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ORGANIC BEEF FARMING IN SPAIN: TYPOLOGY ACCORDING TO LIVESTOCK MANAGEMENT AND ECONOMIC VARIABLES

Producción ecológica bovina de carne en España: tipología de acuerdo a variables técnicas y económicas

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ABSTRACT

The aim of this study was to characterize organic beef production systems throughout the process of clustering under a multivariable analysis. The survey was conducted on 69 farms to establish the main technical, socio–economical and productive aspects of the organic beef farms. Results show that only 40.6% of the surveyed farms commercialize calves as organic certified in the organic market. A principal component analysis showed four factors explaining 74.7% of the original variance. The systems differ from their orientation market type, intensification level, dimensionality and economic performance. The subsequent cluster analysis leads to characterize four different organic beef farm systems. Groups mainly differ on the previous conditions before the conversion and the product specialization. Group I and II perform a close production system, where weaning and fattening occur at the same farm. Profitable results for Group I and II are highly dependent of technical competencies such as a large scale and higher volume of organic sales, respectively. Group III and IV are low intensified systems of weaned calves and show notably a lack of development as organic farm systems. They need strong changes in the farm structure and market orientation to continue as organic producers.

Key words: Cluster, characterization, extensive system.

RESUMEN

El objetivo del estudio fue caracterizar los sistemas de producción bovinos ecológicos españoles a través de técnicas multivariantes. Mediante encuestas directas y visitas a las unidades de producción se recopilaron los principales aspectos técnicos, socio–económicos y productivos de 69 granjas. Los resultados mostraron que sólo 40,6 % de las granjas comercializan terneros certificados en mercados ecológicos. El análisis de componentes principales reveló que cuatro factores explican el 74,7% de la variabilidad original. Los sistemas se diferencian principalmente en su orientación comercial, nivel de intensificación, dimensión y rendimiento económico. El análisis de conglomerados identificó cuatro sistemas bovinos ecológicos. Las principales diferencias entre sistemas proceden de las condiciones previas a la conversión ecológica. Los grupos I y II desarrollan un sistema de producción cerrado, donde la cría y el engorde ocurren en la misma unidad de producción. Las principales medidas de mejora identificadas son, para el grupo I, incrementar la escala de la producción, mientras que para el grupo II aumentar el volumen de venta en mercados ecológicos. Los grupos III y IV desarrollan un sistema de producción extensivo especializado en la cría de terneros y ventas al destete. La continuidad como productores ecológicos de los grupos III y IV requiere de importantes cambios en la estructura de las unidades de producción y una mayor orientación hacia mercados ecológicos.

Palabras clave: Conglomerados, caracterización, sistema extensivo.

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INTRODUCTION

Organic food and farming incorporates environmental social movement and farm land management under a specific set of standards while providing the basis for an economically viable livelihood for organic farmers [20]. Developments in organic farming practice have to be set in a national and regional context since differences exist in characteristics such as climate, availability of resources (feedstuffs, litter, outdoor

areas), herd structures, economic conditions and disease prevalence, cultural differences in the perception of problems and expertise to deal with them [16, 21]. Thus, issues pertaining to animal health and product quality are more influenced by the specific farm management and farm-animal interactions than by the production method [5].

Presently, the research on the organic beef cattle (OBC) (*Bos taurus*) production about its economy, ecology and landscaping value, social cohesion in most concepts for sustainable agriculture and food production is rather scarce or inexistent under a systemic approach [13]. The evaluation of OBC systems should be supported by research with multivariate methods, preferable to establish and structural characterize groups in ruminants production systems [3, 6, 20]. From the obtained typologies and farm benchmarking it is possible to propose improvement measures and specific policies for each of the identified groups [26].

So far, the knowledge of the OBC farms exploited in Spain is very limited despite its continued growth. Previous studies of OBC in Spain were primarily focused on a specific topic or were only performed in a specific Spanish region [4, 5, 8, 9]. This study has a double objective: firstly to describe the typology of the organic livestock systems related to their infrastructure and socio–economic variables; and secondly to recommend the corresponding measures of improvement or support the organic beef production.

