



EIP WALES

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Collaborating for rural success



menter
a busnes

European Innovation Partnership Wales

Reduced Antibiotics Use at Lambing Time

Interim Report

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Contents

Project Description	1
Project aims.....	1
Experimental Design	1
Methodology and results	2
Silage analysis & rationing advice	2
Methodology	2
Results.....	2
Metabolic profiling	3
Methodology	3
Results.....	3
Recommendations and Action taken.....	3
Colostrum absorption	3
Methodology	3
Results.....	3
Bedding sampling	4
Methodology	4
Staphylococcus results	5
Streptococcus Results	5
E.Coli results.....	6
Conclusions	6

Project Description

The global burden of antimicrobial resistant infections is growing and poses a serious threat to human and animal health. This project is building on work already undertaken in the sector, improving flock management, mainly through improved nutrition and hygiene. The project principles relate to the need for antibiotics and at the same time increasing production, while maintaining high standards of animal health and welfare. Assessing antibiotic use in a sheep production system helps to develop a safe and healthy food supply, particularly when there are concerns that food producing animals may contribute to the development of human antibiotic resistance.

There is potential for global targets to be put in place to reduce antibiotic use (per kg/animal weight) in treated livestock, to an agreed level for each country. There is also likely to be restrictions on usage in livestock of those antibiotics that are critically important for human health. Taking measures now to reduce antibiotic use will make it easier to manage when these targets are applied.

Project aims

- Promote responsible use of antibiotics to maintain the effectiveness of drugs and control costs.
- Increase farmer confidence in ration formulation and management practices, reducing prophylactic use of antibiotics at lambing time while maintaining and improving health and welfare.
- Improve nutrition and management practices in order to improve vigour, reduce mortality and reduce investment in finishing.
- Empower the next generation of farmers to adopt alternatives to the use of antibiotics, helping them become more resilient.

Experimental Design

Seven farmers from across Anglesey are participating in the project. In the first year all the group members received the following analysis and support:

- Analysis of silage to be fed to breeding ewes at lambing time
- Rationing advice from Kate Phillips and Karen Wheeler with respect to the silage analyses
- Visits from Kate Hovers to discuss health issues within their flocks and to provide an action plan for lambing time
- Metabolic profiling of pregnant ewes carried out by local vets
- Colostrum absorption testing of lambs carried out by local vets during lambing
- Bedding sampling of pre-lambing, post-lambing and pet lamb pens during lambing
- Faecal sampling of lambs and post mortems of lambs when problems occurred

