

Cattle Housing & Health

Nether Aden
Climate Change Focus Farm

Notes from the meeting on
1st December 2016

Topics covered at the Focus Farm events at Nether Aden aim to increase farm profitability while reducing carbon emissions. Working with hosts David and Nicola Barron, plus industry specialists, the farmer discussion group investigates a range of practical and profitable ideas.

Common ailments during Housing

The meeting started with local vet Randall Mathers going through the issues in relation to animal health and common cattle ailments on the farm over the course of the year.

Calf pneumonia can sometimes present on the farm, particularly during the individual months of September and January and can affect some fairly mature calves.

The viruses associated with pneumonia to be most aware of are Bovine Respiratory Syncytial Virus (BRSV) and Bovine Herpesvirus - the virus that causes Infectious Bovine Rhinotracheitis (IBR). Parainfluenza – 3 virus (PI3) and Bovine Coronavirus (BCV), amongst others, may also lead to pneumonia. These viruses can lower the resistance of the calf's respiratory tract making it easier for bacteria to invade the lungs or they can cause disease symptoms of their own.



Nether Aden's vaccination programme consists of Bovilis IBR (vaccine to protect against IBR) & intranasal Rispoval (to protect against BRSV & PV13). Bovilis IBR can be administered to cows and heifers over 8 months old & intranasal Rispoval can be administered to animals from the age of two weeks.

Key Points:

Work closely with your vet to establish the causes of any recurring diseases. Veterinary tests will allow for accurate diagnosis and information to enable treatment and/or vaccination programmes.

Assess the risk in your fields for potential liver fluke problems. Once identified, manage grazing around wetter areas to reduce the chances of infection.

Check your dosing gun is properly calibrated prior to administration of anthelmintics & flukicides.

Check your shed ventilation allows adequate airflow. Open up ridges to create the stack effect, but ensure you have enough air inlet area too.

Small adaptations to your current sheds can make big differences to animal health and performance. This can lead to improved farm efficiency & benefit the farm carbon footprint.

Liverfluke in Cattle

Tim Geraghty SAC Vet at Craibstone discussed the importance of the liver and the effects liver fluke can have on the health of the animal.

Having outlined the important functions of the liver within the animal, Tim used a cordless drill to graphically illustrate the damage that liver flukes can make to animals. He drilled holes into a shop bought liver and explained how the liver fluke parasites achieve similar results.



The level of infection will depend on a variety of factors determined on each farm. From the point of infection, the risk of damage is determined by the amount of fluke ingested whilst at grass. The numbers of fluke present on the grass will be dependent on the number of snails, which in turn can be influenced by ground and weather conditions. There is an increased risk of liver fluke when the weather is warm and wet during spring and summer. The heat increases the number of snails & their natural habitat is wet ground. Farmers were advised to risk assess their own farm for potential liver fluke occurrence. Using a copy of an IACS map identify the dry and wet fields. During warm, wet weather livestock should be kept on the driest land where possible. This should reduce the exposure to the liver fluke present on the grazing ground. Alternatively wet areas within fields can be temporarily fenced off to prevent access to the higher risk grazing areas, but ensure there is a large buffer to account for snail mobility.

Drug resistance was discussed and how it may be necessary for farmers to reduce their reliance on flukicide products. Post housing treatment aims to clear adult fluke taken up during autumn grazing. Allowing a six week interval between housing and date of dosing will increase the choice of products that can be used and farmers should test to check if dosing is actually required. For a spring/summer treatment, the aim is to reduce pasture contamination during grazing. Dosing should only occur if there is an historic problem or there is a high risk from grazing on wet ground.

It is important that the correct product is used, at the right time and at the right dosage. Livestock testing will show if treatment is necessary & allow the correct product to be used to target the specific life stage present (Table 1). There are different drug groups to tackle each maturity stage and incorrect product selection will not kill the fluke, prolonging infection. Grazing management can help to minimise the risk of infection and therefore reliance on medicines. When possible, always investigate deaths on the farm and analyse abattoir reports.

Table 1 - The three stages of Liver fluke, detection methods and costs

Stage	Test	Becomes Positive	Becomes Negative	Cost
Early Immature	Blood/Liver enzymes	1 -2 days	5 -14 days	£7.20/animal
Late Mature	Blood/Antibody Dung/Antigen	2 weeks 9 weeks	10 months 2 weeks	£7.00/animal £16.00/10
Adults	Dung/Eggs	12 weeks	Variable	£23.00/10

Livestock Buildings - air flow

Jamie Robertson from Livestock Management Systems was the last speaker of the day. Jamie is a renowned buildings expert and regularly provides advice to farmers who experience problems with livestock health and welfare within their buildings.