MATERIALS AND METHODS

Study area and data collection. The study was conducted in seven autonomous communities (first-level political division) of Spain comprising Andalusia, Asturias, Cantabria, Castilla La Mancha, Castilla and León, Extremadura and Galicia. Andalusia experiences a Mediterranean climate and is the driest place in Europe. The climate of Cantabria is classified as Oceanic (precipitation over 800 mm/year). Castilla and León has a Continental climate with precipitation below 600 mm/year. In the region of Castilla La Mancha climate is Mediterranean (precipitation below 500 mm/year) and the climate in Extremadura is between Mediterranean and Oceanic (precipitation below 500 mm/year). Finally, Galicia and Asturias have an Atlantic and Oceanic climate, respectively, with mild temperatures throughout the year with average rainfall of more than 1,300 mm/year [12].

A total of 69 representative farms with organic beef production were selected through stratified random sampling with proportional allocation by region. The surveyed farms comprised approximately 5.5% of the total official census of organic beef farms in Spain [15]. No farms were in conversion at the time of the survey. Standards associated with organic production do not require the sale of livestock as organic certified meat. In the Spanish country context, the organic certified meat does not correspond with the expected organic retail beef volume [25]. The information was obtained through collection of primary data from direct interviews with the producers. The interview questionnaire included 226 questions, relative to: sociology (26), facilities (16), reproduction (29), feeding (21), farm structure (27), animal health (9), market and economy (98). The questionnaire was designed according to the methodology used to study organic farming by Mata [16] and Toro–Mujica *et al.* [26] (69% were open answers). The acquired data corresponded to the period 2008–2009 and were obtained during 2009.

Statistical analysis. The development of the typology is produced from the methodology proposed by Escobar and Berdegué [6], modified by Giorgis *et al.* [10], which consisted of three stages: review and selection of variables; principal component analysis and cluster analysis. A complete description of the methodology can be found in Angón *et al.* [2].

In a first stage of analysis, 52 variables were selected, those with a coefficient of variation higher than 60%. Then, correlations matrix was analyzed to eliminate uncorrelated variables and the one with lowest coefficient of variation of each pair with linear dependence [27]. Through the selection process, the following 16 variables were obtained: certified organic calves/total calves, calves sold to feedlot/total calves, subsidies/total income, cattle sales income (€/cow), feed costs (€/calf), total direct costs (€/cow), total livestock units (LU), cattle LU/total LU, labour costs (/ha), total LU/Annual work units (AWU), stocking rate (LU/ha), total income (€/ha), farm buildings (€/ha), natural pasture area (ha/LU), gross margin (€/cow), net margin (€/ha).

In a second stage, principal component analysis was used in order to reduce the number of variables and summarize the most variability [27]. In a third stage, the farms were classified into groups using sequential cluster analysis [2]. Four solution groups were tested using discriminant analysis and analysis of variance. For the development of statistical analysis it was used SPSS 14.0 [22].

RESULTS AND DISCUSSION

Characteristics of organic cattle farms. OBF has an average of stock density of 0.43 LU/ha ranging from 0.06 to 1.00 LU/ha. The average size is 425 ha used for 154 LU. A great deal of variation between herds is presented in the dimension of the farm (from 30 to 3,300 ha, or 10 to 695 if expressed in LU). The great variety of size is consistent with previous results observed in OBF in NW Spain [5]. While total farm area and total LU are positively associated ($r=0.78$; $P<0.001$), stock density is negatively correlated to farm surface area ($r=-0.46$; $P<0.001$), indicating that land use is more intensive on farms of smaller size.

The proportion per LU for species was also variable. From the total of LU, a 78% correspond to cattle, 10% to sheep (*Ovis orientalis aries*) and 9% to pigs (*Sus scrofa do-*

mesticus). The proportion of LU for cattle was negatively correlated to farm surface area (r=-0.36; P<0.01) and total LU (r=-0.55; P<0.001), indicating that cattle were the most popular species on smaller farms.

Main crop types are pastures and meadows (85%) and the rest (14%) corresponds to arable land crops such as cereals. Pastures per LU are correlated positively to farm surface area (r=0.30; P<0.05) but negatively to stock density (r=-0.62; P<0.001), although it is not correlated neither with feed inputs nor productive variables. The use of external feedstuff is also very heterogeneous and depend majorly on the predominant marketing strategy as suggested the correlations of calf feed costs and the proportion of calves sold to feedlots (r=-0.27; P<0.05).

