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Hélène Rapey

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# Multiple Forms of Mountain-Area Dairy Farms Converting From Milk to Meat

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Hélène Rapey

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## Introduction

- 1 France is one of Europe's biggest producers of mountain-farmed milk (20% of EU mountain-farmed milk and 16% of EU mountain milk farmers in 2009; cf. Perrot et al., 2009). Dairy farmers play a key role in the economy and the governance of France's pastoral highland regions. However, the abolition of the milk quotas regime set in motion by the 2003 CAP reforms has changed the market landscape for milk producers and brought with it an uncertain future for the dairy sector (Burrell, 2004; Perrot et al., 2008; Perrot et al., 2009; Euromontana, 2013). Tougher competition in and between highland and lowland regions raises fears of an increase in mountain dairy farms going out of production (Ricard, 2014) and of greater gaps between farm systems within these regions (Dervillé et al., 2012).
- 2 In the Massif Central, which has the highest number of dairy farms of all the French massifs, milk processors are burdened with heavy bulk milk collection expenditure. Furthermore, the quality labels are not generating enough added value to guarantee revenues approaching the national average for dairy farmers, which heightens concerns for the future. Although the Massif Central has half the French mountain-region dairy cows, many of its subregions register only modest dairy specialisation and dairy herd

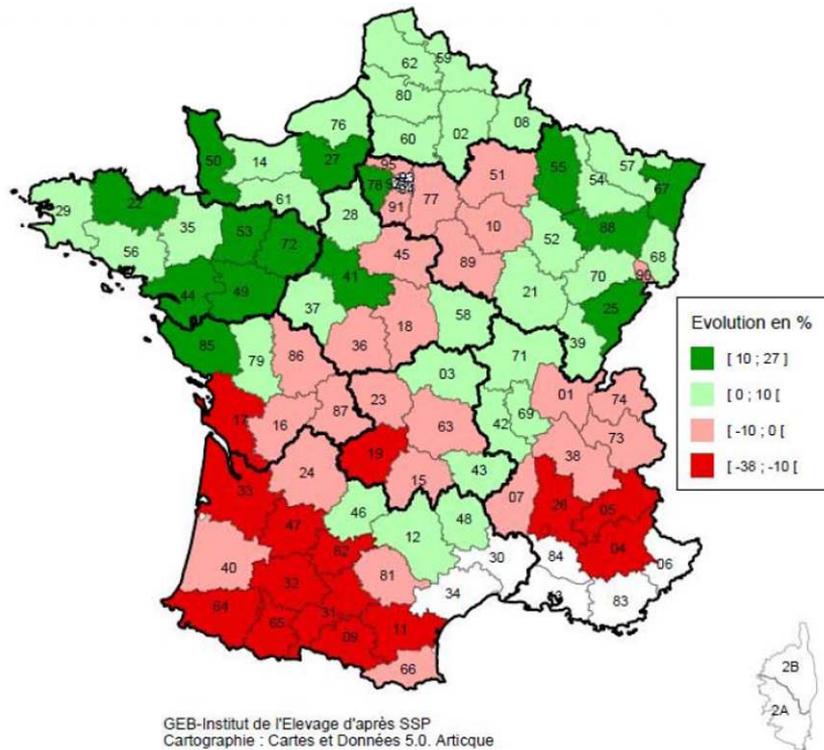
density (Dobremez et al., 2015). In this setting, dairy farms converting from milk to meat could compromise the viability of local-level bulk collection and dairy businesses, which would risk incentivising moves to upsize-and-convert (to beef), which in turn would turn up the pressure on the land and competition between farmers and, potentially, devitalise the agricultural fabric and rural community life. However, even though this trajectory is already underway –and has been gathering pace since the 2008–2009 dairy market crisis–there has been little attempt to capture and chart the concomitant changes in farm structure and land-use practices, despite the fact these same changes dictate the structural reorganisation options for the farm sectors, farming communities and landscapes involved. This knowledge gap stems from the existing censuses only informing on aggregate farm headcounts, hectares and units of labour for each type of farm. The regional-scale technical and economic reference material that is available<sup>1</sup> essentially characterises the farm diversity for each livestock production. Moreover, there are no information sources that can serve to analyse the transformations ushered in with conversions and map their diversity. This leaves local-level actors and outreach professionals without a frame of reference in which to project this trajectory shift in their subregions—despite the social, economic and spatial community challenges involved for mountain/highland dairy farming areas like the Massif Central. Our research attempts to address this gap. The aim is to bring insights regarding farms that have recently (since 2003, when the EU first unveiled plans to abolish milk quotas) converted from milk to meat and how they have changed in terms of structure and grassland–pastoral system management. The objective is to better chart the resulting economic, environmental, social and territory-structure effects for mountain-area communities.

