchase early and quarantine before introducing to the ewe flock.
- Dealers – use with caution! Check ear tags for flock identification.

## Critical Control Point 4

### Quarantine Introduced Stock

- Quarantine **all** stock entering/re-entering the main flock – **assume all have scab!**
  - All new purchases (including tups)!
  - All sheep on loan (mainly tups)!
  - All sheep returned from market
  - All stock moved off the main holding to remote grazing owned/rented by yourself as keeper
  - All stock moved to another grazing owned by another keeper (winter grazing “on-tack”, “agisted”).
  - Particularly where away sheep graze land with sheep on contiguous premises.

# Quarantine Facilities

- Stock entering/re-entering the main flock can range from a few tups on-loan to several hundred newly purchased store lambs or ewe replacements!
- Integrated Parasite Control - quarantine according to SCOPS principles.
- See [www.scops.org.uk](http://www.scops.org.uk)

# SCOPS Quarantine: 3 Steps

- **Step 1 – Treat**

Treat with a monopantel (Zolvix™) or derquantel + abamectin (Startect™) based anthelmintic for worm control.

Plus –

Moxidectin 1% injection (Cydectin Injection™) for scab control.

- **Step 2 - Quarantine**

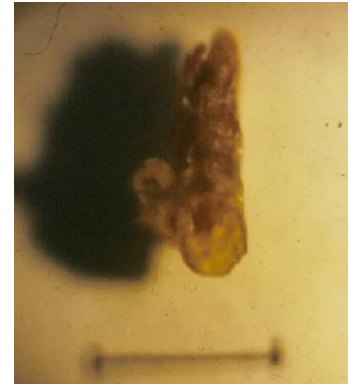
Hard standing – 24/48 hrs

- **Step 3 – Turnout**

Turnout to “dirty pasture” (cydectin protects against scab in environment for 28 days) – no direct contact with other sheep.

# Quarantine Treatment: Ear Mites

- Two *Psoroptes* spp mites can be found in the ears of sheep.
- ***P. cuniculi* (ear mite of rabbits, goats and horses)**
  - Exclusively in the external auditory canal close to ear drum.
  - Flock infestations can range between 1.3% to 23.9%\*
  - Asymptomatic - clinical signs rare.
  - Do not initiate classical scab
- ***P. ovis* (sheep scab mite)**
  - Found in the ear canal and the inside of the external ear (pinna)
  - Originate from active or self cured clinical scab
  - Found in 38.6% of sheep presenting with scab lesions extending over 20.9% to 100.0% of the body\*\*.
  - Migrate to the ear canal as early as 28 days following challenge, with the leading edge of the lesion 28 cm away from the ears \*\*
  - Can and will initiate scab



• \*Bates, P.G (1996). Vet Rec. 138, 388 – 393.    \*\*Bates, P.G (1996). Vet Rec. 139, 235 – 236

# Quarantine Treatment: Ear Mites

- Recent studies have shown that *P.ovis* and *P.cuniculi* are the same species.
- Sheep infested with a variant of the scab mite, with no clinical signs of disease can therefore be introduced to a flock – obscure outbreaks?
- They can be eradicated using ML injections (e.g. moxidectin at quarantine!).
- Plunge dipping in OP/SP may not work!!

# Critical Control Point 5

## Disinfestation of Pens and Transportation

- *P.ovis* can live off the sheep for 17 days and remain infestive to sheep.
- Can remain alive in/on
  - *Market pens*
  - *Transport lorries/trailers*
  - *Fencing (particularly wool on barbed wire)*
  - *Farm machinery*
  - *Anywhere where infested sheep rub and scratch*

# Disinfestation

- Leave pens/lorries empty for 21 days.
- Steam cleaning.
- Disinfectant
  - Already legal requirement regarding transportation.
  - 2.5% sodium hypochlorite – 100% kill after 7 hrs
- Dilute Sheep Dip
  - Not-recommended (human/environmental safety).

# Critical Control Point 6

## Contractors and Visitors.

- Scanners, shearers, veterinary surgeons
  - *Ensure contractors have effective decontamination procedure.*
  - *Supply own protective clothing*
- Shearers
  - *Supply own handpiece, combs, cutters, moccasins*
  - *Wash combs and cutters in boiling water or alcohol*
  - *Microwave moccasins!!*

# Common Grazing

- Problem area – stratification of sheep industry!
- Subclinical disease – breed, immunity, mite virulence.
- Apply closed flock principles for incoming sheep and sheep in-bye.
- On common grazing
  - Cooperation of all commoners.
  - Frequent common clearances – off 21 days.
  - Treat/kill all feral sheep
  - Use product with long protection against scab
  - Difficult to control scab – “one bad apple”

# Key Points

- **Sheep scab is widespread and there are few products for its control. These must be used wisely to prevent the development of resistance in scab mites and gut worms.**
- **Eradicate sheep scab within your (closed flock) and draw up a flock health plan with your vet to keep it out.**
- **Scab can only come into your flock via an infested sheep.**
- **Ensure fences and boundaries are well maintained and effective in preventing sheep straying in or out.**
- **Assume all sheep coming onto your land have scab and quarantine according to SCOPS Guidelines ([www.scops.org.uk](http://www.scops.org.uk)).**
- **Ensure that all contractors coming in contact with your sheep have an effective decontamination procedure on leaving the previous premises.**
- **On common land carry out the above strategies for incoming sheep and cooperate with other commoners to carry out frequent clearances and treat/kill feral sheep in order to eradicate scab from the common.**

# Thank You



**VMEC (Veterinary Medical Entomology Consultancy)**  
e.mail: [pgj.bates@ntlworld.com](mailto:pgj.bates@ntlworld.com)