The productivity per ha was 0.28 calf. The average percentage of calving per year was 82% and was positively correlated with feed costs (r=0.35; P<0.01) and with sanitary costs per cow (r=0.25; P<0.01). Surprisingly, only 40.6% of the surveyed farms commercialize calves as organic certified in the organic market. So, the sale is focused on calves without organic certification and to conventional feedlots. Farm with the major proportion of certified organic tends to obtain a higher profitability indicated by the slight positive correlation of both variables (r=0.20; P<0.01).

Labour is very heterogeneous among farm systems, and is not always consistent with the technological level and alternative productive orientation. The use of labour get more intense with smaller herd sizes, as it is indicated by LU/AWU and land area (r=0.32; P<0.01) and total LU (r=0.46; P<0.01). Thus, LU/AWU correlation with amortizations costs per ha (r=0.41; P<0.01), and investment per ha in farm buildings (r=0.31; P<0.05) and machinery (r=0.39; P<0.01) partially explain the relationship labour and technology.

The average of investment per farm raises 76,000 €, land properties excluded. A 16% corresponds to farm buildings and 48% to machinery. The investment on farm buildings and machinery per ha go up to 167 and 233 , respectively and varies with the intensity of production, as suggested the correlations of both items with stock density (r=0.42; P<0.01 and r=0.53; P<0.001).

Incomes are distributed in 42% from the sale of calves, 12% from the sale of other animals, and 46% from subsidies. The proportion of subsidies in the total income is higher as long as the sale proportion of calves to conventional feedlots increases (r=0.45; P<0.05). Total costs go to 76,452 € where labour costs represent a 30%, 20% for amortization costs and 21% for feed costs. Direct costs per cow are 324 € and is positively correlated with the proportion of organic certified calves (r=0.5; P<0.001), productivity per cow (r=0.30; P<0.01) and incomes of sold calves per cow (r=0.43; P<0.01).

The economic performance is also very variable among farms. Gross margin per cow is positively correlated with investment for buildings (r=0.23; P<0.001), spends for amortization (r=0.21; P<0.05), crops per LU (r=0.20; P<0.05) and the proportion of organic certified calves (r=0.28; P<0.01). Farm

TABLE I
FACTORS SELECTED, EIGENVALUES, THE EXPLAINED AND ACCUMULATED VARIANCES, AND CORRELATION COEFFICIENTS OF THE INDICATORS WITH THE DIFFERENT FACTORS

	Eigenvalue	% variance explained (% variance accumulated)	Indicators	Correlations with the factor
F1	4.12	29.76	Organic certified calves/total calves	0.708
		(29.76)	Calves sold to feedlot/total calves	-0.653
			Subsidies/total income	-0.703
			Income cattle sales (€/cow)	0.784
			Feed cost (€/calf)	0.736
			Total direct costs (€/cow)	0.720
F2	2.81	19.59	Total LU[a]	-0.749
		(49.35)	Cattle LU[a]/Total LU[a]	0.845
			Labour cost (/ha)	0.686
			Total LU[a]/AWU[b]	-0.745
F3	2.17	13.61	Stocking rate (LU[a]/ha)	0.875
		(62.96)	Total income (/ha)	0.739
			Farm buildings (/ha)	0.598
F4	1.88	11.75	Pasture area (ha/LU[a])	-0.806
		(74.71)	Gross margin (/cow)	0.919
			Net margin (/ha)	0.737

[a] Grazing livestock units. [b] Annual work units.

profitability is higher with a greater pasture disponibility per LU (r=0.66; P<0.01).

Principal components characterizing the farms. The Kaiser–Meyer–Olkin (KMO) test of sampling adequacy showed a value of 0.7 while the Bartlett's sphericity test showed a satisfactory probability value (P<0.001), indicating the suitability of the analysis. The first four factors that accounted for 74.71% of the original variability (TABLE I) were selected as indicated by Malhotra [14].

The first principal component explains 29.76% of the total variability and defines the orientation market type on sales of calves and its relationships with economic variables. The second principal component justifies 19.59% and is indicative of highest scoring farms which are therefore the most specialized cattle farms, also associated with herd size and is related to AWU. The third principal component reflects the level of farm intensification and explains 13.61% of the amount of original variability. The fourth principal component reveals an inverse relationship between natural pastures disponibility and economic performance of the farm and explains 11.75% of the variance.

Establishment of the typology. Cluster analysis that presented the most significant results was the solution of four groups. The main differences between groups are shown in TABLES II and III.

