Real farming solutions to reducing antibiotic use.
Wicton Farm

Real farming solutions to reducing antibiotic use
Who we are

- Wicton Farm milks 95 Holstein Friesian cows on 300 acres and is run by the Howlett family.

- Average 8000lts per cow.

- Calving in a tight 9 week autumn block.

- Organic, with zero tolerance to antibiotic use.

- Holistic management, minimal tillage and all machinery required to follow a closed traffic system.
Treat the cause, not the symptom

This is the simple concept that drives our high yielding organic dairy herd to be successfully antibiotic free.

This presentation will summarise our farming procedures. Behind every action there is a detailed reason and if you require in depth explanations then please ask.

- **Attention to basic detail** – Hygiene, high animal welfare, good organisation
- **Consistency** – focus on doing the same thing better, year on year
- **Communication** – listen to what the cows are telling you!
- **Prioritisation** – make positive change happen efficiently
- **Farm biosecurity** - locked yard gate, all people must disinfect foot wear, machinery contractors are paid extra to arrive clean. Closed herd.
Attention to basic detail

Dry cows – Dairy farm success starts here!

- Dry off early if low condition score or high SCC (self cure)
- Preventive foot trim
- Scrub teats with surgical spirit and teat seal
- Dry cow silage - must be low in phosphorous and potassium.
- Check urine PH and add magnesium chloride to diet as required
- Identify Johnes cows, Neospora cows, twins and other problem cows so that they are given the correct attention at calving time.
Attention to basic detail

Calving procedure

• Calving mat - disinfected between cows
• Colostrum milked out within 10 minutes of birth
• Cow given warm water drink
Attention to basic detail

Calf management

- Test colostrum
- 6lts in 6 hrs
- No pooled milk
- High health status cows identified
- Clean all feeding equipment
- Weaned at 12 weeks
- Only weaned when solid feed intake is correct
- Weigh and take action!
Attention to basic detail

Milking hygiene

- Cluster flush
- Mooooving 😊 trolley with dilute peracetic acid to wash gloved hands between cleaning each cow prior to milking
Attention to basic detail

Cow cleanliness / winter housing comfort

- 10% extra cubicles than cows
- 75cm feed space per cow
- Deep bedded sand: prevents bacteria, comfy, good grip.
Attention to basic detail

Winter

- Cow nutrition – grabs of grass silage and concentrates following ketone testing
- Minerals in water – tailor made blend to suit on farm conditions
- Lots of feed space to ensure good intakes
- 200 lux light levels for 16 hrs
- Lots of ventilation – helicopter fan for youngstock
Attention to basic detail

Summer

- Holistic grazing – 35cm tall grass, 50% eaten and 50% trampled – “grass matt” ensures cows stay clean
- New paddock every 12 hrs, 35 day rotation average
- Cow tracks to keep cows clean / prevent foot problems
- Eyes – fly masks / eye wash
Attention to basic detail

Clean water

- 10cm space per cow
- Minerals - LMS
Attention to basic detail

Record keeping

An efficient farm office with 2 doors makes hiring and firing people so much easier!
Consistency

- We are proactive not reactive
- We carry out regular routine checks
- We do not cut corners
- If it's broken ..... fix it. There is no excuse to tie something up with string!
Consistency

We carry out regular routine, in house, checks:

- Blood Ketones
- Dry cow Urines
- Condition Scoring
- Mobility Scoring
- Heifer weighing
- Hoof trimming twice per year
Communication

- White boards
- Clear procedures
- Total transparency or its P45 time
- Immediate and detailed record keeping
- Informed decisions
- Good relationship with vet
- Cow signals – listen to what the cows are saying!
Prioritisation

Cows and humans are equal

- Wicton Farm operates 24/7 – A white board roster in the office ensures somebody is always available to deal with a problem – nothing is “left until the morning”

- This also means that humans get correct time off and can enjoy relaxed time away from the farm knowing that it is all under control

- The farm can be run by one person
Prioritisation

Stress free environment

- For both humans and cows
- Sensible working hours
- Good housing
- Correct animal handling facilities
Conclusion:

• High attention to basic detail and excellent animal welfare make money.

• You do not need a cow palace and a mixer wagon to be a successful farm – a ring feeder, an IBC of water, a crush and a milking bucket will be an amazing farm under the right management.

• There is no such word as “can’t”.

• Less is better – focus on getting the simple things 100% correct: …. Light, air, water, feed, cow comfort, good management.

Food for thought:

As you travel home to your farm tonight, imagine you find a sick cow waiting for you ….

a) Do you look over the gate, make a snap decision and inject the cow with £50 course of antibiotics “to make yourself feel better”. Then you wait to see what she is like in the morning.

or

b) Do you open the gate, chat gently to the cow and assess her situation – listen to what she is saying! - take her temperature, check her ketones, check for mastitis, stomach drench her with 25lt warm water, maybe give her some pain relief and bring her a wheel barrow of fresh silage to eat. Then ring the vet for a quick chat over the phone. This will have cost you £20.
Organic cows have simple tastes – they expect the best in everything!

