Sheep Scab:
Critical Points in Control
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Sheep scab mite (\textit{Psoroptes ovis})

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www.vmec.biz
## Control of Sheep Scab
(and other ectoparasites)

<table>
<thead>
<tr>
<th>Active</th>
<th>Administration</th>
<th>Scab</th>
<th>Lice</th>
<th>Blowfly</th>
<th>Ticks</th>
<th>MWP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diazinon (OP)</td>
<td>Plunge Dip</td>
<td>C/P</td>
<td>C/P</td>
<td>C/P</td>
<td>C/P</td>
<td>70</td>
</tr>
<tr>
<td>Doramectin (ML)</td>
<td>Injection (i/m)</td>
<td>C</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>63</td>
</tr>
<tr>
<td>Ivermectin (ML)</td>
<td>Injection (s/c)</td>
<td>C</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>37</td>
</tr>
<tr>
<td>Moxidectin (ML)</td>
<td>Injection (s/c)</td>
<td>C/P</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>70</td>
</tr>
<tr>
<td>Moxidectin LA (ML)</td>
<td>Injection (s/c)</td>
<td>C/P</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>104</td>
</tr>
</tbody>
</table>

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

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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.

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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

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

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
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.

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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

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, combes, 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).

- 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