Group I (close cycle production that should be set on a larger dimension). Group I includes 23.18% of farms being of small size and purely beef cattle herds with high stocking rates. The use of labour is totally permanent or family, with no use of temporary labour. In these farms, the holders are predominantly leaseholders of the property.

This production system is characterised by a close production cycle, with weaning and fattening pens for calves at the same farm and oriented to the organic market. The investment being higher to the rest of the groups and the reduced volume of production makes the system inefficient regarding the structure of production and labour unit. However, this Group obtains the higher gross margin per cow and net margin per ha.

Beyond this level of intensification, these are the few farms which can be regarded as being the top level of organic beef farms systems. However, organic producers of these small family herds suffer from certain shortcomings, such as dimensionality. They are to be competitive if ensuring a bigger scale. Fixed costs composed more than 70% of the total costs, reflecting an inefficient use of the productive infrastructure and labour. Consequently, efforts to reduce costs in this production system should straight for higher volume production towards a more compensated or equilibrated scale with the fixed costs levels and therefore dilutes them. Technical and structural resources of this production system should be enough to produce, without substantial changes, a higher production volume. Fundamental increase of land tenancy and herd size should not motivate notable growth of hard work and amortizations since these farms are well structured [4]. Alter-

TABLE II

MEANS AND SIGNIFICANCE LEVELS OF TECHNICAL INDICATORS FROM THE ANOVA ACCORDING TO THEIR MEMBERSHIP TO A GROUP

Indicator	Mean	Group I	Group II	Group III	Group IV	P value
N	69	16	25	11	17	-
Total LU*	153.7	47.1^{a}	179.0^{b}	301.5^{c}	121.2^{b}	0.000
Cattle LU*/Total LU*	0.78	1.00^{c}	0.75^{b}	0.40^{a}	0.87^{b}	0.000
Cow size	94.1	45.1^{a}	123.0^{c}	88.0^{b}	101.6^{b}	0.031
Total surface (ha)	425.2	79.2^{a}	464.0^{b}	996.9^{c}	323.9^{b}	0.000
Rented area/total surface	0.46	0.73^{b}	0.36^{a}	0.35^{a}	0.43^{a}	0.028
Stocking rate (LU*/ha)	0.43	0.63^{b}	0.38^{a}	0.30^{a}	0.40^{a}	0.001
Pasture area (ha/LU*)	2.6	1.6^{a}	2.6^{a}	4.5^{b}	2.6^{a}	0.029
Cultivated area (ha/LU*)	0.4	0.4^{b}	0.6^{b}	0.4^{b}	0.1^{a}	0.032
Total AWU**	1.5	1.5^{b}	1.7^{b}	0.9^{a}	1.7^{b}	0.027
Permanent AWU**/Total AWU**	0.74	0.99^{b}	0.86^{ab}	0.76^{ab}	0.54^{a}	0.012
Family AWU**/Total AWU**	0.57	0.99^{b}	0.46^{a}	0.32^{a}	0.48^{a}	0.000
Total LU*/Total AWU**	170.2	32.6^{a}	129.0^{c}	621.2^{d}	68.6^{b}	0.000
Calves per ha	0.28	0.50^{c}	0.25^{b}	0.07^{a}	0.27^{b}	0.000
Mortality (%)	6.0	8.0^{b}	5.2^{a}	4.4^{a}	6.5^{a}	0.042
Certified organic calves /total calves	0.27	0.65^{c}	0.30^{b}	0.09^{a}	0.00^{a}	0.000
Conventional sold calves/total calves	0.20	0.15^{b}	0.31^{c}	0.09^{a}	0.17^{b}	0.023
Calves sold to feedlots /total calves	0.41	0.00^{a}	0.19^{a}	0.82^{b}	0.81^{b}	0.000

*Livestock density unit per hectare. **Annual work units. Means with different letters show significant differences between groups.

