

Food self-sufficiency and farm economics in French organic suckler cattle farms

P. Veysset, D. Bébin

Abstract – The organic Charolais suckler farmers of the French Massif Central sell most of their animals on the conventional market. The high cost of the inputs, and in particular the concentrates, is an incentive for these suckler farmers to seek a high degree of food self-sufficiency on their farms. This self-sufficiency is reached through good management of grass and especially through cereal crops for animal feeding. The strong limitation of the inputs does not affect the numerical productivity or the health of the herd, but it entails lower meat productivity per animal and per hectare. However, the operational cost savings make it possible to maintain income per hectare at the same level as that of conventional farms.¹

INTRODUCTION

French suckler cattle farming provides 60% of the beef produced in France and makes it possible to develop the less favoured grassland and mixed-farming areas of the Massif Central (Veysset et al., 2005). Only 1.3% of these farms are certified for organic farming (OF). Livestock feeding, and thus the management of fodder area and concentrates are key points for productivity, animal health and product quality (Nielsen & Thamborg, 2005). To gain better knowledge of farming systems and their technical and economic results, a Charolais suckler cattle farm network was set up by INRA. Based on the results of six organic farms (Org.) for the years 2002 to 2004, compared with 77 conventional farms (Conv.) in the same area in the same years, we studied the gross margin and farm income determinants.

THE FARMS

The six farms studied were large mixed crop-livestock farms (Table 1), located in low agronomic potential areas of the north and west Massif Central. Their useable farm area was 11% larger than the 77 Conv. areas, but they had 17% fewer cows.

More than 75% of Charolais male calves from the Massif Central are sold as store animals and exported to southern Europe, but there is no organic market for this type of animal. Only the fattened animals: steers and heifers of more than 30 months, and cull cows can be sold on the organic market at a premium price. The six Org. fattened and finished all their cull cows, three did not castrate and did not fatten the males and two of these three farms did

not fatten their heifers. For these two farms, almost all the animals were sold on the conventional market. The organic meat production sector is not well structured; farmers prefer to play safe and sell their animals on the conventional market below the premium price, rather than risk not finding an outlet for fattened animals that have cost them more to produce. Overall, the percentage of animals fattened on the Org. and on the Conv. was nearly the same (30%, 40% and 75% respectively for males, heifers and cows), but the types of animals differed: in Conv. the males were trough-fattened 18-month baby beef, whereas in Org. they were steers aged more than 30 months that had grazed three summers.

Table 1. Average characteristics of the six Org. and the 77 Conv. for the years 2002 to 2004

	6 Org.	77 Conv.
Useable farm area, UFA (ha)	166	149
Cereals (ha)	28	22
including home-consumed	22	13
Main fodder area, MFA (ha)	134	122
Fodder maize (ha)	0	4
Permanent grassland (ha)	72	74
Temporary grassland (ha)	62	44
Total area for the herd (ha)	156	135
% UFA	94	90
Cows	70	85
Livestock Units, LU	134	150
Stocking rate (LU/ha MFA)	1.04	1.25

FEEDING AND PRODUCTIVITY

The grass took up nearly 100% of the main fodder area (MFA) of the Org. The proportion of temporary grassland was very high, not only to ensure good fodder quality, but also to introduce nitrogen into the system via pulses. Despite the extent of the temporary pasture, the stocking rate was 17% lower for the Org. The cereals were mainly cropped for herd feeding; only 25% of the grain harvest was sold, against 40% for the Conv. In all, 94% of the useable farm area was used to produce food for the herd. Thus the Org. displayed a strong forage self-sufficiency, 90% of the net energy requirements (forage units, FU) for the herd being met by home-produced fodder, and a very strong food self-sufficiency, 98% of these FU being home-produced (Figure 1). Purchases were thus very low. Conv. produced 92% and bought 8% of the FU required by the herd.

¹ P. Veysset and D. Bébin are with the French National Institute for Agricultural Research, Animal Husbandry Economics Unit, Theix 63122 Saint Genès Champanelle, France (veysset@clermont.inra.fr).

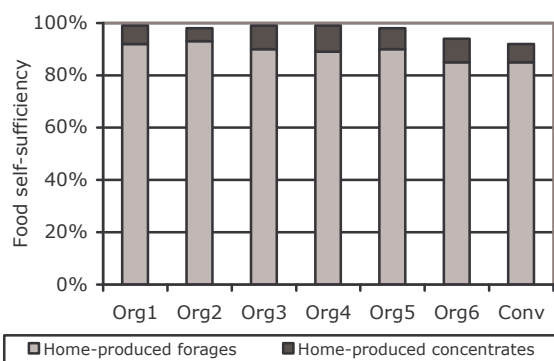


Figure 1. Proportion of FU supplied by the home-produced forage and concentrates out of the total FU required by the herd.