Methodology and results

Silage analysis & rationing advice

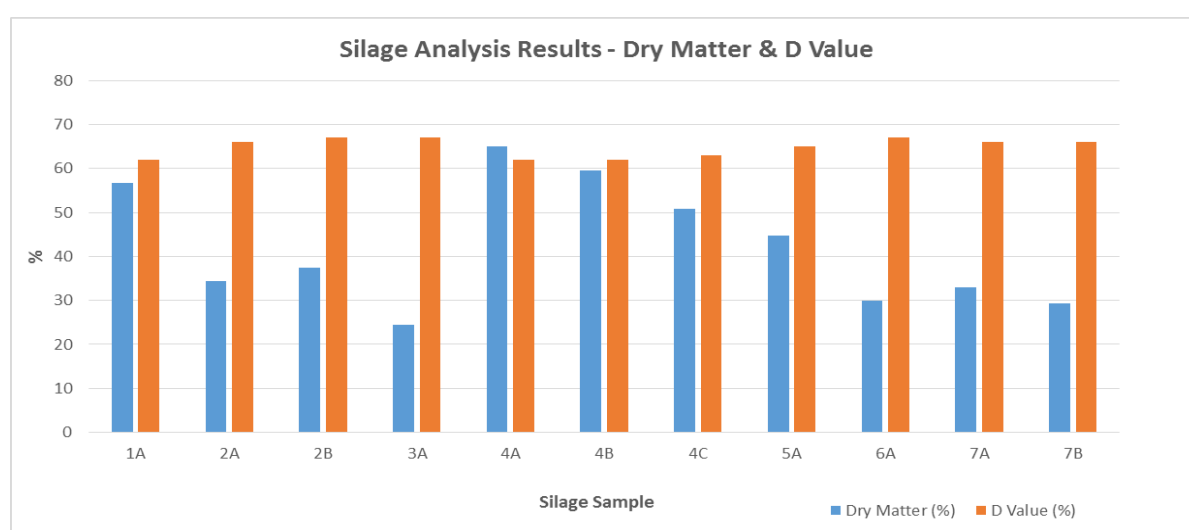
Methodology

Silage analyses were carried out on the samples provided by the farmers in the group, of silage that would be fed to their ewes at lambing time. Standard analyses were carried out on the silage alongside full mineral analysis (except iodine).

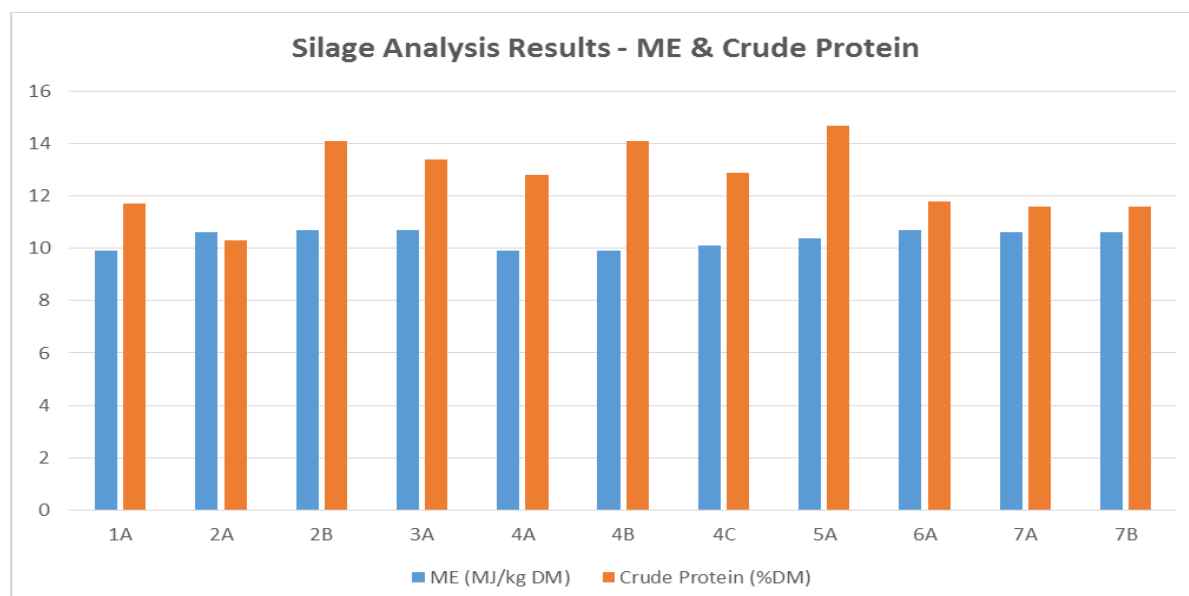
The farmers in the group were also asked to provide the ingredients lists from their chosen compound feed for their ewes at lambing time. This, and the silage analyses, were then used by Karen Wheeler and Kate Phillips to provide ration recommendations for each farmer.

Results

The top-line results of the silage analyses are shown below.



The graph above shows the dry matter and D values for the silage samples collected and analysed from the 7 farms. Target dry matter (DM) 30-35% and target D-value 69-72%. This highlights that the silages analysed were generally dry with the results from farm 4 up at 50% - 65% dry matter. Meanwhile, the D-values for all the silages sampled were over 60% but under the target.



