Sustainable Sheep Management

▪ My contention is that endemic disease is a much ignored inhibitory factor in sustainability

▪ This short PPT draws much from the Sheep Health and Welfare Report for Great Britain 2016/17
Major sheep health and welfare concerns identified by the Sheep Health and Welfare Group

- Abortion
- Mastitis
- Ewe Mortality
- Lameness
- Lambs Mortality
- Chronic Wasting Diseases
- Poor Nutrition
- Internal Parasites
- External Parasites
Surveillance of Endemic disease

At an “educated guess” this means approximately 2% of flocks are responsible for this surveillance. Is this enough?
Passive Surveillance - Results

- The annual cost of gastro-intestinal parasites to the British sheep industry was estimated to be £84 million in 2005,
- i.e. using this estimate this spectrum of disease alone is reducing productivity by well over 5%
  - 1. Predominantly due to the effect of worms on production - let us be conservative and say 2%
  - 2. Likely to increase as the level of anthelmintic resistance increases.
Targeted surveillance of Parasite resistance

**PGE**

<table>
<thead>
<tr>
<th>Anthelmintic</th>
<th>benzimida zoles (1-BZ)</th>
<th>levamisole s (2-LV)</th>
<th>macrocyclic lactones (3-ML) - Iv</th>
<th>Monepantel (4-AD)</th>
<th>derquantel and abamectin (5-SI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wales (no; flocks=47)</td>
<td>94%</td>
<td>68%</td>
<td>51%</td>
<td></td>
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<tr>
<td>N Ireland (n= 158)</td>
<td>81%</td>
<td>14%</td>
<td>50%</td>
<td>0</td>
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**FLUKE**

Mainly against TCBZ - confirmed in NI and Scotland - as yet no real idea of prevalence. No evidence of resistance to Nitroxynil and Closantel in NI study.

**SCAB**

Resistance to Moxidectin & Doramectin (second generation 3-ML) reported - as yet no real idea of prevalence.

All require changes in husbandry (resistant sheep?), treatments, & biosecurity practices.
“Targeted Surveillance - schemes”

There were no reports of classical scrapie in UK sheep 2015, -18, but 1 this year & there were 6 cases of atypical scrapie*

*Sheep with the ARR haplotype, which confers resistance to classical scrapie and is the cornerstone of genotype-based eradication programs, do not appear to be protected against developing atypical scrapie.
Abortion, (& stillbirth and empty ewes)

• Welsh study (2011) ~ ¼ of perinatal lamb losses due to infectious abortion, Cost to industry £24 Million? = £1 for every ewe in country (NB I have quoted a lot of these! It’s variation in outbreak & avoidable costs that have to be considered – if you like “insurance”)

• BUT…………….we all know that a major determinant of productivity is weight of lambs sold/ewe mated. Storms can give rise to >20 ewes aborting

• EAE (C. abortus) accounts for ~1/3 of all abortions with a diagnosis

• Membership of EAE scheme approx., £350 for av., flock including annual tests i.e. ~ £3 /ewe.

• In Scotland some Buy in Scheme “clean replacements” and have tight biosecurity (not easy when you talk to vets!) or if not then vaccinate.

• (20 ewes at £3/ewe =£60! But can you get clean ewes? Do they cost more-not much yet)
Maedi-Visna

• In 2010, 726 GB flocks surveyed 2.8% positive (up to 15% in some areas & within-flock prevalence ranged 5% to 80% mean of 24%.

• Compared a similar survey 15 years previously, both flock & MV positive sheep up by approx x2

• Cost of scheme ~£300 to 400/av flock
  • (NB Nothing is perfect – tests are never infallible but are getting better but several years ago annual breakdowns approx 5pa = 0.2%)

• There is no vaccine!
Conclusions

• 1. Management of disease is an essential part of sustainability.
• 2. It involves all aspects of husbandry not just pharmaceutical treatments and and vaccination to limit challenge.
• 3. Generally these require labour, infrastructure and so financial inputs, which are often in short supply.