

Beef Production from Jersey Cattle

Stephen T. Morris, Elly Navajas and Dean L. Burnham
Institute of Veterinary, Animal and Biomedical Sciences

MASSEY UNIVERSITY
Palmerston North
New Zealand

October 2001

This review was prepared for the C.Alma Baker Trust

Summary

1. A feature of the New Zealand beef industry is that the dairy herd contributes 60% of the annual cattle slaughter comprising approximately 350,000 cull cows and 700,000 bulls.
2. An estimated 225,000 Jersey and 300,000 Jersey cross Holstein-Friesian male calves are slaughtered annually within the 1.2 million bobby calf kill.
3. In order to develop profitable beef production systems for Jersey or Jersey crosses a complete description of this breed for economically important traits is required.
4. Jersey cattle have slower growth rates and lower carcass and retail product weight compared to most breeds. On average Jerseys grow about 25% slower than Friesians. There have been few studies comparing the pre-weaning growth performance of Jersey male calves but weaning weights are likely to be around 60-70 kg at 10-12 weeks of age while Friesian male calves will be 90-100 kg at the same age.
5. One of the most outstanding characteristics of beef from Jersey cattle is the high level of intramuscular fat. Even under pasture feeding conditions, the genetic potential of the breed to deposit intramuscular fat implies that a high level of marbling can be obtained at low carcass weights.
6. Beef from Jersey cattle has the lowest values of Warner-Bratzler shear force an objective mechanical measurement of tenderness.
7. Taste panels have consistently rated meat from Jersey cattle as being more acceptable due to its greater tenderness, juiciness, flavour and overall acceptability.
8. Jersey cross cattle have monounsaturated fat concentrations that are significantly higher than other breeds. The interest in monounsaturated fat level arises from the

fact that these fatty acids, once seen as cholesterol "neutral", are now considered cholesterol "lowering" and are preferable to high levels of polyunsaturated fats.

9. Beef from Jersey cattle does contain more yellow fat compared to Friesian and Friesian crosses. Consumers prefer white or creamy white fat in beef as yellow fat is typically associated with old cattle. However, the differences in fat colour at slaughter between the breed groups were often not evident after chilling for 48 hours. This reduction in fat coloration over time should be a factor for consideration in terms of beef carcass grading standards.
10. The slower growing and lighter pre-slaughter live weights and subsequent carcass weights of Jersey cattle would reduce the biological efficiency of beef finishing systems utilising Jersey or Jersey cross cattle because slower growing animals have a higher proportion of their total feed intake contributing towards maintenance requirements. In addition, the economic efficiency will be negatively affected due to lower revenue if the payment system is based on carcass weight alone.
11. Modelling analysis indicates that for the same feed consumption from a fixed land area Jersey bulls stocked at 3.3 bulls/hectare yielded 211 kg carcass and a gross return of \$1293/ha. The comparable figures for Friesian bulls stocked at 2.6 bulls/ha were a 260 kg carcass and a return of \$1497/ha. To achieve the same margin for the Jersey system then there would need to be a 10 cent premium rather than the 20 cent discount for those weight ranges that operated on the AFFCO bull schedule for the period May 2000 to April 2001. Alternatively Jersey bulls with high potential breeding values for liveweight can be selected to achieve high liveweight gains.
12. The majority of the literature reviewed was 20 years old and a large proportion was obtained in grain-based feeding systems. It would be desirable to invest in a new characterisation of Jersey and Jersey cross cattle for beef production under New Zealand pastoral conditions.

13. The favourable composition of the intramuscular fat and the high level of monounsaturated fatty acids found in beef from Jersey cattle could be used as a positive marketing tool because of the significance these findings in terms of human health.

14. Areas of potential research include; calf rearing systems, liveweight gain under optimum feeding conditions, and sourcing potential markets.