## Material & methods

### Traditional dairy-oriented areas affected by recent conversions

- 3 In the humid Massif Central highlands of the Auvergne, dairy farming is in a precarious state. Over the past decade, despite the volume of milk collected in bulk holding just about steady (cf. Figure 1), the number of dairy cattle farms has plummeted while the number of beef cattle farms has dipped only a little (Agreste, 2013). These dairy farms are typically mid-sized and have a relatively low production capacity; in the quota-less world, these are handicaps that risk weakening a large number of these farms that are simply not geared to produce huge volumes of milk (off-norm buildings, remote paddocks, one-man management, etc.).

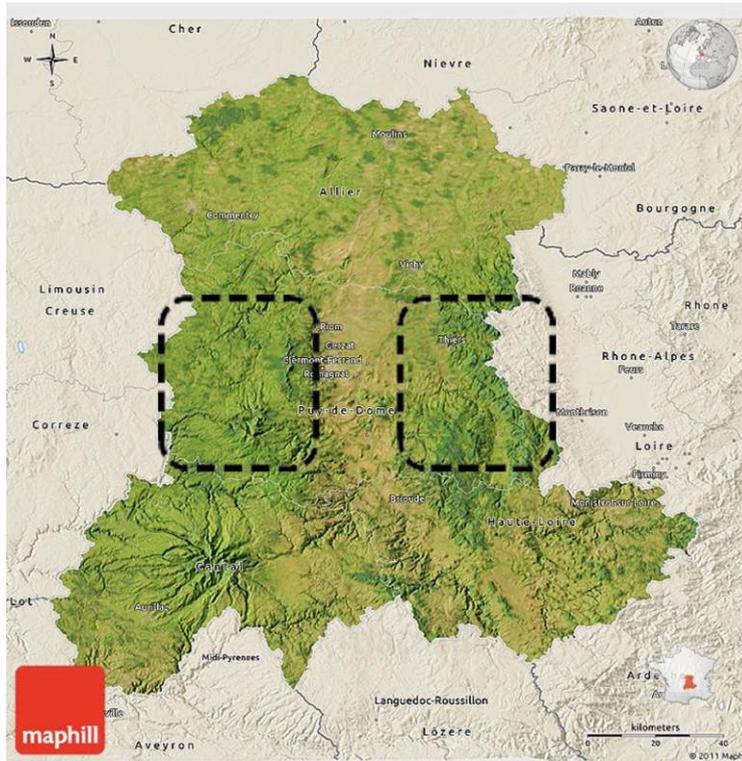
Figure 1: Evolution of the volume of milk collected in bulk between 2006 and 2012 in the four Auvergne *departments* (03-Allier, 15-Cantal, 43-Haute Loire, 63-Puy-de-Dôme) and elsewhere in France