Please help the world by reducing your antibiotic usage ……

Time waits for nobody!
Happy days from Wicton Farm

@wictonfarm
Wicton_Farm
A practical approach to reducing antibiotic use

Ed Bailey BVSC CertAVP (Cattle) MRCVS
High welfare

Better health

Lower antibiotic use

It doesn’t work if you try to work ‘up’ the flowchart – not using antibiotics where necessary can result in INCREASED usage due to recurrence and spread of infection.
Where to start?

• Health review
• How do you compare to industry targets/previous results?
• Do certain areas stand out?
• Antibiotic audit is part of this process
Antibiotic audit

• What have you used in the last 12 months?
• Which groups of animals?
• What diseases were treated?
• Don’t use antibiotics critically important for human health
Cattle Example

Fertility
- 10 cases metritis treated with ceftiofur
- 20 cases of endometritis treated with intrauterine cephapirin
- 5 cases of retained fetal membranes treated with systemic amoxicillin

Mastitis
- 40 cases/year
- All cases treated with five intramammary tubes
- 20 cases treated with systemic amoxicillin
- Blanket antibiotic dry cow therapy

Youngstock
- 20 cases/year of pneumonia treated with gamithromycin
- 20 cases/year of scour treated with oral chlortetracycline

Lameness
- 30 cases/year
- Half of cases treated with amoxicillin
- Cows given tylosin antibiotic foot bath every three months

Use an antibiotic calculator to quantify your use

<table>
<thead>
<tr>
<th>Route</th>
<th>Product</th>
<th>Amount used</th>
<th>Units</th>
<th>mg/PCU</th>
<th>Critically important?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injectable</td>
<td>Pen &amp; Strep Suspension For Injection</td>
<td>2400.00 ml</td>
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<td>6.05</td>
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<td>Tylan 200, 200mg/ml Solution for Injection</td>
<td>1000.00 ml</td>
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<td>1.36</td>
<td></td>
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<tr>
<td>Lactating</td>
<td>Tetra-Delta Intramammary Suspension</td>
<td>240.00 Tubes</td>
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<td>0.60</td>
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<tr>
<td>Drytube</td>
<td>Cepravin Dry Cow 250 mg Intramammary suspension</td>
<td>800.00 Tubes</td>
<td></td>
<td>1.36</td>
<td></td>
</tr>
<tr>
<td>Footbath</td>
<td>Tylan Soluble Powder for Oral Solution Footbath</td>
<td>600.00 grams</td>
<td></td>
<td>4.07</td>
<td></td>
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<tr>
<td>Other</td>
<td>Meticure 500 mg Intrauterine suspension</td>
<td>25.00 Units</td>
<td></td>
<td>0.08</td>
<td></td>
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<tr>
<td>Injectable</td>
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<td>1.02</td>
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<td>Other</td>
<td>Synulox Bolus 500 mg film-coated tablet</td>
<td>40.00 Units</td>
<td></td>
<td>0.11</td>
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Freely available from AHDB for use in cattle or sheep: [https://dairy.ahdb.org.uk/technical-information/animal-health-welfare/amu-calculator/](https://dairy.ahdb.org.uk/technical-information/animal-health-welfare/amu-calculator/)

For pigs or chickens, use the e-Medicines book
What routes are used?
What scope is there for improvement in each area?

1. Udder health

- Stop using systemic treatments
- AHDB mastitis control plan
- Selective dry cow therapy

What bugs cause mastitis on your farm? Is there evidence for antibiotic use?
2. Lameness

- Stop antibiotic foot bathing
  - Treat clinical cases topically
  - Use non-antibiotic alternatives for group treatment
  - Environment changes

- AHDB Healthy Feet Programme
  - Reduce the development of new cases
  - Prompt detection and treatment
  - Avoid antibiotics for the majority of cases
3. Youngstock

- Use in youngstock nearly always due to pneumonia and scour
4. Fertility and calving cow health: both very complicated......

The Impact and Consequences of Negative Energy Balance and Immune Suppression

- Immune suppression
- Mastitis
- Retained placenta
- Metritis
- Milk fever
- Death
- Culling
- Reproductive disorders
- Displaced abomasum
- Ketosis
- Ovarian dysfunction
- Negative energy balance

Denotes tentative association

Elanco Animal Health
....and very simple!