TABLE III
MEANS AND SIGNIFICANCE LEVELS OF ECONOMIC INDICATORS FROM THE ANOVA ACCORDING TO THEIR MEMBERSHIP TO A GROUP

Indicator	Mean	Group I	Group II	Group III	Group IV	P value
N	69	16	25	11	17	-
Labour cost (/ha)	121.5	311.0^{d}	66.2^{b}	16.3^{a}	92.8^{c}	0.000
Cattle feed costs (/cow)	84.4	68.3^{a}	83.6^{ab}	106.4^{b}	86.5^{ab}	0.000
Calf feed costs (/calves)	148.7	176.6^{b}	235.8^{c}	55.3^{a}	54.8^{a}	0.000
Veterinary service (/cow)	53.8	86.2^{b}	65.9^{b}	26.1^{a}	23.6^{a}	0.004
Direct costs (/cow)	324.0	363.9^{b}	387.6^{b}	368.5^{b}	168.1^{a}	0.000
Amortization cost (/ha)	134.7	90.3^{c}	9.5^{b}	3.9^{a}	14.5^{b}	0.000
Total cost (/ha)	358.5	839.9^{c}	246.9^{b}	65.5^{a}	259.2^{b}	0.000
Fixed costs/total cost	0.65	0.74^{b}	0.58^{a}	0.53^{a}	0.78^{b}	0.000
Organic sales/cattle sales income	0.29	0.70^{c}	0.31^{b}	0.09^{a}	0.00^{a}	0.000
Cattle sales income/total income	0.42	0.60^{b}	0.49^{ab}	0.24^{a}	0.38^{a}	0.003
Cattle sales income (/cow)	523.0	732.1^{c}	639.4^{b}	338.9^{a}	274.2^{a}	0.000
Subsidies/total income	0.46	0.38^{a}	0.35^{a}	0.64^{b}	0.56^{b}	0.000
Subsidies (/ha)	159.1	307.3^{c}	114.3^{b}	72.1^{a}	141.7^{b}	0.000
Total income (/ha)	370.8	796.2^{c}	302.9^{b}	102.5^{a}	243.8^{ab}	0.000
Gross margin (/cow)	198.0	368.3^{d}	251.7^{c}	-29.6^{a}	106.2^{b}	0.000
Net margin (/ha)	97.9	227.6^{c}	91.5^{b}	41.3^{a}	21.7^{a}	0.000
Capital ( )	76,009	73,931^{a}	63,991^{a}	119,801^{b}	67,301^{a}	0.049
Profitability rate (%)	5.9	6.2^{b}	6.6^{b}	4.5^{a}	5.5^{a}	0.032

*Livestock density unit per hectare. **Annual work units. Means with different letters show significant differences between groups.

natively, the most effective method of reducing feed costs is to let the cow graze [19]. The cost of harvesting and feeding equipment drives up costs especially for small cow herd like in this group. High stocking densities generally involve overgrazing and a need to import animal feedstuffs [7]. Systems that rely more on grazing and less on harvested and purchased feedstuffs have a higher potential to be profitable [1]. The majority of costs in cow/calf businesses are for harvested feed [4]. It requires planning and effort to have forage available (achieved by owning more land in some extent), fencing and strip grazing for optimum utilization.

Finally, their specialized production system is more prepared to respond to pressing challenges of the organic market. However, they should improve on these technical competencies since the general beef marketing system is not set up to deal with small producers [19].

Group II (close cycle system with competencies for organic marketing). Group II is the largest group since it represents 36.23% of the farms, with higher herd size, average 123 cows, and land tenancy of medium size, around 464 ha. This Group combines the cattle production with other husbandry practices, but bovine production represent 75% of LU and 49% farm income. These farms present a close production cycle like Group I but there is a small percentage of calves destined to the organic market and not sell to conventional feedlots. Calves, at the end of their life cycle are indistinctly destined to the organic (30%) or conventional (52%) market but incomes of organic sales imply a 31% of the market.

The fixed capital indicators per ha and per LU are very low. Compare to Group I, the differences lie in the different levels of intensification and, above all, herd size. Thus, in absolute figures, fixed capital destined to buildings is half than for Group I and the same capital in machinery; however, the production volume is three times higher than other groups. The scale of the production system also affects labour performance, higher than Group I but generating the same number of jobs. The extensive use of the land it highly related with the geographical allocation, mainly in wooded rangeland so called dehesa [8], that have carried out a low production system and very efficient for labour work and farm structure.

This production system has a lower gross margin than Group I, with the same production model but similar direct costs. Consequently, efforts of this group should focus in the improvement of the entrance to the organic market of added value. The producers were used to identifying the buyer when operating as conventional and keep it under the organic production. Furthermore, as organic farming relies on product premiums in most countries, the market is very sensitive to consumers' perception of the production method and product quality [24]. They compensate the higher production costs and depends on different variables, the most important being the type of product, the region, and the quality of products.

