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Evaluating alternate pasture based milk production systems for the Border Midland West region

Key external stakeholders:

BMW region dairy farmers; local milk processors – Lakeland Dairies, Town of Monaghan, Donegal and Connacht Gold; AI companies; consultancy agencies.

Practical implications for stakeholders:

The success of grazing systems as determined by the ability to achieve high levels of grass utilisation is influenced by climatic and soil conditions. While many studies have investigated the effects of temperature, little is known of the biological and financial implications of wetter soil types on pasture system performance. The implications of this research project findings, undertaken at Ballyhaise Agricultural College, indicate that

- Considerable potential exists to increase animal productivity from pasture in the Border Midland and Western (BMW) region by increasing sward productivity in combination with an appropriate stocking rate and a compact calving high economic breeding index (EBI) herd.
- The economically optimum system of milk production will depend on milk price. The results suggest that at low milk prices increased concentrate supplementation will result in reduced profitability relative to systems based on a greater reliance on high quality grazed pasture.

Main results:

- Total herbage production at Ballyhaise Agricultural College averaged 12,483 kg DM / ha during the study over a 270 day growing season with high peak growth rate.
- Higher yields of milk and fat plus protein (6,049 and 458kg/ cow) were produced in the HC system compared to the HG system (5,606 and 427 kg/cow, respectively).
- High productivity systems of milk production for the BMW region will depend on milk price. At low milk prices, systems of production based on increased concentrate supplementation will result in reduced profitability relative to systems based on a greater reliance on grazed pasture.

Opportunity / Benefit:

High productivity systems of milk production can be successfully realized in the BMW region and will allow dairy farmers to maintain farm profitability when milk prices decline.

Collaborating Institutions:

Lakeland Dairies, Donegal Co-operative Society, Town of Monaghan Co-operative Society, Connacht Gold Co-operative Society

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1. Project background:

The challenge for Irish dairy farmers in the years ahead is to increase the competitiveness of their business through innovation, productivity gain and increased operational scale.. With revenue from milk production projected to fall, national farm statistics show that costs of milk production are increasing by 0.15c/ litre per year while the variation between the highest cost and lowest cost producers is in excess of 9.2 c/l. This data suggests that producers must focus on achieving cost efficient milk production through more efficient use of pasture. In the Border Midlands Western (BMW) region of Ireland, the potential from pasture-based systems is reduced due to limitations such as a shorter grass-growing season, impeded land drainage and high rainfall. These factors have the effect of shortening the grazing season and poor ground conditions reduce the potential of farms in the region to utilize grass efficiently.

2. Questions addressed by the project:

What is the potential of grass and grass based dairy production systems in the BMW region?

3. The experimental studies:

This study compared he biological and financial efficiency of two likely pasture-based production systems for the BMW region over a three year period (2005-2007 incl.). The two systems compared were: a high grass allowance system (HG) and a high concentrate feeding system (HC). The HG system (stocking rate of 2.45 cows/ha feeding 578kg of concentrate/cow) was created to reflect the performance potential of a low cost grazing system with minimal external feed input. In comparison, the HC system (stocking rate of 2.92 cows/ha feeding 1,365kg of concentrate/cow) was created to reflect the performance potential of a high output per hectare system based on increased stocking intensity in combination with increased concentrate supplementation.

4. Main results:

- Total herbage production at Ballyhaise Agricultural College averaged 12,483 kg DM / ha during the study over a 270 day growing season with high peak growth rate.
- Higher yields of milk and fat plus protein (6,049 and 458kg/ cow) were produced in the HC system compared to the HG system (5,606 and 427 kg/cow, respectively).
- Milk fat and protein content were unaffected by production system.
- The combination of increased supplementation per cow and increased cow numbers per hectare resulted in a systems response of 1.41 kg of milk per 1 kg of additional supplement fed in the HC system.
- There was no significant influence of production system on reproductive performance.
- The optimum system of production was influenced by milk price. At a low milk price, highest profit was generated by the HG system where costs of production were minimised, whereas at a high milk price the HC system realised higher overall farm profitability.

5. Opportunity/Benefit:

This study demonstrates that high productivity grass based systems can be realised in the BMW region while the financial optimum system of production will depend on milk price. The results suggest that at low milk prices increased concentrate supplementation will result in reduced profitability relative to systems based on a greater reliance on high quality grazed pasture.

6. Dissemination:

Three open day events were held during the project (April 6th, 2006; April 19th, 2007 and March 5th 2009) to

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provide local dairy farmers and industry representatives in the BMW region with locally generated research information and system development technology. The objective of these events was to highlight research technologies that will increase farm profitability post milk quotas by instigating management practices that grow and utilise higher quantities of superior quality grass and achieve high animal performance over a long grazing season.
(http://www.agresearch.teagasc.ie/moorepark/Publications/pdfs/MPK%20Dairy%20Levy%20Update%20Series%2010.pdf)

In addition to open day events, individual discussion groups frequently visited the experiment during the project. Topics covered at these events by research and advisory staff included grassland management best practice advice, animal breeding and health recommendations and economic implications of research results. In addition, the experimental farms provided a teaching platform for young dairy farmers attending the college.

Main publications:

B. Horan 2006. In: National Dairy Conference, Belturbet, Co. Cavan, 17- Nov-2006
http://www.agresearchforum.com/publicationsarf/2008/proceedings2008.pdf

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