Correct body condition score

+ 

Correct feeding and mineral balance pre and post calving (including feed space)

+ 

Sensible choice of bull (direct calving ease)

= Success
Maximising natural immunity

• Underlying disease? BVD/Johne’s disease
• Rumen health and appropriate nutrition for breed and yield

Cow Signals Diamond: cowsignals.com
Sheep Example

3 main areas of use in sheep:
1. Lameness
2. Watery mouth and joint Ill
3. Enzootic abortion

<table>
<thead>
<tr>
<th>Route</th>
<th>Product</th>
<th>Amount used</th>
<th>Units</th>
<th>mg/PCU</th>
<th>Critically important?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injectable</td>
<td>Alamycin LA 200mg/ml Solution for Injection</td>
<td>1200.00 ml</td>
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<tr>
<td>Oral</td>
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<tr>
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<td>ml</td>
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</tr>
<tr>
<td>Footbath</td>
<td>Tylan Soluble Powder for Oral Solution Foot</td>
<td>100.00 grams</td>
<td>grams</td>
<td>3.08</td>
<td></td>
</tr>
</tbody>
</table>

Total mg/PCU in flock: 22.15
Total DDD: 10.18
Total DCD: 1.54

Critical totals are 0.00.
Box 3: Five-point plan for reducing lameness in sheep*

- Cull badly or repeatedly affected animals
- Quarantine incoming animals
- Treat clinical cases promptly
- Avoid propagation of infection on farm
- Vaccinate against footrot biannually

* Clements and Stoye (2014)
Watery Mouth and Joint Ill

Fig 8: Infographic depicting the plan, prevent, protect strategy with respect to controlling bacterial neonatal lamb diseases (Picture, Flock Health Ltd 2017)
Abortion

• Enzootic abortion caused 35 per cent of all ovine abortions in the UK from 2012 to 2018
• Effective vaccines are available
• Whole-flock prophylactic antibiotics are not considered necessary
Key Points

• Establish what the main causes are on your farm for disease, mortality and antibiotic use

• Systematically address CAUSES rather than treating EFFECTS
Real farming solutions to reducing antibiotic use
Reducing antibiotics by using a new on farm culture test for mastitis
Shona Phillips, Sparsholt College
Kate Still, Soil Association
Bacteriological Cure Rates of Bacteria (2+ Lactation Cows), Pinzon-Sanchez et al. 2011

<table>
<thead>
<tr>
<th>Bacterium</th>
<th>No Treatment</th>
<th>5 day treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staph aureus</td>
<td>0 %</td>
<td>20 %</td>
</tr>
<tr>
<td>CNS</td>
<td>55 %</td>
<td>75 %</td>
</tr>
<tr>
<td>Strep uberis</td>
<td>25%</td>
<td>65 %</td>
</tr>
<tr>
<td>E coli</td>
<td>75 %</td>
<td>85 %</td>
</tr>
<tr>
<td>Klebsiella</td>
<td>35 %</td>
<td>45 %</td>
</tr>
<tr>
<td>No growth</td>
<td>90 %</td>
<td>90 %</td>
</tr>
</tbody>
</table>

Scope and limitations for on farm culture

- ONLY to help with individual treatment decisions, based on Gram positive/Gram negative
- For troubleshooting mastitis problems and background surveillance an accredited lab has to be used
Vetorapid Trial

- Only treating cases which were likely to respond resulted in:
  - 24% reduction in antibiotics
  - Milk from untreated cows could be returned to the bulk tank in 4 days (8.6 days less than those treated)
  - Value of milk to be sold off set the cost of the test kit
MastDecide Trial

**Trial Design**

- **Odd cow number 50% of herd**
  - Test milk sample with MastDecide
  - 14 hours
  - Gram positive
    - treat with antibiotics
  - Gram negative – don’t treat with antibiotics

- **Even cow number 50% of herd**
  - Treat with antibiotics

**Summary of the protocol**

- Cow presents with milk/moderate case of mastitis

**MastDecide – Interpretation and suggested action**

<table>
<thead>
<tr>
<th>Testmedium 1 (white lid)</th>
<th>Testmedium 2 (yellow lid)</th>
<th>Result</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>White</td>
<td>Gram Positive</td>
<td>Treat</td>
</tr>
<tr>
<td>White</td>
<td>Pink</td>
<td>Gram Negative</td>
<td>Don’t treat</td>
</tr>
<tr>
<td>Pink</td>
<td>Pink</td>
<td>No growth</td>
<td>Don’t treat</td>
</tr>
</tbody>
</table>
Hear from a trial farmer: Shona Phillips
How are things so far?

- Results are coming in, many more to be collected from farms
- Over 100 cases collected, 50 of them cultured
- Of the cultured results 45% did not receive antibiotics (selected farms)
- Clinical cure rates comparable with treated cows, statistics still to be done
- Comparison with reference bacteriology: 14% risk of withholding treatment for Gram positives, similar to the reported 84% sensitivity
- Total cure rates (incl cell counts) still to be analysed
Who benefits most?

- Farms with moderate mastitis incidence where prevention measures (like the Dairy Mastitis Control Plan) have been carried out
- Farms with a significant amount of Gram negative bacteria or “No growth”
- Farms with dedicated staff and clean, safe facilities away from the milk tank and parlour
• To develop solutions for replacement of antibiotics use in organic livestock production

Animal Health and Welfare Planning (AHWP) protocol

to adapt and efficiently implement well-proven preventive herd health management measures to various conditions in Europe

Using natural compounds (Essential oils)

To refine farmer's experience and innovation into new options for mastitis control using essential oils

Adapt strategies and validate them on farm
Litsea EO (Litsea cubeba)

Oregano EO (Origanum heracleoticum)
Real farming solutions to reducing antibiotic use