BEEF PRODUCTION FROM DAIRY HERDS IN MOUNTAIN AREAS

Enrico Sturaro[1*], Nicolò Amalfitano[1], Marco Berton[1], Ilario Bazzoli[2], and Luigi Gallo[1]

[1]Department of Agronomy, Food, Natural Resources, Animals and Environment, University of Padova, Italy

[2] Breeders Federation of Autonomous Province of Trento

*Corresponding author email: enrico.sturaro@unipd.it

I. INTRODUCTION

In mountain areas, beef production from dairy herds can be an interesting alternative to improve the economic sustainability of the farms. The use of beef semen to mate cattle not destined to breed replacement represent an interesting source of income for dairy farmers particularly due to the greater price and value of crossbreed calves respect purebred calves at sale [1,2]. In the Autonomous Province of Trento (North of Italy) every week the Breeders Federation collected calves from associated dairy herds and the best of these for beef traits, following weaning at specialized farms, were fattened at local associated fattening farms. After fattening, young bulls and heifers are slaughtered at the same abattoir and the meat are sold at the central butchers and to the entire cooperative wire markets of the Province. This meat is sold with a certified mark that guarantee birth, fattening and slaughtering of the animals in the same area. Moreover, weekly, the Breeders Federation of Trento province collected cull cows from associated dairy herds too and these cattle are sold to an associated abattoir [3]. The aim of the present thesis is to analyse productive, quality and economic traits from the whole beef output from dairy herds in mountain area.

II. MATERIALS AND METHODS

Data were collected from 2846 crossbred heifers, slaughtered from 2019 to 2022. The beef semen was Belgian Blue, the dams were from different breeds: 1060 Brown Swiss, 906 Italian Simmental, 476 Holstein Friesian, 304 from local dual propose breeds and crossbreed. The following productive and economic traits were considered: carcass weight, SEUROP and Fatness classification, price (€/kg), and the weight of at least 17 different retail cuts. Data were analysed with a general linear model to analyse the effect of the mother's breed on the productive and economic traits of the daughters. The beef quality was analysed on a subsample of heifers, representative of this production system.

III. RESULTS AND DISCUSSION

The economic sustainability was evaluated by using the price of the calves sold to the specialized fatteners (Figure 1). The result evidence the superiority of the Simmental crossbred, sold by the dairy farmer at +1.70 €/kg than the Holstein Friesian one.

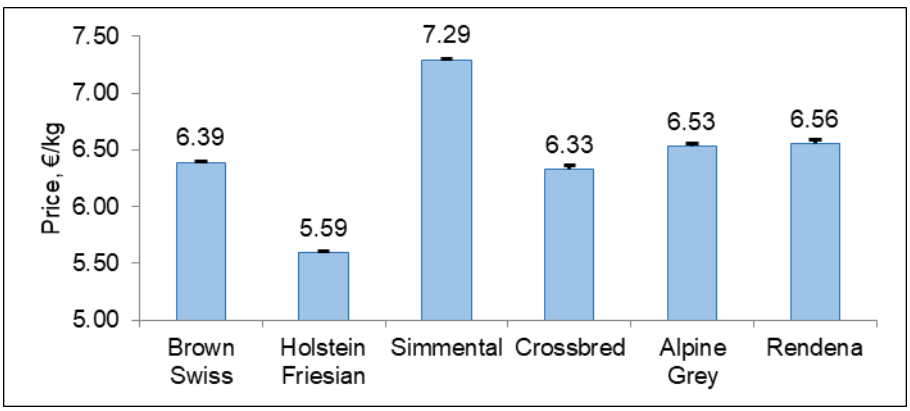

Figure 1. Price of calves sold to specialized fatteners.

The data recovered to date show that almost all the carcasses were classified U on the SEUROP scale of fleshiness and 3 on the scale of fatness. However, the results in Table 1 show that the breed of the cow inseminated with the Belgian Blue semen had an important effect on the productive traits of the daughters, not only in terms of the carcass weight, but also in terms of single retail cuts. In particular, the Belgian Blue × Simmental crossbreds had better performances in these terms compared to the others, in particular crossbreds with Alpine Grey and Holstein Friesian.

Table 1. Least squared means and significance (p-value) for the effect of the dam's breed on beef retail cuts.

Retail cuts (kg)	Brown Swiss	Holstein Friesian	Simmental	Crossbred	Alpine Grey	Rendena	p-value	RSE
Half-carcass	138	137	140	137	133	137	<0.001	12.1
Anterior cuts								
Royal chop	7.19	6.99	7.37	7.15	6.97	7.22	<0.001	1.10
Blade	2.17	2.14	2.22	2.15	2.18	2.17	<0.001	0.33
Shoulder clod	3.55	3.38	3.46	3.34	3.43	3.31	<0.001	1.17
Chuck tender	1.45	1.43	1.45	1.41	1.37	1.40	<0.001	0.17
Shoulder	2.87	2.81	2.88	2.8	2.74	2.87	<0.001	0.31
Central cuts								
Striploin	10.3	9.85	10.6	10.2	10.3	10.4	<0.001	1.08
Tenderloin	2.61	2.49	2.67	2.56	2.57	2.59	<0.001	0.30
Flank	13.0	13.1	13.2	13.2	12.6	12.9	<0.001	1.85
Posterior cuts								
Rump	3.80	3.67	3.94	3.74	3.78	3.81	<0.001	0.42
Picanha	1.44	1.40	1.48	1.46	1.43	1.43	<0.001	0.25
Rump tail	1.27	1.24	1.31	1.27	1.29	1.25	<0.001	0.19
Topside	9.13	8.93	9.37	9.08	8.96	9.07	<0.001	0.92
Eye round	2.73	2.59	2.80	2.66	2.68	2.73	<0.001	0.34
Knuckle	5.64	5.56	5.72	5.54	5.41	5.48	<0.001	0.56
Silver side	5.34	5.22	5.61	5.35	5.26	5.40	<0.001	0.64

RSE: Residual Standard Error

IV. CONCLUSION

The results of this research confirmed that the production of beef from dairy herds represent an interesting alternative to improve the economic sustainability of mountain farms. Future researches are needed to assess the global sustainability of this farming systems.

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