The graph above shows the metabolisable energy (ME) and crude protein in the silages analysed. The target ME is 11-11.5MJ/kg DM and the target crude protein is 15-18%. Although the majority of the silages analysed had ME values of over 10MJ/kg DM, none of the samples were on target. In addition, none of the silages analyses had crude protein levels on target.

Metabolic profiling

Methodology

Blood samples were taken from up to 20 ewes on each farm (a mixture of twin, triplet and single bearing ewes) for metabolic profiling, 2 to 3 weeks before lambing. The BOHB analysis showed energy balance, urea reflected daily intake of ERDP and albumin highlighted long term protein status.

Results

In general, the results across all the farms showed reasonable to good magnesium results and no evidence of copper deficiency. This demonstrated that levels of nutrition were fairly good across the farms. In some cases, copper levels were elevated which highlighted that there may be some underlying inflammatory disease issues.

However, low albumin results were found across all the farms. This is likely to indicate a past or present disease process which has affected the sheep in the last few months before lambing. Endoparasites may be the cause, however low albumin results can be an indicator of other diseases such as lameness, mastitis and Johne's.

Recommendations and Action taken

Based on the results provided, Kate Hovers provided guidance to the farmers in the group to send ewes for post mortem and/ or carry out worm egg counts (WEC) and fluke counts in order to establish the cause of the low albumin levels.

Lambs from one farm were sent for post mortem during this lambing season and Border disease was diagnosed.

Three of the farmers in the group carried out WEC/ Fluke counts on ewes before or around lambing and found some level of rumen and liver fluke present.

One farm also saw elevated pathogenic E.coli in faecal samples and two farms had Cryptosporidium oocyst counts in scouring pet lambs (generally any crypto can be significant as low infective dose).