SOURCE: GEB & INSTITUT DE L'ÉLEVAGE, BASED ON SSP DATA

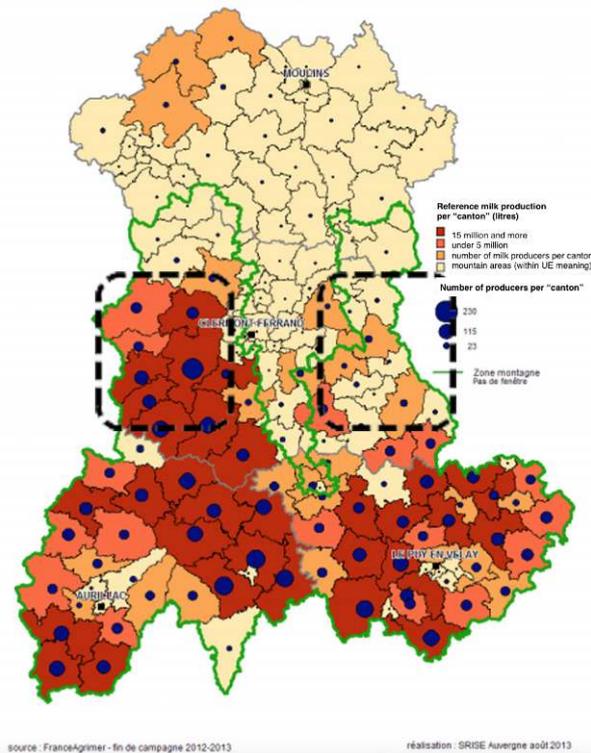
- 4 Even if the Auvergne dairy systems are largely forage-based and nearly half their land is grazed, the Auvergne dairy farms compose a mosaic of production conditions and management operations (share of cropland, type of fodder, organisation of grazing, etc.; cf. *Référentiel fourrager d'Auvergne et Lozère / The Auvergne-Lozère Foraging Baseline*: [http://www.reseaux-bovin-auvloze.fr/IMG/pdf/Newrefou2008\\_Avril08.pdf](http://www.reseaux-bovin-auvloze.fr/IMG/pdf/Newrefou2008_Avril08.pdf)) due to geographic diversities (altitude, morphology, soil types) and dairying legacies (small dairy enterprises absorbed by agri-food industries, PDO dynamics). These systems also show vastly different changes and vulnerabilities in response to shifts in local and international contextual factors (Rapey & Veysset, 2011; Rapey, 2015).
- 5 This situation is mirrored in the two focal zones studied here, albeit with a handful of contrasts with respect to subterritorial morphology and between-zone trends (cf. Figure 2). The “West-Puy-de-Dôme” subterritory (small farming regions called the *Dômes belt and periphery*: 1291 farms in 2010, according to the Census of Agriculture (CoA)) presents a higher dairy herd density and a greater share of “all-grass” and “all-hay” systems than the “East-Puy-de-Dôme” subterritory (the *Monts-du-Forez and Livradois, Dore and Ambert lowlands*: 1704 farms in 2010, according to the CoA). Between 2000 and 2010, the “West” lost 20% of its farms and over 50% of its mixed-purpose dairy systems, while the “East” lost 25% of its farms and one-third of its mixed-purpose dairy herds.

Figure 2: Geography and morphology of the two focal zones (indicated by a dotted contour line) in the Auvergne region



Map source: <http://www.maphill.com/france/auvergne/3d-maps/satellite-map/shaded-relief-outside/>

Figure 3: Number of milk producers and milk reference figures per *canton* (local administrative subdivision) in the two focal zones and elsewhere in the Auvergne region in 2012–2013



Source: France-Agrimer & SRISE Auvergne

### Around 40 farms surveyed, after local experts insight

- 6 The only way to quickly identify farms that have converted their system of production in a region is to seek insight from local experts, as the potentially available databases<sup>2</sup> are not immediately available because they require administrative authorisation applications, specific data extraction efforts from database owners or rough to non-existent localisation. Therefore, we used a preliminary study phase to survey livestock farming advisers and agricultural and/or inter-communal extension agencies in the two dairy zones targeted, with the objective of capturing the local farming context and identifying and situating the farmers who had converted from milk to beef since 2003. This preliminary process pulled together a sample of around 20 farmers for each focal zone.

### Interviews with local farmers, on the topic of conversion

- 7 Semi-structured interviews conducted with each farm manager focused on the key farm size (area, herd, labour) and production (volume output, seasonality) parameters, as well as land-use management factors (harvest, pasture-grazing, fertiliser use, manuring), at the time of the survey (2013-2014) and looking back over the previous decade. The farmers were also questioned on what they see as the big changes connected to the conversion to beef over the past 10 years.

- 8 The information gathered provided quantitative (farm size metrics) and qualitative (farming-practices formats) data content on farm standings before and after conversion and on the scale and form of the changes brought about since the conversion. The quantitative variables were processed to give a Bertin classification (1977) matrix of the farms factorised by farm resizing variables that was subsequently validated through a multiple correspondence analysis. This approach gave a clear visualisation of the forms of development in beef production at dairy farms. An analysis of the qualitative content added an extra layer to the characterisation effort in terms of changes in practices, motivations and experience of the conversion from the farmer's perspective.