This strong autonomy and independence from commercial feeds did not impair the zootechnical results of the herd. The pregnancy rate, calf mortality and numerical productivity were comparable to those of Conv. (Table 2).

Table 2. Herd productivity criteria

	6 Org.	77 Conv.
Pregnancy rate (%)	92.4	92.8
Numerical productivity (%)	85.3	87.4
Meat produced (live kg/LU)	262	312
Meat selling price (€/live kg)	1.93	1.85
Concentrates (kg/LU)	464	699
including purchased	97	360
Concentrates price (€/kg)	0.23	0.16
purchased concentrates	0.34	0.22
Autonomous meat (live kg/LU)	196	240

However, the quantity of meat (live weight) produced per LU was 16% lower for Org. (Table 2), and each of the six farms had lower values than the average Conv. ones. This was partly due to a less intensive farming system, with a longer production cycle and sale of older animals (1.90 LU/cow vs 1.75) but also to lower use of concentrates (-34%). The cull cow carcass weight was 36 kg lower (380 vs 416 kg). Compliance with technical specifications and the price of the concentrate (+44%) limited their use in the Org. Not all the animals were sold on the organic market, so the beef premium price was limited (+4%) and did not compensate for the higher price of the purchased concentrates (+55%). 120 g of organic live weight is needed to pay for one kg of organic concentrate, against 85 g for conventional live weight. The production of autonomous meat per LU (mass of live weight produced minus the mass necessary to pay for the concentrates consumed) was 18% lower for Org.

GROSS MARGIN AND FARM INCOME

The lower meat productivity, not compensated for by the premium price, resulted in a bovine product/LU 5% lower for Org. than Conv. (Table 3). On the other hand, the herd costs/LU were 12% lower, in particular because of 66% lower veterinary costs (whereas mortality and morbidity were comparable with Con.). The fodder area costs/ha were 34%

lower. All in all, the lower costs compensated for the smaller product and the bovine gross margin/LU was at the same level for Org. and Conv., but the lower stocking rate meant that the main fodder area gross margin/ha was 8% lower.

Table 3. Economic results

	6 Org.	77 Conv.
Bovine product (€/LU)	848	887
Herd costs (€/LU)	182	206
including concentrates	108	113
including veterinary	32	53
MFA costs (€/ha)	50	75
Bovine gross margin (€/LU)	617	621
MFA gross margin (€/ha)	760	829
Gross farm product (€/ha)	1042	1182
Operational costs (€/ha)	197	303
Overhead costs (€/ha)	510	533
Farm income (€/ha)	314	317

At the farm scale, the gross farm product/ha, the proportional costs and the overhead costs of the Org. were respectively 11%, 35% and 4% lower than the Conv. ones. The farm income per hectare was the same for the two farming systems.

CONCLUSIONS

The poor organisation of the French organic meat sector causes farmers to sell most of their animals on the conventional market without premium prices. Cost savings are thus the best way to preserve their income. A low input farming system is compatible with the productivity and health of the animals (Meili, 2002), but its success will depend on the best possible exploitation of the farm resources. This search for food self-sufficiency at the farm scale is a key point for farm economics, but it is workable only in mixed crop-livestock farms where cereal and pulse cropping are possible with adapted crop rotation (Benoit & Veysset, 2003). The less autonomous 100% grassland farms must sell all their animals in the organic market to get the premium price that will enable them to buy the inputs not produced on the farm (Freyer et al., 2005).

REFERENCES

- Benoit M., Veysset P. (2003). *Livestock Production Science* **80**:141-152.
- Freyer B., Darnhofer I., Eder M., Lindenthal T., Muhar A. (2005). In "Researching Sustainable Systems", 1st Scientific Conference of the International Society of Organic Agriculture Research, pp. 308-311, ed. ISOFAR.
- Meili E.A. (2002). In "Cultivating Communities", 14th IFOAM organic World Congress, p88.
- Nielsen B.K., Thamsborg S.M. (2005). *Livestock Production Science* **94**:41-50.
- Veysset P., Lherm M., Bébin D. (2005). *INRA Productions Animales* **18(4)**:265-275.