Colostrum absorption

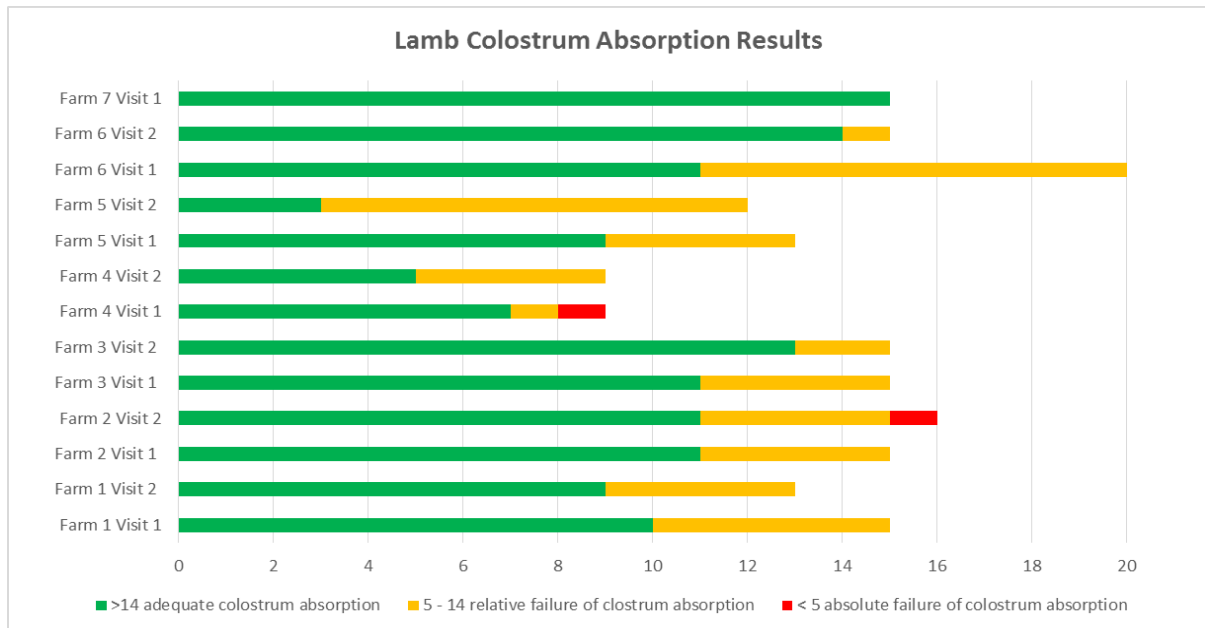
Methodology

The samples were taken by the local vets over 2 visits, 2 weeks apart (with the exception of Farm 7 which received one visit). The blood samples were analysed for zinc sulphate turbidity (ZST) in order to establish levels of colostrum absorption.

Results

The results varied, with results from 1 farm (Farm 7) showing adequate colostrum absorption across all the lambs sampled, while Farm 2 and Farm 4 had individual lambs with absolute failure of colostrum

absorption. The level of colostrum absorption also varied between visits and there was no clear evidence of a trend.



Anecdotally, one of the farmers remarked that he had also purchased a refractometer to look at the consistency of colostrum produced by the flock.

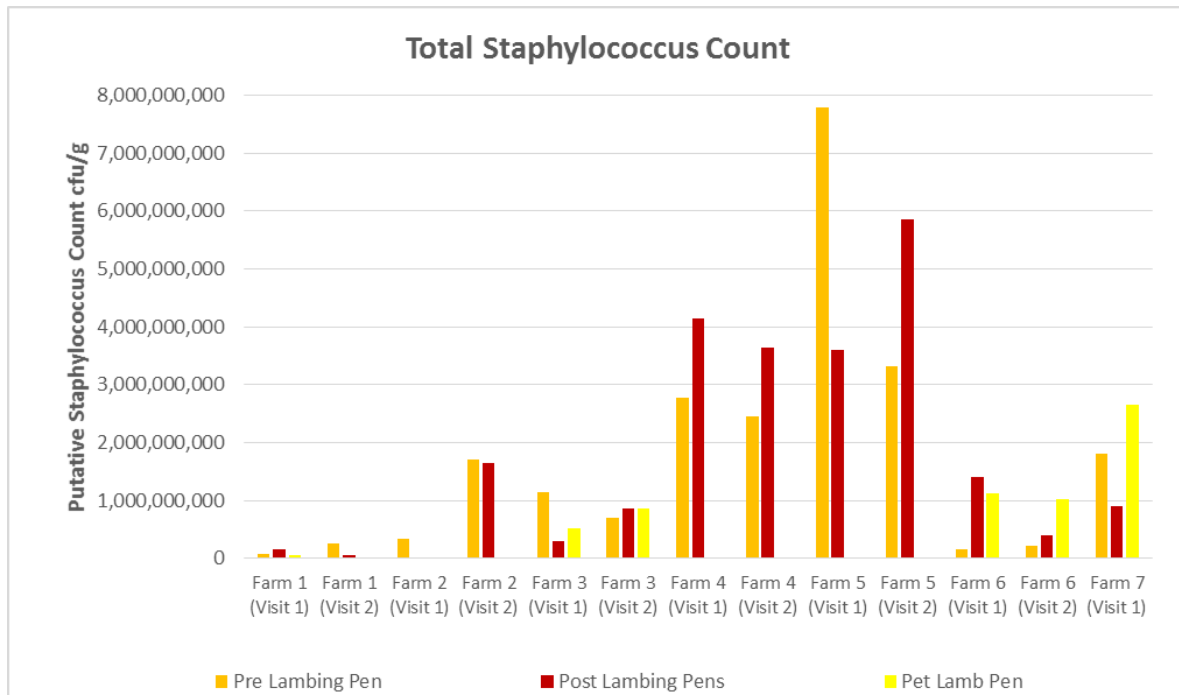
It may be useful for the rest of the farmers in the group to consider purchasing refractometers and receiving training in how and when to use them.