## Results

### A substantial majority of mid-sized farms

- 9 Surveyed farms that had converted were slightly bigger than the regional average for cattle farms (83 ha for the “West” zone and 110 ha for the “East” zone vs 70 ha for the Puy-de-Dôme department and 77 ha for the wider Auvergne region, based on 2010 CoA). Less than half of them (40%) have increased their utilised agricultural area (UAA) over the past 10 years, while more than half (53%) have increased their livestock units (LUs). In most cases, their labour force has remained stable [2.25 annual work units (AWUs) per farm in the “West” zone, 1.6 AWUs per farm in the “East” zone]. The farm systems were mostly specialised milk farms –working to a quota capped at under 200,000 litres– whereas today they often combine some production of feeder calves and other meat animals (veal calves, fattened heifers, young bulls). On aggregate, stocking rate has remained unchanged (at 0.9 LU/ha UAA in the “East” zone and 1.1 LU/ha UAA in the “West” zone), while labour productivity has increased sharply over the past decade (39 →64 LU/AWU in the “East” zone, 32→54 LU/AWU in the “West” zone). The composition of the agricultural area has remained very different between the two zones: 22% of the farm area in the “East” zone is entirely meadowlands vs 90% of the farm area in the “West” zone. These early pointers show that conversion-related changes revolve primarily around land and herd size and the diversification of farm output.
- 10 Beyond these big trends, the changes take contrasting forms between each zone's farms, where they chiefly concern the intensity of upsizing (cf. Tables 1 and 2).

Table 1: General characteristics of farms surveyed (average, followed by the standard deviation in brackets)

Characteristics of farms surveyed	West-Puy-de-Dôme (subregion : BR)	East-Puy-de-Dôme (subregion : L)
Number of farms	20	18
Altitude of farmstead	912 m. (153)	733 m. (236)
Utilised Agricultural Area (UAA) 2003-2004	72 ha (40)	93 ha (53)

UAA increase over 10 years	11 ha (22)	17 ha (33)
Livestock Units (LU) 2003-2004	77 LU (49)	87 LU (58)
LU increase over 10 years	11 LU (28)	15 LU (24)
Annual Work Units (AWU) 2003-2004	2,4 AWU (1,1)	1,6 AWU (0,6)
AWU increase over 10 years	-0,15 AWU (0,7)	0 AWU (1,1)
Milk quota 2003-2004	164200 L. (92000)	173100 L. (82800)
Current age of farmer	50 years (6)	49 years (8)
Percentage of specialised dairy farms 2003-2004	60%	89%
Current percentage of specialised (feeder calves) farms	50%	28%

Table 2: Farms resizing features since 2003–2004

Average characteristics of farms surveyed	West-Puy-de-Dôme	East-Puy-de-Dôme
Number of farms	20	18
UAA increase	+18% (4%)	+12% (2%)
LU increase	+15% (6%)	+11% (4%)
AWU increase	+0% (3%)	+2% (5%)
Percentage of farms with UAA increase >10%	40%	44%
Percentage of farms with LU increase >10%	55%	50%
Percentage of farms with AWU increase >10%	15%	11%

## Huge variation in farm resizing among farms that converted

- 11 Farm resizing over the past decade takes multiple forms with multiple intensities. Conversion brings six different types of change pattern. Each type is found in both of the focal zones studied (cf. Figure 4).

**Figure 4: Bertin classification matrix of the 38 farms factorised by farm size change (LU, UAA, AWU) since 2003 (grey background: increase of more than 10%; white background: variation from -10% to +10%; black background: decrease of more than 10%)**

Farm	Subregion	%inc_LU	%inc_UAA	%inc_AWU	ConvType
1.1	L	33%	25%	75%	G1
1.2	L	96%	66%	175%	G1
1.3	BR	32%	12%	33%	G1
1.4	BR	40%	19%	50%	G1
1.5	BR	120%	167%	100%	G1
2.1	L	32%	27%	0%	G2
2.2	L	20%	21%	0%	G2
2.3	L	40%	33%	0%	G2
2.4	L	29%	33%	-33%	G2
2.5	L	29%	14%	0%	G2
2.6	BR	11%	19%	-33%	G2
2.7	BR	22%	25%	0%	G2
2.8	BR	190%	70%	0%	G2
2.9	BR	55%	25%	0%	G2
2.10	BR	13%	21%	0%	G2
3.1	L	14%	3%	0%	G3
3.2	L	47%	7%	0%	G3
3.3	BR	19%	0%	0%	G3
3.4	BR	13%	0%	0%	G3
3.5	BR	12%	0%	0%	G3
4.1	L	-3%	0%	0%	G4
4.2	L	6%	17%	0%	G4
4.3	L	0%	6%	0%	G4
4.4	L	0%	0%	0%	G4
4.5	BR	6%	5%	0%	G4
5.1	L	-4%	-1%	-50%	G5
5.2	L	4%	9%	-33%	G5
5.3	L	-6%	0%	-50%	G5
5.4	BR	-10%	0%	-20%	G5
5.5	BR	1%	0%	-33%	G5
5.6	BR	-9%	-4%	-50%	G5
5.7	BR	-3%	0%	-50%	G5
6.1	L	-80%	0%	0%	G6
6.2	L	-53%	-36%	-50%	G6
6.3	BR	-47%	0%	0%	G6
6.4	BR	-47%	0%	0%	G6
6.5	BR	-59%	0%	0%	G6
6.6	BR	-61%	0%	0%	G6

