

Bovine Abortion

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Leading the way in Agriculture and Rural Research, Education and Consulting

SAC Bovine Abortion Diagnoses 2014







Bacillus licheniformis and Bovine Abortion



- Bacteria.
- Present on all farms.
- Cause of significant loss to the industry.
- Impact on individual herds is less clear.
- Little information about prevention and control despite its importance as a cause of calf losses.



Diagnoses of *Bacillus licheniformis* Abortion By Stage of Gestation (1/1/2010 - 20/7/2016, n=291)





Diagnoses of *Bacillus licheniformis* Abortion By Month and Herd Type (1/1/2010 - 20/7/2016, n=317)





BL Diagnoses as a Percentage of Foetuses Examined (1/1/16 to 1/6/16)



SAC Veterinary Services Laboratory	BL diagnoses as a percentage of foetuses examined
Aberdeen	11.11%
Ayr	10.5%
Dumfries	13.68%
Edinburgh	11.42%
Inverness	25%
Perth	0%
St. Boswells	1.72%
Thurso	20.8%



Bovine Abortion Diagnoses Dumfries 2014 Beef and Dairy Comparison





Bacillus licheniformis and Bovine Abortion



- Between 1/1/12 and 30/4/14 diagnosed at Dumfries on 50 occasions.
- 78% of foetuses were from suckler herds.
- 90% of cases between January and April.
- On average accounts for only around 1-3% of abortion diagnoses in sheep.
- Why is it a problem in suckler herds?



Bacillus licheniformis and Bovine Abortion



- Is the risk of abortion related to how much B. licheniformis there is in the environment?
- Could the level of exposure to B. licheniformis be influenced by:
- Timing and method of manure/slurry application.
- Harvesting routines that affect the fermentation process.
- Spoilage during storage and feeding.



Investigation Part 1



- Visit 5 farms following a diagnosis of B. licheniformis abortion.
- Collect face and core silage samples for bacteriology and energy/protein analysis.
- Collect information on fertiliser type/application.
- Collect samples from water troughs.
- Collect diet information and run through Feedbyte ration programme.
- Repeat on 5 farms that are having problems with abortion.



Collecting a Silage Core















Bacteriology











BL Culture Results (cfu Bl/g)



Sample	BL farms		Control farms	
	Average	Range	Average	Range
Face	209,420	3,100 - 960,000	1,760	300 - 2,900
Core	936,000	4,300 - 3,900,000	7,780	1,700 - 19,000

- 2 of the BL farms knew they had an issue with their pits.
- 4/5 BL and 4/5 C farms applied slurry by splash plate.
- 1/5 BL and 1/5 C farms applied manure.
- 0/5 BL farms used silage additives.
- 4/5 control farms used silage additives.

















Slimy silage from edge of pit: **36 MILLION** cfu BI/g





BL In Water Troughs











Layer of debris from bottom of trough: 5 MILLION cfu Bl/g.

Summary of Selected WETNIR Results



	BL Farms		Control Farms		
	Average	Range	Average	Range	
DM g/kg	310.7	235 – 457	291	200 - 510	
ME MJ/kg DM	10.36	9.3 - 11.5	10.57	9.2 - 11.8	
Protein g/kg DM	104.3	84 – 121	109.6	92 - 130	
D value %	64.87	58.4 - 72	66.08	57.6 - 75.2	

- Protein was adequate on all farms.
- Assuming no weight loss energy was limiting on 3/5 C and 2/5 BL farms.



Examples of Feedbyte Results



- Farm BL3 Cows need to eat 97.3% of their predicted maximum dry matter intake and will lose 0.5kg/day in order to meet their energy needs.
- Farm C3 Cows only need to eat 49.9% of their predicted maximum dry matter intake to meet their energy needs. No weight loss. Total cost of the diet could be reduced from 48p/cow/day to 23p/cow/day by feeding silage alone.



Investigation Part 2



- What is a "normal" level of B. licheniformis in grass silage?
- Carry out bacteriology on core samples collected for routine energy/protein analysis in autumn.
- Collect extra information on fertiliser/slurry application.
- Do condition in a silage pit prevent it from multiplying?
- Vacuum pack sub-sample of each core sample.
- Repeat bacteriology in 3-4 months.





Results So Far



- Bales (n=12) Average result: 1,133 Bl cfu/g.
- Pit silage dairy (n=2) Average result: 1,550 Bl cfu/g.
- Pit silage beef (n=14) Average result: 10,072 Bl cfu/g.



Advice to Reduce the Risk of Bacillus licheniformis Abortions



- Feed the best available silage to pregnant cows.
- Feed out the face in as short a time as possible.
- Consider using a shear grab.
- Do not feed mouldy or slimy silage.



- Clean away uneaten silage before adding more.
- Keep water troughs as clean as possible.



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