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Obliged permanent grasslands: main future of ruminant productions in Belgium?

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Abstract

A prospective exercise was initiated to identify the possible evolution of livestock farming systems in Belgium and especially in the Province of Luxemburg. After the definition of the current trend in farming systems, a scenario for the evolution of cattle farming systems was defined in a context of global markets, together with the adoption of a proactive posture to face society and environmental problems. It took into account the following trends: reduced consumption of animal products, a decrease of food waste, cattle production focusing on dairy production with meat becoming a by-product of these systems, use of sexed semen, cattle production concentrated on obliged permanent grassland, etc. The scenario, meeting national population needs together with a reduction in the environmental impact of this sector, was discussed with different stakeholder groups. The next step will be to define alternative scenarios and to identify political driving forces and supports necessary to orientate the sector in the shared direction.

Keywords: forecast, prospective, cattle systems, consumption habit, sustainability

INTRODUCTION

As in other European Countries, in Belgium the number of farms is steadily declining. Under this trend, coupled to an increase of farming-system size and a reduction of manpower, what is the possible place of grassland-based livestock farming systems? To explore the possible answers to this question and to identify the possible futures of livestock farming systems in Belgium, and especially in the Province of Luxemburg, with more than 85% of its Utilized Agricultural Surface (UAS) covered by grasslands, the Agriculture Deputy of the Luxemburg Province has initiated a forecast exercise. Its results are presented hereafter.

MATERIAL AND METHODS

This exercise was driven by a group of seven experts (agricultural engineers, farm advisors, farm accountancy service, rural sociologists), based on forecasting methodology (Stassart *et al,* 2007). The first step focussed on the definition of the current trends of regional agriculture in the context of the Common Agricultural Policy (CAP) and globalization. Historical data describing the evolution of the agricultural sector in the Luxemburg province from 1975 till now were assembled together with macro-economic data characterising agricultural product exports and imports at the Belgian scale. Finally, a seminar was organized, with 15 experts, with the aim of defining the main stakes our farming systems have or will have to face in the next 10 years, together with the major trends identified in term of CAP evolution.

On this basis and inspired by (1) the Millennium Ecological Assessment scenarios (Reid *et al,* 2005) and (2) AGRIMONDE 2050 forecast exercise (Chaumet *et al,* 2009), two contrasted evolutions of the general context (social, economical, environmental), at an horizon of 20 to 30 years, were drawn.

Based on this second general context evolution and AGRIMONDE2050 forecast results, a rupture scenario aiming to identify an alternative for the development of cattle production systems in Belgium was defined by the initial group of seven experts. The aim of this scenario, as contrasted as possible from the 'general trend' one, was, first, to lead to clear reactions from the stakeholders. Indeed it was, together with the general trends, debated and discussed in three work groups: the first included farm advisors (technical and financial), the second included young farmers, while the third one included staff responsible for the agricultural sector.

RESULTS AND DISCUSSIONS

The reduction in farm numbers in the Belgian Luxemburg Province, as in the rest of Belgium, is close to 3% per year. Thus, in this Province, farm numbers declined from from 7991 in 1978, to 2983 in 2007, with a parallel increase of their UAS from 19 to 49 ha per farm. In 2007, there were about 1.7 manpower units per farm. An extension of this trend indicates that in 2007 there was 25 young farmers taking over from 100 farmers that were stopping their activity; this will lead to fewer than 1500 and 800 farms, with, on average, around 100 and 175 ha of UAS per farm, respectively, by 2030 and 2050 in the Luxembourg Province. As the stocking rate is close to 2 LU ha^{-1}, ≈ one cattle and her calves per ha, this will lead to herd of 100 and 175 cows, in 2030 and 2050 respectively.