- **Intensive farm expansion on multiple fronts (G1).** This subclass features relatively big, initially mixed-herd farm structures (beef and dairy cattle) at an average stocking rate (1 LU/ha) that have expanded significantly with the recent arrival of an associate. These farms, found at the same frequency in both focal zones, have increased their UAA, LU and AWU the most sharply in the past 10 years (+58% ha UAA, +64% LU, +87% AWU) to gain +60 ha, +47 LU and +1.6 AWU per farm. All converted only very recently (after 2009, when the last milk crisis brought a collapse in milk prices).

These big farms (188 ha UAA with 129 LU and 3.6 AWU in 2013–14) clearly stand out from all other farms by virtue of the scale of their labour force (>2 AWU). They have also doubled labour productivity in the space of 10 years, while their stocking rate has almost the same density. Today, these systems are globally managed as extensive grazing (0.7 LU/ha, 36 LU/AWU). They benefitted from EU suckler-cow premiums before being converted, which likely had an impact on the decision to expand them.

On average, the farm managers are over the age of 50, and the very recent farm conversion

move stems from the arrival of an associate and reinvestment in a few dozen hectares of plots that are often far away from the main farmstead .

- **Moderate farm expansion on selected fronts (G2).** These farms (80 ha and 80 LU in 2003–2004) have expanded but less intensively than G1 farms over the past 10 years (+29% ha UAA, +44% LU) to gain an average 21 ha and 30 LU per farm. They have not resized their labour and still have less than 2 AWU. This means that their labour productivity has more than doubled (+60%), while the stocking rate has held steady at a fairly average level. On average, the farm managers are 50 years of age and do not have a successor in the family who wants to farm livestock.
- **Modest farm expansion, only with regard to livestock (G3).** These farm structures are not as big as G1 and G2 farms (67 ha, 75 LU and 2 AWU in 2013–2014) and have upsized their herd only modestly (+21%, i.e. +13 LU). In contrast with the G1 and G2 farms, they have increased their stocking rate (1.4 LU/ha) along with their labour productivity (46 LU/AWU). On average, the farm managers are 50 years of age, and most of them state they have had to deal with in-family health problems over the course of the past 10 years.
- **Farm size unchanged (G4).** These mid-sized farms on par with G3 farms (76 ha, 60 LU and 1.6 AWU in 2013–2014) are essentially found in the “East” zone, which back in 2000 had more small-scale milk farms than the “West” zone (cf. CoA 2000). They have kept to the same size over the past decade (+4 ha UAA, +2 LU, and same number of AWUs at the start and the end of the decade). The G4-farm labour productivity and stocking rate have remained relatively high (at 61 LU/AWU and 1.2 LU/ha). More often than not, they converted from milk-to-meat before the 2009 dairy market crisis. The farm managers are younger (around 40 years of age) than in the other farm-type groups, which means the milk-to-meat conversion came early in their professional trajectory.
- **Downsizing exclusively on the labour front (G5).** These farms, which were relatively big in 2003–2004 (116 ha, 97 LU, 2.4 AWU), have cut their labour by 40% but kept the same UAA and herd size. Their livestock stocking rate has held steady at a moderate level (0.8 LU/ha), and their labour productivity has increased little (+20%). In contrast with the other farms surveyed, their milk quota cap was high (242,000 litres on average). The conversion was a very recent move (most often post-2009) in these farm operation managers aged just over 50 yrs old.
- **Sharp downsizing on the herd front (G6).** These family-scale smallholdings (28 ha, producing 88,000 litres under milk quotas in 2003–2004) have cut their herd size by 60% of LU (-16 LU down to 13 LU today). Their farm building is often small, outdated and un-refurbished. The farm managers are approaching retirement in the “East” zone, whereas they are relatively young (a mean age of 45 years) in the “West” zone.

