



FARMING
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FFERMIO

Demonstration Site Review

WR & M Thomas & Son

Ty'r Eglwys Farm

Llangennech

Llanelli

SA14 8YD

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1.0 Summary

1.1 Business summary

- Tyreglwys is a 350 acre conventional dairy unit, the majority of which is owned by the partnership with 50 acres rented. The farm business is run by Geraint Thomas in partnership with his parents.
- The farm carries a dairy herd of 160 head in addition to followers. The dairy herd is split between a Holstein herd and Ayrshire herd, a number of the Ayrshires are used for showing at local and national shows.

1.2 Project key objectives

Fertility

- Reduce Calving Interval from 410 days to 380 days
- Improve heat detection
- Improve conception rates

Selective Dry Cow Therapy

- Aim to improve the sustainability of milk production and reduce antibiotic use
- Improve cow health
- Mitigate potential negative public perception of antibiotic use in Agriculture

Mastitis Management Workshops

- Following work done at Nant Goch, a Farming Connect Focus Site in Mid Wales, a mastitis management workshop was held at Ty'r Eglwys.
- Vet James Breen hosted the meeting to discuss practical ways of reducing mastitis rates on farm
- The aim was to increase awareness and knowledge of farmers in the local area.
- Research by the University of Reading in the 1960s resulted in the creation of a five point plan which was aimed at the control of mastitis spread between cows during milking.

CCTV in calving shed

- The aim was to harness technology to increase animal welfare and improve farmer lifestyle.

1.3 Project achievements

Fertility

- Outsourcing of cattle breeding to a specialist contractor has increased conception rate by around 10%.
- Heat detection rate has improved as specialist contractor is chalking and observing the cows 365 days per year.
- Number of animals pregnant has increased by 68% at the time of publication

- The improvements in fertility are estimated to create a net gain of £25,000 for the business, the additional cost of the fertility service will reduce this additional profit to £20,200 – or £125/cow.

Selective Dry Cow Therapy

- 80% of the herd identified as eligible for teat sealant only
- £888 cash saving in year 1 – 120 cows * £7.40 (cost of antibiotic dry cow tubes)
- Longer term the benefits are expected to be much higher in terms of reduced mastitis levels and a reduction in on farm antibiotic resistance. These cannot be quantified at this stage.

Mastitis Management Workshops

- Successfully highlighted the importance of reducing mastitis rates.
- Led to individual farmers accessing funding to provide a 1:1 on farm mastitis management plan.

CCTV in calving shed

- By installing CCTV in the calving shed, the farmer was able to remotely monitor calving animals. This meant that the farmer could leave the farm or monitor the cows from the house. This is an example of harnessing technology to improve labour efficiency and farmer/staff lifestyle.
- Cows require a stress free quiet area in order to minimise the risk of calving problems. Every time the farmer physically checks the cows they are at risk of elevating stress levels. By remotely monitoring calving cows the risks are reduced.
- The chances of noticing an animal which is having difficulty calving are increased with the remote monitors, this will enable more timely intervention where necessary.

2 Project Review

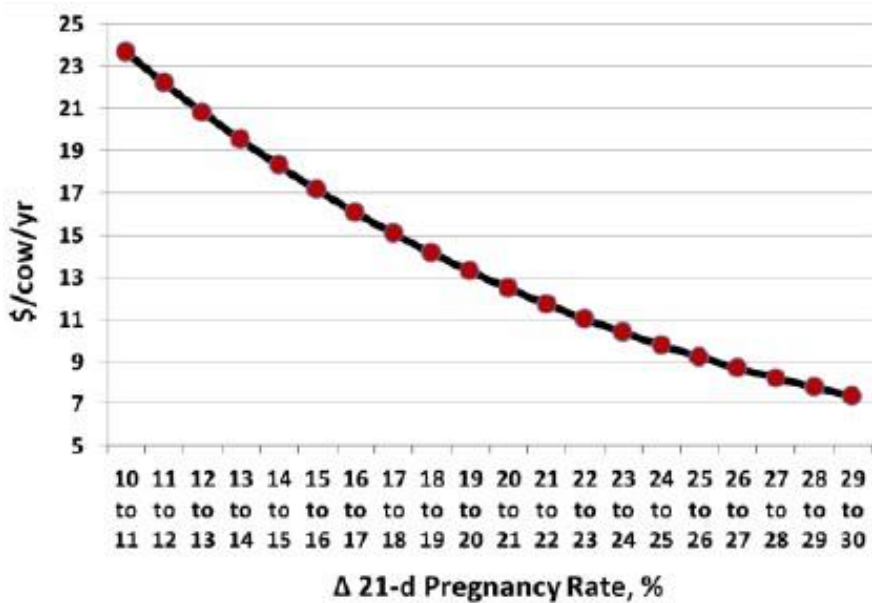
2.1 Fertility

The business had been experiencing sub optimal fertility results historically, the project aimed to address this. Genus ABS were contracted to implement an RMS (Reproductive Management System). Cows were walked once a day with tail chalk applied, the technician would then identify any cows on heat and serve them, as part of the service records are kept using DairyComp 305 which is herd management software.