Jamie advocated that when building livestock accommodation, farmers should be aware that cattle and sheep can be in these environments for up to six months at a time and potentially even longer for young stock. Most problems in livestock buildings are usually due to imbalances in one or more of three separate factors - moisture, fresh air & air speed. Table 2 illustrates problems that can be found with each.

Table 2 - The contributions and symptoms of environmental problems in sheds

Factor	Condition	Contribution	Symptoms
Moisture	Too much	<ul style="list-style-type: none"> • Supports microbial activity • Promotes bacterial growth • Absorbs energy • Acts as a transport medium • Increases slippery floors 	<ul style="list-style-type: none"> • Dirty water lying • Dirty cattle • Damp floors in areas that could be dry • Water ingress • Condensation • Staining of underside of roof • Animal health
	Too little	<ul style="list-style-type: none"> • Increases survival time of air-borne pathogens • Increases concentration of gaseous emissions • Can reduce oxygen concentrations 	<ul style="list-style-type: none"> • Smell, ammonia, • Dampness • Dark corners, no light or ventilation • Elevated air temperatures • Animal health
Air speed	Too much	<ul style="list-style-type: none"> • Too much air speed is associated with excessive energy losses 	<ul style="list-style-type: none"> • Animals avoiding certain areas • Huddling • Hairy coat • High intake: low production rate • Animal health
	Too Little	<ul style="list-style-type: none"> • Lack of fresh air 	<ul style="list-style-type: none"> • Animals avoiding certain areas • Smell • Animal health



Jamie had previously assessed the buildings at Nether Aden in 2015. They are in a perfect location with good surroundings and wind breaks. Some minor adjustments though could still improve performance. Jamie used a smoke experiment to illustrate how further improving current ventilation could improve the 'stack effect' to enhance the air flow through the shed even on a relatively still day.

Livestock buildings - animal health

Following the smoke test assessment at Nether Aden, Jamie described the importance of the 'stack effect'. Improvements to the shed would include adjustments at both ridge level and the side walls to allow more fresh air into the building and increase the flow of air out of the building. The main change advocated was to remove ridge caps along the building to allow more moisture to be able to escape out of the building. Due to the current lack of outlet availability for the warm moist air to escape, on still days when there was no air blowing through the cattle shed, the stack effect could not work, preventing the draw of fresh air into the building. One section of the building features 'vent air' sheeting for air entry. The air space that this provides is much less than the shed requirements for adequate air flow. One solution to this might be to replace the 'vent air' sheeting with Yorkshire boarding (not to be confused with the more common 'space boarding' that is prevalent in NE Scotland). Alternatively setting the supports for the cladding several centimetres back from the concrete wall to increase the available air inlet would also provide the necessary air flow.

Table 3. Potential problems of, and solutions to, inadequate shed air flow.

Factor	Interaction /from	Notes	Solutions
Moisture	Bugs	<ul style="list-style-type: none"> Respiratory pathogens Mastitis: E-Coli; Strep uberis 	<ul style="list-style-type: none"> Drainage. 1 in 60 or 1 in 20 below straw Drainage within pen, between pens, within building, outside Manure management Straw management Air inlets and outlets Decent gutters and downpipes
	Faeces/urine	<ul style="list-style-type: none"> 25 - 45 litres/day 	
	Respiration	<ul style="list-style-type: none"> Up to 10 litres/day 	
	Rainfall	<ul style="list-style-type: none"> At 6m²/cow, 100 cow space has 600m² of roof. 10000mm (39 inches) rain per annum = 600t/annum 	
Fresh Air	Kills bugs	<ul style="list-style-type: none"> 100% fresh air kills airborne bugs 10 times faster than 50% fresh air. 	<ul style="list-style-type: none"> Air inlets and outlets
Air speed	Comfort zone Lower critical temperature(LCT)/Upper Critical temperature (UCT)	<ul style="list-style-type: none"> 4 weeks old healthy calf - LCT = 0°C 	<ul style="list-style-type: none"> Air inlets and outlets Protection from wind to above animal height Greater use of perforated wall cladding Elimination of draughts at animal height
	Need for air movement	<ul style="list-style-type: none"> 0.2 - 0.5m/s 	
	Wind chill	<ul style="list-style-type: none"> At 2m/s air speed, LCT of healthy 4 week old calf is +9°C 	
	Young animal needs	<ul style="list-style-type: none"> LCT of sick animal? 	
	High yielders	<ul style="list-style-type: none"> Massive heat loss needed 	

There are nine climate change focus farms in Scotland. Keep up to date with their activities at



www.farmingforabetterclimate.org

Meetings are free to attend and all farmers are welcome.

Contact farm facilitator
alan.bruce@sac.co.uk or telephone
01888 563 333 for more information on
the Nether Aden discussion group.

Farming for a Better Climate is funded by the Scottish Government as part of the Farm Advisory Service (FAS). The Climate Change Focus Farm programme is supported as part of its Veterinary and Advisory Services (VAS) legacy activities

