

Are there alternative paths towards more self-sufficient and resilient systems in dairy farms?

Peeters A.¹, Delobel V.² and Van der Ploeg J.D.³

¹RHEA, Rue Warichet 4, 1435 Corbais, Belgium; ²Chèverrie de la Croix de la Grise, 7531 Tournai, Belgium; ³DLO, P.O. Box 8130, 6700 EW Wageningen, the Netherlands

Abstract

This paper synthesizes a selection of socio-economic studies from France and the Netherlands, and an ethnographic study in Belgium. It compares grassland-based farms with 'more intensive farms'. The first ones use less concentrates, crop less green maize, manage grasslands better and can be smaller (surface, quotas) than the intensive farms. The grassland-based farms of these studies have similar or better economic performances per farm than more intensive farms. They are also more resilient; they can better survive periods of low milk price and high price of concentrates. These studies show that alternative paths to scale enlargement and spurred intensification are feasible.

Keywords: alternative paths, scale enlargement, intensification, self-sufficiency, income

Introduction

In a quest for more productivity and competitiveness in European farming, there has been a large reduction in the number of dairy farms since the 1960s. While farmer population has decreased, farm size and the use of external inputs (e.g. fertilizer, concentrate, fossil energy) increased and many other parameters changed. The price of land became more and more important, dairy production required huge investments in terms of buildings, machinery, land and cattle, while production costs for fertilizers, animal feed and veterinary costs increased a lot. The milk quota ensured a stable market between 1984 and 2004 but since then milk prices are much more unstable and do not always allow profitability of dairy farms. The farmer population is ageing because young people hesitate to enter the sector because of the necessity to contract important loans and the lack of good economic prospects. The system is thus questioned and many farmers in Europe have started to develop alternative paths, towards more 'autonomous' farming systems. The paper discusses these alternatives and analyses their impact on farm profitability.

Data sources

In Belgium, Delobel (2014) studied why and how nine farm families spontaneously changed their practices and in favour of 'novelty production'. This ethnography consisted in participant observation on these farms and sought to understand better farmer-led innovation processes happening beyond agriculture modernization. The study considered the 'novelties' as part of unique farm projects that were alternatives to the usual model 'get big or get out'.

In France, Peyraud *et al.* (2014) compared average data of grassland-based and more intensive dairy farms from the 'Sustainable Agricultural Network' (SAN) (about forty farms) and from the French Farm Accounting Agency (RICA) between 2008 and 2012. They analysed the technical and economic performances of dairy farms from three French lowland regions (Brittany, Lower Normandy and Loire Region) according to their intensification level, in a sample of specialized dairy farms from the RICA network over 3 years (2004-2006). Their farm typology distinguishes three classes of intensification/self-sufficiency rate on the basis of thresholds of input costs: extensive/more self-sufficient (<390€ ha⁻¹), intermediate (between 390 and 590€ ha⁻¹) and intensive/less self-sufficient (>590€ ha⁻¹).

In the Netherlands, Oostindie *et al.* (2013) studied a sample of 1000 dairy farms containing precise farm accountancy data for the 2007-2010 period. A group of so-called 'economical farmers' could be distinguished (using farming style analysis). Keeping costs associated with the acquisition of external inputs as low as possible was key in their strategy. The same applies to financial costs: debts were kept at low levels.

The paper makes results available in English that were originally published in French or Dutch.

Results and discussion

The ethnographic study in Belgium (Delobel, 2014) showed that farm families face 'modern problems' that threaten the continuity of the farm. These problems emerge from social institutions and practices promoted by modernization discourse, including global commodity markets, farm credits, subsidy schemes and purchase of inputs. In response to these problems, the farm families constructed their own farm project and re-designed their farm according to objectives they considered relevant and desirable. These farmers completed actual farm transitions by creating alignment between various 'novelties' within their farm, notably grass-based feeding (rotational grazing, hay dryer, grass-clover mixtures), mixing cattle breeds at grazing, processing milk on the farm, developing niche markets (distinctive farm products, network of local producers, weekly street markets, farm shops), and ensuring soil fertility with compost and legume use. Obviously, the production of 'novelties' requires human and farming resources (time, space, money, energy, labour); it implies lots of reading, testing, adapting, fine-tuning and risk-taking. Novelties induced both internal re-organisation of the farm (labour and resources) but also re-negotiation of relationships with external actors (down and upstream agro-industries, regulation apparatuses, scientific and technical organisations). In the ethnographic interviews, farmers said these changes allow them to keep on farming 'in a freer way'.