The table below details fertility parameters in the 12 months prior to implementation and the results of the 12 months on RMS:

	Prior to RMS	With RMS
Heat detection %	48	61
21 day preg rate %	10	19
Conception rate %	20	34
Pregnancy hard count	47	86
Average days to 1 st service	70	68
Average days to conception	153	149
% pregnant at 100 days	20	55
% pregnant at 150 days	35	72
% not pregnant at 200 days	40	15

Heat detection increased significantly with RMS implemented, the combined effect of having a specialist contractor just observing heats in addition to the use of tail chalk are likely the reasons for this increase. With an increase in heat detection rate, conception rate is often seen to fall, this is because more marginal heats are served and the likelihood of cows conceiving is reduced. However in this incidence the conception rate actually increased. The combined effect of the increased heat detection and conception is that the 21 day preg rate has almost doubled from 10% to 19%. The graph below is work undertaken at the University of Wisconsin in the USA:



The table illustrates the marginal economic value of successive 21 day preg rate 1% increments, a decreasing trend is evident, meaning that the greatest monetary gains are improving at lower levels. If we crudely add up the incremental gains from 10% to 19% and convert to GBP (0.71), the effect of the gains annually are £118/cow or around £19,000 on the 160 cow herd – this would be through a combination of higher milk sales through reduced average DIM, increased new born calf value and reduced mortality and culling levels.

2.2 Selective Dry Cow Therapy

A project was initiated to look at replacing blanket antibiotic dry cow therapy with a selective approach. The dairy industry, as with other farming sectors, is under increasing pressure to reduce the amount of antibiotics used, primarily due to fears of resistance in human medicine. Antibiotic dry cow therapy was introduced in the 1970's, this led to an instance reduction in mastitis incidence rates and overall SCC levels, as a result it has been used almost exclusively since. A cow's natural defence to mastitis causing bacteria entering the udder is to form a natural keratin plug in the teats, for a number of reasons this does not always work. The resulting bacteria are then neutralised in the udder by the antibiotics.

Teat sealants have become increasingly popular, driven recently by many retailers and processors. The product is administered at drying off, acting as an artificial plug through formation of a physical barrier within the teat canal. Research has concluded that using specific parameters can facilitate the removal of antibiotic treatment from the drying off protocol.

In year 1 the project resulted in 80% of cows being dried off without antibiotics, this is clearly a positive step in terms of animal health and public perception.

The project also resulted in a £888 cash saving in 12 months – 120 cows didn't have antibiotic treatment at £7.40 per cow. The longer term benefits in terms of herd health will need to be monitored on an ongoing basis, however there were no initial health issues.

2.3 Mastitis Management Workshop

Following a project undertaken in Mid Wales at Nant Goch, Dr James Breen delivered a mastitis management workshop at Ty'r Eglwys. Discussions included all aspects of mastitis and its control. The uptake of 1:1 mastitis technical interventions was very good following the event.

3 Review Baseline Data

3.1 Health and Safety

- The farm has a written health and safety policy in place
- PTO guards and other safety all intact and in place
- All dangerous materials are locked in a secure store

3.2 Carbon Footprint

- The previous assessment showed that per litre of milk sold within the year the carbon equivalent produced was 1,355g CO₂e/l milk. This measure is grams of carbon dioxide equivalent per litre of energy corrected milk. By comparison the average for similar systems over the same time frame was 1,286g CO₂e/l, this means that the enterprise has a higher carbon cost per litre of milk than the average.
- Increases in yields and improvements to fertility will have a positive effect on the carbon produced – by reducing it. Re assessing the carbon footprint would be a worthwhile exercise in the coming year.

3.3 Nutrient Management

- Fertiliser policy was assessed as part of a grassland project undertaken – this optimised the fertiliser policy in line with organic manure applications.
- Increasing the output from home grown forage was noted as being very important. Recent increases in feed markets highlight the volatility in the marketplace – increasing home grown feeds through effective use of nutrients will increase business resilience.

3.4 Herd Health Plan

- The business has placed an increased emphasis on the importance of reducing the use of antibiotics – as highlighted through the selective dry cow project.
- The herd health plan is up to date following a meeting with the farm vet.