Antimicrobials in the livestock sector

Martin Smith M.R.C.V.S.
Veterinary Team Manager
AHDB Pork
Who are the AHDB?

- Cross sector agricultural organisation, covering plant (horticulture, potatoes and cereals & oilseeds) and livestock (pigs, dairy and beef and lamb)

- Established to help advance the sectors through innovation, research and technical knowledge exchange.

- Funded through a levy raised by producers in each sector, with spend being sector specific.
Antibiotic Use in the Dairy Industry

- Used to treat and prevent disease
- Reduce morbidity and mortality
- Administered routinely to entire herds at drying off to prevent Mastitis
- Other uses include; Calf Enteritis, Pneumonia, Lameness, Reproductive disorders.
Problems arising from Antibiotic Use

• In 2013 14 tonnes antimicrobial active ingredient sold in products intended for sole use in cattle (VMD, 2013)

• Antibiotic use can cause public health and food safety concerns due to:
  - Risk of residue consumption
  - Inappropriate use reducing efficacy of similar antibiotics in humans

• More selective methods of treatment are required to prevent increased antimicrobial resistance developing
Factors to Consider

• Responsible use: - when to treat/not to treat
  - how much & for how long

• Do we focus enough on early detection/prevention?

• Which is more important?– improving genetics Vs improving production systems

• Why is ‘best practice’ not ‘normal practice’?

• What are the barriers for change
The Beef and Lamb Sectors

AHDB Beef and Lamb
# Key Points of AMR issues in Beef Production

<table>
<thead>
<tr>
<th>Anti-Microbial Use</th>
<th>Problems Associated with Use</th>
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<tbody>
<tr>
<td>Management of respiratory disease</td>
<td>- Determining when to treat affected animals (Metaphylactic Vs Prophylactic)</td>
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<td>- Commonly used Macrolide and Fluroquinolone are on restricted list for human medicine</td>
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<td>In feed &amp; artificial calf rearing systems</td>
<td>- Shared teats in robot feeding systems can act as fomites</td>
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<td>- In order to prevent the spread of infection, antimicrobials are in constant use</td>
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<td>- Enteric exposure to antimicrobials in calves increases the risk of new multi-resistant strains developing</td>
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### Key Points of AMR issues in Sheep Production

<table>
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<tr>
<th>Group</th>
<th>Antibiotic Use</th>
<th>Purpose of treatment</th>
<th>Problems Arising from Antibiotic Use</th>
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| In-lamb ewes                 | Reduce impact of abortion storm | Metaphylactic        | - Varied effectiveness  
- Vaccines can sometimes offer an alternative                                                        |
| Neonatal Lambs               | Prevent watery mouth          | Metaphylactic        | - Resistance reported  
- Following best practice guidelines can reduce need                                                    |
| Lame animals                 | Treat lameness                | Therapeutic          | - Favoured for treating footrot  
- Less focus on prevention                                                                                 |
| Animals infected with Mastitis| Treat Mastitis                | Therapeutic          | - More focus should be placed on prevention and control strategies                                   |
The Pig Sector

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Antibiotic Use in the Pig Sector

- Used to treat disease and to prevent spread
- Used to reduce morbidity and mortality
- Predominantly used against gastrointestinal and respiratory infections
- Mainly oral medication (unlike in ruminants)
- Predominantly In feed medication in the UK
- Exact levels used unclear (Pig and Poultry)
What are we doing

- Establishing a Pig Industry Medicines Hub to measure on farm usage
- Investigating approaches to antimicrobial stewardship internationally and adopting best practice when found
- Supporting R&D and providing on farm ‘proof of principle’ trials for levy payers
- Encouraging, informing and measuring ‘behavioural change’ across the pig industry
What the livestock sector needs – We need you!

• Improved diagnostic tools: *(pen-side/on farm)* to inform diagnosis and antimicrobial use

• Alternative therapeutics: *such as new vaccinations*

• Novel therapeutics: *bacteriophage therapies, anti-quorum sensing treatments…etc.*

• Preventitive strategies: nutrition, cleaning & disinfection, waste, water and environmental management