Bedding sampling

Methodology

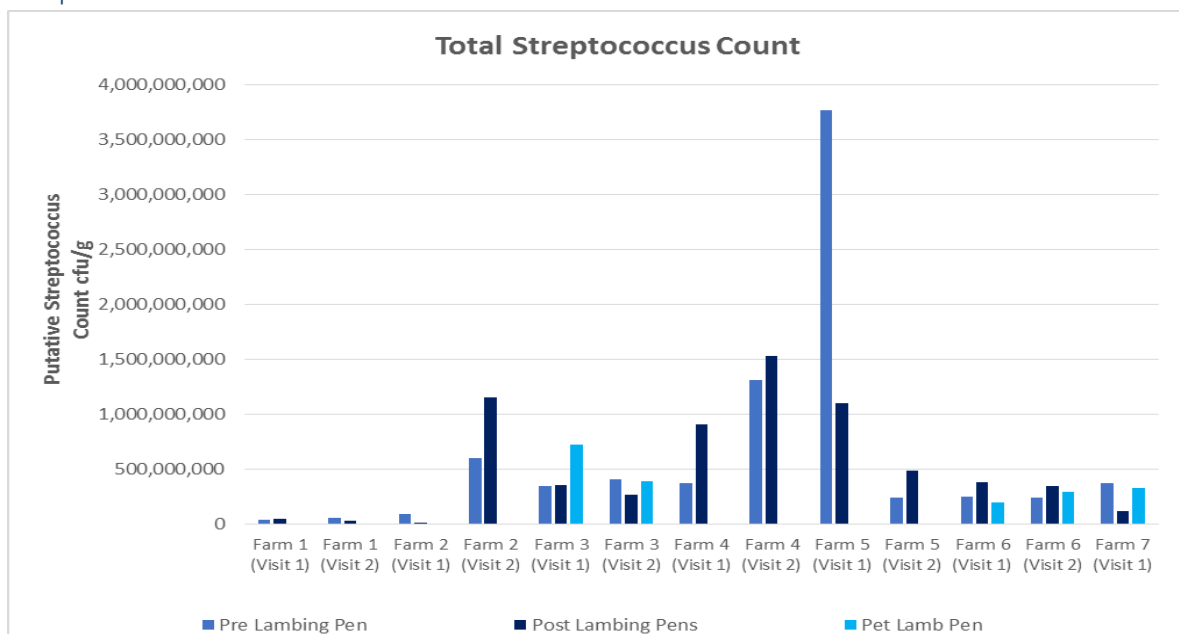
As with the colostrum absorption blood sampling, bedding samples were taken at each farm on up to 2 occasions, 2 weeks apart. Bedding samples were taken from the pre lambing pen, post lambing (individual) pens and pet lamb pens. Bedding samples were analysed for total bacteria count, streptococcus, staphylococcus, coliforms and E.coli counts.

Staphylococcus results



Staphylococcus causes mastitis in ewes and can be a cause of infections in new born animals. Farm 5 had the highest level of staphylococcus bacteria in their pre lambing pen on the first visit, this had reduced by the second visit, however the staphylococcus count in the post lambing pens increased. Farm 4 also had fairly high levels of staphylococcus in their post lambing pens on both visits. Conversely, Farm 1 had very low staphylococcus levels on both visits, as did Farm 2 on the first visit.