The French studies put figures on different farming paths and compare them in terms of performance and viability. The farms of the French SAN network are on average smaller than those of the RICA network (56 vs 78 ha), use more grass (87 vs 67% of their Main Forage Area) and thus less silage maize (11 vs 32%) and produce less cereals (8 vs 20 ha). In spite of a lower quota (266,500 vs 349,900 l yr⁻¹) and a smaller total value of products per agricultural working unit (AWU) (88,454 vs 104,840€ AWU⁻¹), the farms of the SAN network produce an income before tax that is higher (21,907 vs 17,261€ AWU⁻¹) than on the average farms of the RICA, because of savings on the production costs (248 vs 568€ ha⁻¹). These savings relate mainly to the purchases of concentrated feed (154 vs 320€ ha⁻¹) and inorganic fertilizers (21 vs 92€ ha⁻¹). The economic result before tax and without subsidies, which reveals the real technical performance of the system, is much higher in the farms of the SAN network (7,180 vs 1,490€ AWU⁻¹) (Peyraud *et al.*, 2014). The three classes of intensification/self-sufficiency based on the input costs per ha of the RICA network are closely associated to a variation of grassland in the main fodder area (grasslands + other green forage cropped on arable area). More self-sufficient farms include more grasslands than less self-sufficient ones. The degree of intensification does not seem to be a key explanatory factor for the differences in technical-economic performances. The differences in net margins per worker between the three levels of intensification are low, Brittany being the only region where the net margin increases with the levels of intensification (respectively 9,800, 10,800 and 12,100€ AWU⁻¹ from extensive to intensive levels) whereas, in the other regions, the most extensive class has on average better performances than the most intensive class (respectively 13,600, 10,300 and 6,800€ UWA⁻¹ on average). In this study, the most self-sufficient, which are also the more grassland-based systems, appear to be more resilient to price crises because the share of variable costs in the cost of milk production is always significantly lower than in the more intensive systems (0.10 vs 0.13 vs 0.16€ l⁻¹ respectively for the extensive, intermediate and more intensive systems) whereas the market price of milk practically does not vary from one system to another. The strong reduction in milk price in 2009 had relatively less impact on the systems of the SAN

network than on the specialized farms of the RICA network. The average level of income before the price crisis was reached again in 2010 after an improvement in the milk price level. In the latter study, as well as in the previous one, the variability of the results within farm class is very important which shows that progress in margins exist in all these systems.

In the Netherlands, Oostindie *et al.* (2013) showed that in the economical farms the costs for animal feed per dairy cow equalled 393€ cow⁻¹ year⁻¹ (in 2010). This is far below the level of large-scale intensive farms (560€ cow⁻¹ year⁻¹) and of small-scale intensive farms (619€ cow⁻¹ year⁻¹). Similar or even larger differences were found for fertilizer use. In years with relatively good milk prices (2007, 2010), the net farm incomes realized within the different styles were similar, even while the size of the large-scale, intensive farms (1,400,000 kg of milk) was far beyond the one of 'economical farmers' (560,000 kg of milk). However, in years with low milk prices (2008, 2009), the income of the latter was far higher than of large-scale, intensive farmers. A part of the large-scale, intensive farms even faced a negative cash flow.

Maximising grass, reducing green maize and concentrates, using the right animal (Normande or Jersey crosses instead of pure Holstein cows), reducing investments and loans are key-parameters to achieve this. Intensive dairy systems are in a rationale of high investments, high use of concentrates, high production per cow and have to increase herd and farm size to be able to survive. That makes them very susceptible to sudden fall of milk price and increase of input prices. Moreover, Belgian farmers reduced expenses linked to banks and agro-industries (e.g. fertilizer, feed) and also often increased their economic margin by food processing and short marketing chains. They tried to improve the use of local resources which necessitated creativity and innovation. They demonstrated their capacity to produce these novelties and to construct alternative futures for improving their income and welfare.

Conclusions

In the dairy farms of these studies, grassland-based systems that have lower variable costs (e.g. concentrates) and are more forage self-sufficient, have similar income per AWU, are sometimes more profitable whatever the economic context and always more profitable in a low milk price context than 'more intensive' systems. These studies show that paths alternative to scale enlargement and spurred intensification are feasible.

Acknowledgements

This research was partly funded by the EU project 'Multisward' (FP7-244983).

References

- Delobel V. (2014) *Les Indomptables: an ethnography of niche novelty production in Walloon agriculture*. MSc thesis, Wageningen University, Wageningen, the Netherlands, 138 pp. Available at: <http://orgprints.org/25218>.
- Oostindie H., Van der Ploeg J.D. and Van Broekhuizen R. (2013) *Buffercapaciteit, bedrijfsstijlen in de melkveehouderij, volatiele markten en kengetallen*. WUR/ALFA, Wageningen, the Netherlands, 50 pp.
- Peyraud J.-L., Delaby L., Delagarde R. and Pavie J. (2014) Les atouts sociétaux et agricoles de la prairie. *Fourrages* 218, 115-124.