12 These six groups illustrate the diversity in farm conversions that have taken place over the past 10 years. The farm operators’ narratives reveal that the six groups have tangibly different sets of reasons behind their decisions to convert. For the first four groups (upsizing or same-sizing, i.e. G1, G2, G3, G4), the reasons cited are essentially based on economics. The farm managers explain their conversion by pointing to the fact that they had been producing low volumes of milk with little added-value. They also cite increasingly tough milk quality demands and the high investment expenditures (labour and equipment) needed to meet them. They claim that they do not want to engage in any dairy activity development effort that would entail extra borrowing, workload and stress. For G1 and G4 farms, this awareness appears to have occurred after the 2009 dairy market crisis that kicked in while the farm operations manager or associate was stepping into the business.

- 13 For the last two groups (downsizing on the labour or herd size front, i.e. G5, G6), the reasons cited are motivations that tend to be driven more by life balance and family. Many of these farmers have no successor. For the mid-size to big farm structures (G5), the farmers are no longer willing –or able– to endure the demands of routine milking work when they are single or when their wife does not work on the farm. These farmers cannot stomach the 2009 collapse in milk prices and the prospect of signing into a bulk milk commitment with the dairy enterprise. For farmers in the smaller structures (G6), the overriding concern is succession and inheritance, with the desire to hold onto a family asset. They do not voice the issue with quality requirements that dairies impose from the top down –even though, in all likelihood, they are targeted (due to the low milk volumes produced).

## Changes in farm system and operation

### Pastoral and grass system practices

- 14 Despite farms making the milk-to-meat conversion, the grass systems have remained almost unchanged, and the “all-hay” systems have gained modest ground since 2003–2004 (4→8 farms in the “West” zone and 5→4 farms in the “East” zone). The majority of systems still combine hay and silage and/or bale-wrapping. The already small fraction of the on-farm area used for crops (essentially in the “East” zone) has dropped further and is basically used for corn fodder (4%→2% of UAA per farm). Less than half of the livestock farmers (40%) have extended the pasture-grazing season, often into autumn and only rarely into spring (not enough ground structure in wet spring)—a move that essentially enabled them to reduce their stockpiled fodder and straw needs and improve fodder self-sufficiency.
- 15 In farms that have a percentage of far-outlying grazeland (mostly the large structures), the system’s spatial organisation has changed: Pasture-grazing has become more widespread and frequent in the outlying plots, whereas forage harvests are more often taken from closer to the farm buildings. By contrast, in farms where grazeland is close by and there is little labour (small-scale structures, in particular), the farmers keep pasture-grazing close around the farm buildings to make it easier to monitor and move the animals around. The biggest change in pasture rotation system for moving cattle has been on the biggest farms (daily pasture moves→weekly pasture moves, pasture moves→continuous grazing), where it has sometimes produced a need for rangeland improvements like new fencing (barbed wire), new watering points and plot enlargements with hedgerow clearing. Consequently, the size of the post-conversion structure is the factor that most differentiates the pasture-grazing adjustment opportunities adopted by the farmers.
- 16 On the issue of land fertilisation and manuring, over half the farmers surveyed claim they have cut down on mineral nitrogen fertiliser inputs over the past 10 years, regardless of the pattern of change in farm size and livestock stocking rate.

### Beef production strategy

- 17 The conversion has often brought about a change in strategy regarding livestock genetics. Whereas pre-conversion all the farms were initially specialised milk breed herds (Holstein, Montbéliarde, Abondance), post-conversion only half opted for a specialised

beef breed (Charolais, Limousin), with the other half using mixed-breed herds (Salers, Aubrac, Ferrandaise). The importance of docile cattle was widely cited as a factor for farmers –and even as a key factor in the cow breed selection decision and a key reason for repeated visits out to the field to check grazing stock. Therefore, these former dairy farmers are relatively apprehensive about how suckler cows will behave.

- 18 One-third of farms combine several breeds (specialised and/or mixed-breed) in their herds. Only G1 farms (intensive farm expansion on multiple fronts) stand out as they have a very high prevalence of specialised beef herds (four-fifths either Charolais or Limousin).
- 19 Furthermore, a majority of farms combine sale-to-market of ‘light’ feeder calves with the sale of farm-fattened animals (calves, heifers, young bulls or cows) –sometimes through direct (farm-gate) sales. Only the big specialised beef herd farms (G1) exclusively sell feeder calves to market– and most do. The net result is that, despite a background in relatively specialised farm output, most of these recently converted beef farmers quickly embrace a diversified livestock sales strategy (diversified with regard to the types of cattle sold and the market channels used). They defend this strategy decision as a way of improving the gross value added.