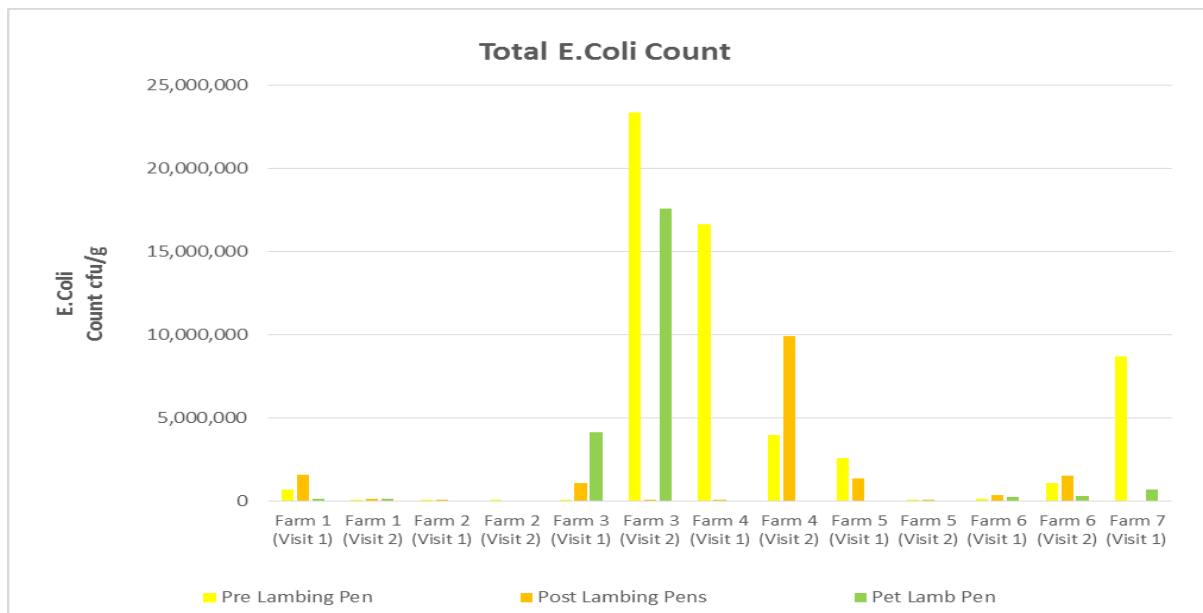
Streptococcus Results



Streptococcus dysgalactiae is the bacteria which causes joint ill. This shows a general Strep count, not classified into type but is likely to be relevant. Farm 5 had very high streptococcus levels at the first visit in the pre lambing pen, however this was much lower by the second visit. Farm 4 saw counts increase by the second visit, in pre lambing and post lambing pens. Farm 1 had very low streptococcus

counts at both visits and Farm 2 had low counts at the first visit but saw a big increase by the second visit. Farm 3 had the highest streptococcus counts in their pet lamb pen on both visits.

E.Coli results



E.coli bacteria cause scours and watery mouth in sheep. Farm 3 had the highest counts for E.coli at their second visit in their pre lambing and pet pens, while Farm 4 had high E.coli counts at their second visit. Farm 7 also had a high E.coli count in their pre lambing pen. Farm 2 had very low E.coli counts, as did Farm 1, Farm 6 and Farm 5 (second visit).

Conclusions

The analyses carried out, and the subsequent advice provided to the farmers in the group, enabled them to make informed choices with reference to improving nutrition, resulting in an improvement in colostrum quality and quantity.

Furthermore, as a result of the work done in the first lambing season, members of the group have reduced the prophylactic use of antibiotics at lambing time. The group are recording their antibiotics use and will look to collate this data when benchmarking.

Anecdotally, group members have commented that the nutrition advice provided motivated them to select better supplementary feeds and feed them at higher rates, as required.

The farmers reported that they have seen more even growth rates within triplet groups as a result, and a reduced incidence of joint ill and scours.

Going forward to the next lambing season, the group will continue to monitor nutrition and health parameters. In addition, the following actions will be considered:

- More detailed analysis of trace elements and minerals in silage for breeding ewes
- Blood sample lambs for colostrum absorption on 3 occasions rather than 2 and consider using refractometers on all farms
- Based on this seasons' bedding results, develop action plans for each farmer to reduce bacterial load
- Fluke count testing at scanning time and development of fluke plans