Macro-economic analysis underlined that Belgian cattle meat was, as in other European countries, produced at high cost (100-158 € 100 kg $liveweight^{-1}$) in comparison to imported meat (36 € 100 kg $liveweight^{-1}$ in Brazil or Argentine) but with a quality, lean and tender, specific to our country. Therefore, 77% of Belgian production is consumed in Belgium. Major trends identified, in terms of CAP evolution, were (1) a pursuit of the suppression of market regulation tools with the development of revenue support measures (insurances); (2) a standardization of the support, per ha, at a geographical scale to be defined. We will disconnect from the historical model. This highlights the necessity of a transition period and questions the way to implement such a standardized support, per ha, without risk of direct transfer from the farmer towards the land owner; (3) a reinforcement of the rural development support program with more attention to environment protection. Nevertheless, this questions the ability of regional powers to co-finance these programs.

On this basis and inspired by the Millennium Ecological Assessment scenarios (Reid *et al.,* 2005), the first evolution of the general context drawn included a full liberalisation of market exchanges, together with the adoption of a reactive posture to face emerging problems, while the second is based on a global orchestration of market exchanges together with the adoption of a proactive posture to face society and environmental problems.

Based on this second context definition, at local and global levels, we defined a scenario of evolution of cattle livestock farming systems in phase with the 'AGRIMONDE 1' scenario (more market exchanges regulation, pro-active response environmental and social problems, better distribution of food resources). This scenario also took into account the following leading trends : a reduction of animal products consumption, a decrease of food waste, a cattle production focusing on dairy production with meat becoming a by-product of these systems, a cattle production concentrated on obliged permanent grassland and/or on the valorization of bio-industrial sub-products that can not be valorized by mono-gastric species, and national self-sufficiency.

Such a scenario, for 2030-2050, leads to a huge reduction in the number of cattle in Belgium, even if a stocking rate of 2 LU/ha of grassland is maintained (Table 1). Thus, the number of cows would shift from more than 1068,000 to fewer than 470,000 under such a scenario.

Table 1. *Cow herds and stocking rate under the scenario defined 'in rupture' to the scenario 'market as usual', at the horizon 2050*

	Market as usual	Rupture scenario
UAS (ha)		1370285
Permanent grassland		507304
Including grassland of high ecological value		50000
Limitations	2 LU ha^{-1} UAS	2 LU of herbivore ha^{-1} grassland
Suckler cows	544516	40000 (on Natural grassland)
Dairy cows	523699	430000
LU of herbivore ha^{-1}grassland	3.6	2.0
Total LU UAS^{-1}	2.0	1.4

Such an evolution would be allowed by the emerging technique of semen sexing leading to the insemination of the best cows with female leading semen, of high dairy origin bulls, while the low performing ones would be inseminated with male leading semen, of bulls with a high value for meat production ("industrial crossing"). This strategy would cover meat and milk needs based on the dairy cow herd, following, also, a modification of our feeding habits. The development of such a scenario would also reduce the environmental pressure exerted by cattle production systems, mainly through reduction in stocking rate and the beneficial impact of grasslands on biodiversity, nitrate leaching reduction and as a carbon sink (Peyraud *et al.,* 2010). Nevertheless, this scenario will need to select, in order to supply our production of 3.10^9 liters of milk, dairy cows with good intake capacities able to produce 7000 liters per lactation, mainly from grass, and this in association with an adapted management of the resources offered by the grasslands.

Confrontation of the different stakeholders groups to this scenario, during the milk crisis of 2009, led to the following reactions. Young farmers focussed more on the definition of measures that would allow the development of multifunctional agriculture in connection with society, with rules that would facilitate the access to the land for farmers with innovative ideas. Farm advisors had more difficulties to detach themselves from the 'business as usual' trend. Nevertheless, they underlined the importance of the transition pathway from the actual to alternative systems; they also underlined the necessity to develop milk products with more added value than butter and milk powder that currently represent the main valorization of Belgian milk. With municipal persons in charge of agricultural sector, we explored possibilities to mobilize land owned by municipalities to support innovative farming systems.

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