### Quality of life and quality of work

- 20 The bulk of the changes cited by the farmers concerns quality of work and quality of life, with a handful of differences between farmers from the “East” zone and those from the “West” zone. Some farmers downplay the benefits: “There is less work to do, so less burden of work... it (suckler-cow farming) frees up the time to make hay. But it’s not so simple because in spring you can have big problems for tending to the calvings. There’s a lot of checking to do.” Some are totally won over: “I would never go back—whatever you gave me... When I was a dairy farmer, I used to dream of being able to wake up without having to go out and milk.” Others are less convinced: “Zero improvement...work now comes in peaks, whereas it was smoother before with the dairy cattle.” In the “West” zone, the farmers in all six groups, including those who have intensified their productivity (G1, G2), share the perception that the conversion has brought about a net improvement. In the “East” zone, the reduction in routine farm work duties (basically the end of milkings) is felt unanimously, but the benefits for quality of life (possibility of taking holidays, other non-farm activities) do not translate in the same way. All the farmers who have upsized (G1, G2, G3) cited a better work/life balance, but this balance was cited by only half the farmers who had not changed area and herd size (G4, G5), and farmers who had downsized their herd (G6) did not even mention it. On aggregate, the perception of better quality of life appears to be linked to farm business trajectory (upsizing, transfer prospects), probably because labour in this zone is short and continues to be a heavy constraint on the farmers.
- 21 The other factor that the farmers voice regarding work centres on the technical and economic difficulties experienced in the early years post-conversion (high calf mortality rates, problems with bovine viral diarrhoea), which they see as connected to a lack of experience and professional support (extension services) on beef cattle diet, or to ill-adapted livestock buildings (undersized or under-equipped). A number of farmers cited improvement in the farm’s economic position (lower veterinary bills and feed bills, better value-added revenue on calves, lower building/shed expenses), although that is only really the case in the “West” (10 of 20 farmers vs 2 of 18 farmers in the “East”).

## Synthesis & discussion

- 22 The results reported here highlight diverse patterns of milk-to-meat conversion trajectories in farms from the same dairy-oriented home region –even though they share a contextually similar social-economic and regulatory landscape. This ties into the analysis by Mundler *et al.* (2010) of the variation in farmers' attitudes concerning the structural reorganisation of the dairy sector over the past few decades. Our study centred on farms that have recently converted from milk to meat (since 2003, when the EU first unveiled plans to abolish milk quotas) and shows that farms opt to convert as part of structural growth or structural degrowth, whether they are already big, small or mid-sized structures, and regardless of dairy zone. These milk-to-meat conversions are therefore neither farm-size-specific nor dairy-region-specific and reflect a more complex pattern of trajectory change that is difficult for dairies and farm sectors to anticipate compared with the pattern in the 1990s, which essentially concerned the small-scale farms targeted by dairy economy restructuring plans.
- 23 We also found that certain more recent forms of milk-to-meat conversion (G1, G5) emerged essentially after the 2008–2009 dairy market crisis (marked by collapse in market milk prices), in big farms (over 100 ha UAA and 2 AWU, with close to 100 LU) in the two zones studied here. This signals that even these big structures are vulnerable and sensitive to milk price fluctuations. The early-2016 crisis in French farming further confirms these early signs from the 2008–2009 period. In the short term, any milk price regulation system unable to cushion farmers against world market fluctuations would thus put mountain/highland dairy farming areas at risk of losing not only their small and mid-sized farms but even their big farm operations, which would fatally take milk production and collection off the map in certain territories, along with their associated jobs and livelihoods (all milk-trade equipment, feed, transport and processing).
- 24 Our findings also show that farms that have converted from milk to meat do not make wholesale changes to their forage system (same harvest dates, same number of mowings and same grazing stocking rate). This signals that farmers' ties to their 'former dairy life' are not broken in terms of grass and land resource management. The post-conversion changes in farmer practices are not expected to have any immediate effect on grassland flora composition or the wider 'ecological properties' of their grassland system. However, there is some disparity in the adaptive readjustments to land-use management practices (pasture and haylage rotation patterns) that depend on the form and size of each farm's plot allotment (hectarage and distance to paddocks). Taken together, the evidence points to a need for greater outreach to and extension support of livestock farmers as they are all under pressure to decrease their operating costs (diet, fodder harvests) and increase their 'environmental premiums' (direct payment for environmental services through aid support) in order to maintain or increase farm incomes on beef production. If they continue without extension-service support and clear-cut changes in on-farm practices, there is a strong risk that any 'post-conversion' farm reconfigurations made will fall short or wide of the mark.
- 25 On the life balance front, all the farmers surveyed clearly perceive the change in quality of life. Most see the change as positive, even when the labour productivity in their system has increased. However, perceptions of the changes in economic position diverge strongly according to the farmer's expectations and reasons for making the milk-to-meat

