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Dairy beef systems (for black & white male calves)

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Summary

- Research at Johnstown Castle is evaluating a range of production systems for **spring** born male dairy-bred calves where bulls are slaughtered at 15 and 19 months of age and steers are slaughtered at 21 and 24 months.
- Rearing black and white males as bulls has inherent efficiencies due to their higher growth potential.
- Results suggest that bulls slaughtered at 15 months of age need to be finished on *ad-libitum* concentrates. However, costs are high and margins are low in this system in Ireland.
- Profitability of dairy calf-to-beef production systems is affected when:
 - Calf price increases
 - Concentrate input costs rise
 - Beef price decreases.

Introduction

With the abolition of milk quotas in 2015, it is expected that the national dairy herd will increase considerably. Hence, a substantial increase in the supply of male dairy calves is anticipated. Currently, approximately two thirds of the dairy cows are bred to dairy sires to generate replacements for the herd. As a result over 300,000 male dairy calves are born each year. While some dairy farmers carry out calf-to-beef systems, it is anticipated that post quotas, dairy production will become more specialised and fewer dairy farmers will rear calves for beef production leading to a very significant increase in the number of black and white male dairy bred calves coming on the livestock market. Finding the most suitable beef production systems for these male dairy calves is a challenge for the industry and for the last number of years there was renewed interest in bull beef production to the extent that bulls made up over 20% of the national kill in 2012. Rearing males as bulls has inherent efficiencies due to improved feed conversion efficiency and growth rate. However, with current market trends, issues of age at slaughter, target carcass weight and discounts on bulls older than 16 months of age, producers need to be vigilant before deciding on a production system. Research being carried out by Teagasc at Johnstown Castle is focused on establishing blueprints for systems of production that are profitable for beef producers.

Research at Johnstown Castle

Since 2010, a large-scale dairy calf-to-beef unit was established at Johnstown Castle to compare the performance of **spring born** male dairy calves across a range of production systems. The ultimate aim of this research is focused on establishing blueprints of production for these calves. Animals are finished as bulls and steers and slaughtered at different ages. Avenues are also being explored to refine these blueprints in an effort to reduce the costs of production: increase the utilisation at pasture and increase carcass output per hectare. Alternative finishing strategies are investigating ways of reducing the concentrate input during the finishing phase. These studies will greatly assist beef

producers identify the optimum production systems that is best suited to their circumstances.

Bull production systems

15 month bull production system: a target carcass weight of 275 kg is required for bulls in this system with conformation scores of O=/O+ and fat scores 2=2+. Results to date show that calves supplemented with 2 kg of concentrates daily during the first season at pasture and finished on a diet of *ad-libitum* concentrates from November to slaughter (May/June) produced carcasses of 265kg. Conformation and fat scores were O=/O+ and 2=2+, respectively. Total concentrate input during the finishing period was 1.8t. This system is heavily reliant of high concentrate supplementation making it very vulnerable to changes in concentrate prices. Also, the requirement for grazed grass in the system was low to the point that it could not be a stand-alone system. Alternative finishing strategies were also explored where bulls were finished on *grass ad-libitum* silage supplemented with 5kg/day of concentrate for the finishing period. While the costs of production were reduced, the carcasses were significantly lighter and carcass conformation score was also lower.

19 month bull production system: animals were turned out to pasture for 100 days in early March, housed in June and finished over a 100 day period. Concentrate input during the finishing period for bulls in this system was 1.2 tonnes and carcass weight was 320kg. Conformation score was 'O=' with a fat class at slaughter of '2+'. Alternative finishing systems where bulls were finished off pasture supplemented with 5kg of concentrates daily for 100 days pre-slaughter had lower carcass weights with lower fat scores. Despite these factors, it was more profitable to finish the bulls at pasture due to the saving in concentrate input costs. **However, it is essential to have a market for these animals since demand is limited for bulls finished at older than 16 months of age.**

Steer production systems

21 month steer system: carcass weight was 264kg and conformation and fat scores were 'O-' and '2+' respectively. Animals received 5kg of concentrates per head daily for 60 days pre-slaughter. The 21 month steer production system is an alternative to the 24 month steer system, as animals are slaughtered at the end of the second grazing season and so avoid the costly finishing period over the second winter.

24 month steer system: produced carcass weights of 317kg. Conformation score and fat scores were predominantly 'O-' and '3=', respectively. Animals were housed at the end of the second grazing season and finished on *ad-libitum* grass silage plus 5 to 6kg of concentrates/day, depending on silage quality. Concentrate intake for the finishing period was 600kg. This system represents a commonly practiced system and the inputs and performance are very predictable and repeatable.

Conclusion

Research into a range of alternative production systems is identifying the optimum production system. Despite bull production systems having the potential to achieve higher outputs per hectare compared to steer production systems, price discounts on bulls greater than 16 months of age relative to steers greatly reduces the profitability of the system.

The above article was adapted and reproduced courtesy of Teagasc.

Footnote comment from Simon Marsh, Principal Lecturer – Beef Cattle Specialist, Harper Adams University.

You will note in the above article that the black and white bulls finished at 15 months were grazed as calves from June to October supplemented with 2kg of concentrates. They were housed from November through to slaughter in April/May. Total concentrate intake was 1.8t with a carcass weight of 265kg. At Harper Adams Holstein-Friesian bull calves are reared on a traditional cereal beef system housed throughout their life and fed *ad lib* concentrates. The bulls are typically slaughtered at 14 months old with carcass weights of 285kg having eaten 2.45t of concentrates.

The 19 month bull system will not be viable in the UK due to the lack of market outlets for these cattle. Also consideration must be given to health and safety factors with the management of yearling bulls at grass. Section 59 of the Wildlife and Countryside Act 1981 states that bulls of a recognised dairy

breed over 10 months old should not be grazed in fields crossed by public rights of way. I can also foresee a lot of 'management issues' dealing with a mob of 18-19 month old Holstein bulls at pasture!

The black and white steers finished at 21 months produced carcasses weighing 264kg. Most UK abattoirs penalise light-weight carcasses with penalties of 20-70p/kg for carcasses below 260kg. With a mean carcass weight of 264kg approximately half would therefore be below 260kg and penalised.

How much of a threat will it be to the UK beef industry if the suggested expansion of the Irish dairy herd goes ahead with more dairy bred beef calves being born? Some pundits predict a decline in the Irish beef suckler herd so it could balance out. Also the dairy bred calves (black and white males together with an increased number of native breed x Holstein steers and heifers) will have lower carcass weights than suckler bred calves.