Group III (natural but not human resources efficient system). Group III consists 15.94% of farms. It is characterized by large beef farm holdings of some 996.3 ha with very low stocking rates (0.30 LU/ha) sharing own property and renting. Their orientation is mixed beef cattle and sheep with Iberian sows.

Farm of Group III develops a production model destined to sell weaned calves to conventional feedlots [3]. Thus, the requirements of machinery and buildings should be relatively small. Hence, the fixed capital indicators, those of buildings and of machinery have the third and second position, respectively, on capital investment per hectare from all the groups. Surprisingly, investment in machinery is not proportional. The use of labour is predominantly permanent but not familiar. The values of labour compensation and the consumption of fixed capital are significantly low. Because of the production model, low inputs of feed costs are presented and mainly destined to feeding supplementation of cows during scare periods.

These are therefore very extensive farms with a low mean profitability rate (4.5%) compensated by a low level of incomes/investments. Subsidies account for 64% of incomes because the value of the sale of calves is very low and, above all, not from organic markets. However, because of the organic land area, this is the group with the greatest level of subsidies.

This production system only gets solidness if organic stakeholders for weaned calves exist apart from a system of rationalization of subsidies. In other case, efforts should lead to get close production systems and sell organic certified calves. Organic producers know quite well breeding management and they are aware of the exigency of finishing calving under organic husbandry practices. But, organic producers have not substantially modified their farm for the conversion to organic. They should obtain specific techniques and farm structures for fattening, that supposes to immobilize more capital and for a longer time [21]. These preconditions may explain why they turn to a conventional management at the fattening period.

There is also a need to analyze commercial chains connected to this production system [17]. At the current situation, they are passively selling their production but they are far away of getting active roles for the development and improvement of the commercial chain.

Group IV (a profitable grass-based beef system focused on direct market sales). Group IV concentrates 24.63% of farms and, like Group III, develops a specialized model for breeding calves and selling them to conventional feedlots. The mean farm area of this group is 323.9 ha, little of which is cropland because 94% of the total area is pasture area. The stocking rate is 0.40 LU/ha, which can be regarded as low. The distribution of species characterizing the group majorly consists on beef cattle herds.

Feeding costs is small due to low livestock density and their breeding program. However, the use of labour unit is very elevated, for LU and for ha compared to other groups. This point contrasts with capital indicators because they are similar than for Group III.

The production of Group IV corresponds exclusively to the conventional market. Group IV is linked to the territory and extensive livestock farming have a very easy conversion into organic farming because they are already doing many of the practices required in accordance with the rules on organic production. From this base, organic producers have constructed their own system, operating their own farm label by the formula of direct sales to conventional markets. But it is crucial for organic farmers to think 'out of the box', and not just see organic production as another version of conventional production [23].

The primary condition to be met in order to reach improvement is that farmers must abandon the notion that it is enough to certify the origin of a product to make it successful and therefore must adopt organic farming certification as a mean of product guarantee. The commonness of all organic animal products with sales problems is that their production is based on grassland [11]. For these organic producers in grassland regions (Group IV) it was more attractive for farmers to convert their farms to organic agriculture than for farmers with a high percentage of arable land [18]. The sales problems for grassland-based organic products have even led to significant reconversions of farms from organic to conventional in the last few years, especially in Austria, but also in some parts of Germany. Some examples are the absence of a long-established consumer market for organic products, information on projected supplies of cattle and sheep for slaughter is not easily available to processors, approved abattoirs and other market outlets, and to sources of feedstuffs and bedding materials geographically located far from the farms [23, 28].

CONCLUSIONS

Overall in Spain, there is a matrix of farms with different management practice and well geographical determined but where the weight of the ecological market is still reduced or inexistent. Four dominant cattle-raising systems have been identified which mainly differ from their previous conditions before the conversion and the product specialisation. Orientation market type, intensification level, dimensionality and economic performance have more discriminating power for classifications of farms. Improvement measures and supportive government policies should be adapted to the specific problems of each group. Group I are the few farms which can be regarded as being the top level of organic beef farms systems. However, they are to be competitive if ensuring a larger scale. In Group II is necessary to improve the entrance to the organic market of added value. Groups III and IV show serious problems to continue as organic producers in the medium term. These groups only get solidness if organic stakeholders for weaned calves exist apart from a system of rationalization of subsidies. In other case, efforts should lead to get close production systems and sell organic certified calves.

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