conversion: The drop and irregularity in outputs are perceived more negatively when the conversion was ‘forced on them’ (for reasons tied to worker health or squeezed collection volumes) than when ‘chosen by them’ (for reasons tied to quality of life or reduced investment burden). This shows that a farmer’s perceptions of the milk-to-meat conversion depend on their backstory and on their relations with other actors/agents in the local dairy economy (administration, extension services, dairy). Pre-conversion support services would likely improve farmer perceptions of their new farm output, which is especially important now that milk-to-meat conversions are driving sharper ‘professional segmentation’ of breeders in regions that have traditionally been dairy strongholds (Fillonneau, 2012). This segmentation could ultimately have negative knock-on effects for prospective collective trajectories, especially in sparsely populated regions where the numbers involved already pose complex challenges. Indeed, as stressed by Fimbell *et al.* (2014), the construction of collective trajectories is effectively heavily dependent on compatibilities and synergies between individual trajectories.

- 26 To push farther and reach beyond the relatively “local-scale” quantification of milk-to-meat conversions, we can draw parallels between the farm types presented earlier and regional-wide farm types. An early approach showed, for example, that in their pre-conversion position, three of our conversion-farm types –G1, G3 and G4– align to farms types frequently found in the Auvergne region farms (cf. Inosys typology presented by Boilon and Bonestebe, 2012) whereas type-G5 farms are found far less frequently. The development of this kind of approach could be discussed with regional experts to help quantify the prospects for conversion at region-wide level. This would be an especially useful initiative given that the milk-to-meat conversions studied took multiple forms scattered across the territory, which makes them difficult for territorial agencies and sector professionals to chart. This same farm-type match-up approach could also help plot regional prospects for responding to new challenges facing the dairy sector.

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## NOTES

1. Cf. *Réseaux d'élevage* : <http://idele.fr/linstitut-de-lelevage/notre-environnement/les-reseaux-delevage.html> ; *typologie Inosys* : <http://www.chambres-agriculture.fr/informations-economiques/inosys-references-technico-economiques/>
  2. Census of Agriculture: <http://www.agreste.agriculture.gouv.fr/recensement-agricole-2010/>; National Database of Livestock Identification BDNI: <http://idele.fr/services/outils/index-officiels-des-taureaux/publication/idelesolr/recommends/chiffres-cles-issus-de-la-bdni-sommaire.html>; list of milk-enterprises providers...
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## ABSTRACTS

The wholesale deregulation of EU milk pricing markets set in motion by the 2003 CAP reforms has brought with it an uncertain future for the dairy sector. Tougher competition in and between highland and lowland regions raises fears of an increase in the number of French mountain dairy farms going out of production. Dairy farms' conversion from milk to meat has been gathering pace since the 2008 dairy market crisis, yet there has been little attempt to study the concomitant changes in post-conversion farm structure and land-use practices. Here we address this gap through surveys of newly converted farms in the Massif Central. Our results show that milk-to-meat conversions are currently occurring in all kinds of trajectories (extend, hold or wind-down). Post-conversion farms show a greater reliance on grassland as a diet resource and improved forage self-sufficiency without making wholesale changes to their legacy forage systems. Farmer-cited perceptions of the changes that accompany conversion revolve around better quality of work and quality of life. The study finds that the trajectory of milk-to-meat conversion takes many forms and occurs in different territories. Taken together, the evidence advocates for greater territory-level (milk collection region) outreach and extension support to these conversions that are not just limited to less dynamic dairy-area farms 'losing ground'.

## INDEX

**Keywords:** livestock, milk, quotas, meat, mountains

## AUTHOR

### HÉLÈNE RAPEY

Irstea, UMR METAFORT Irstea-Inra-VetAgro Sup-AgroParisTech. Campus des Cézeaux. Centre de Clermont-Ferrand, 9, avenue Blaise Pascal, CS 20085, F-63178 Aubière.

helene.rapey@irstea.fr