

## THE SPANISH DAIRY SECTOR

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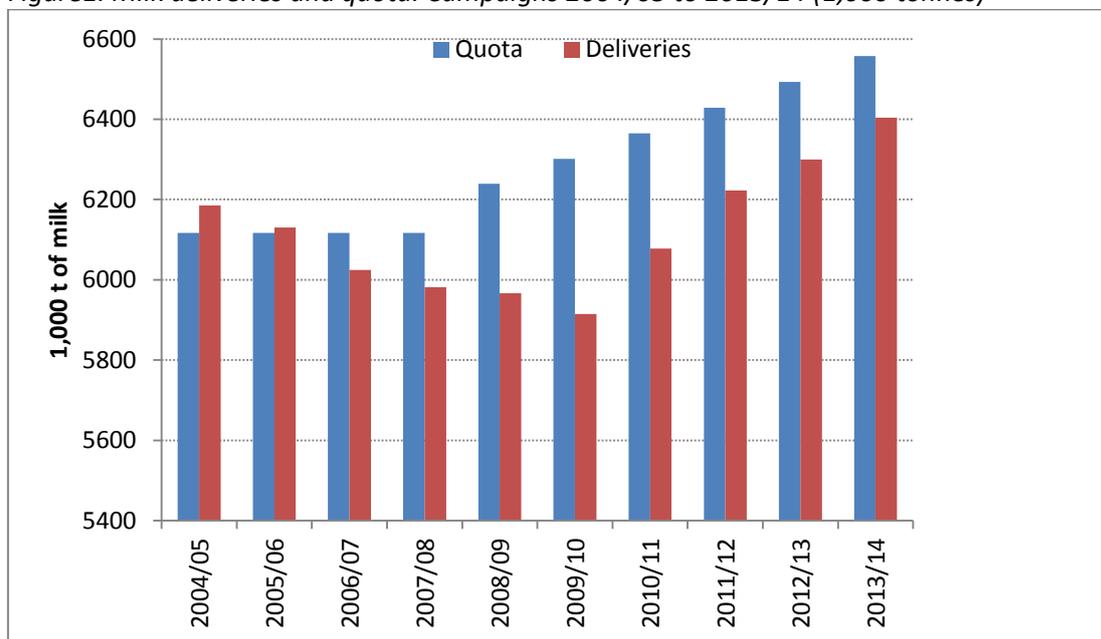
This paper provides some general information of the Spanish dairy sector, focused on the recent evolution and current situation of the milk production and the dairy industry but with also some final comments about its perspectives additional in the new scenario without quota. In general terms milk production has a secondary position in the overall Spanish agriculture since contributes with 6% of the value of agricultural production (2765 million €), well below 28% provided by meat production. However milk plays an important territorial role in the northern regions as it is the main agricultural production providing a quarter of its total value. At the processing level the dairy industry contribute to 9% of gross added value of Spanish food and drink sector.

### Milk production

There are some discrepancies in the amounts of milk production between statistical sources. We will use those related to deliveries for controlling milk quota. In 2013 milk deliveries amounted to 6357 thousand tonnes provided by some 18800 producers, of which 6305 thousand tonnes are deliveries to industries and the rest of direct sales<sup>2</sup>.

As in other European countries production has been limited by milk quota in recent decades, although there have not become overrun since the 2004-05 campaign. Milk deliveries have been rising in recent years, although at a slower rate than the increase in quotas during the so called "soft landing" period, but the differences with the quotas have been narrowing and it is estimated that production can exceed milk quota in the current campaign 2014/15 (figure 1).

Figure1. Milk deliveries and quota. Campaigns 2004/05 to 2013/14 (1,000 tonnes)



Source: FEAGA, data deliveries and milk quota

Dairy farms have made an intense process of structural adjustment under milk quota regime, which took two directions: the abandonment of smaller ones and the increase in dimension of

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<sup>2</sup> Dairies statistics give a production of 5967 thousand tonnes in 2013 and production statistics provide 6,160 million liters for human consumption and other 153 million for animal consumption

those that remained in activity. The overall results of this process have been a more specialized, productive and concentrated dairy sector from both points of view productive and territorial.

Between the years 1990 to 2010 the number of dairy farms has been reduced in Spain to 14% from the initial, more than doubling the rate of decrease recorded in other countries such as France and the Netherlands. This greater intensity of adjustment can be related with the greater relative weight of small farms at the beginning of this period. As a result of this process the differences in herd size with other EC countries have been considerably reduced. In 2010 the average farm size is 31 dairy cows in Spain, 45 in France and 75 in the Netherlands (Eurostat, 2014).

In the last decade have abandoned most of the farms under 20 cows and have even been halved those farms with 20 to 50 cows. This shows a process of continuous enlargement and concentration of production by increasing the number of farms with more than 50 cows that in 2009 concentrated 55% of the cows (table 1).

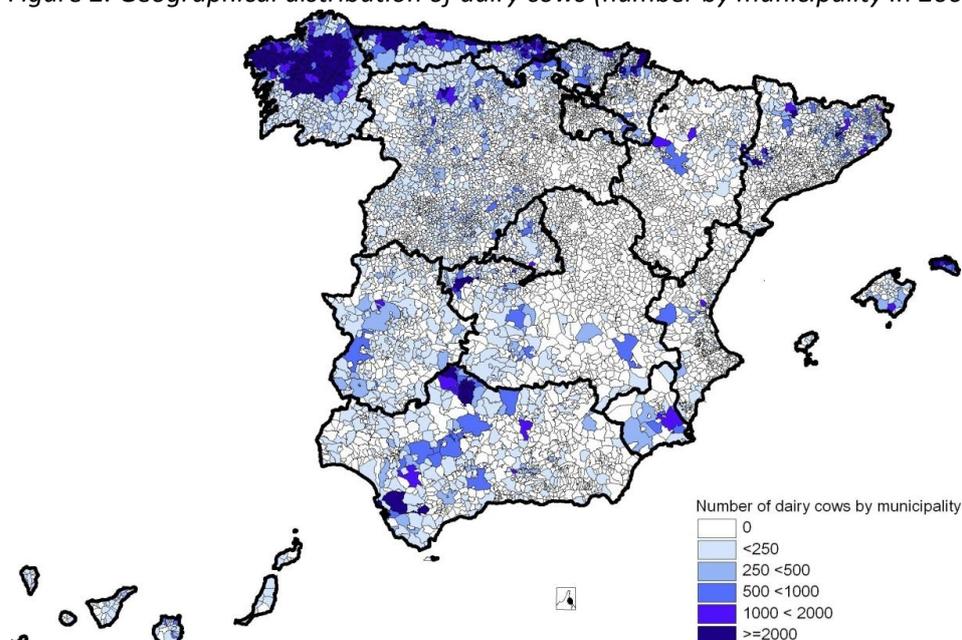
*Table 1. Number of dairy farms by strata of size (in 1,000)*

cows/farm	2009	1999	2009-1999
<20	14.72	57.43	-42.70
20 to <50	9.66	16.22	-6.56
50 to <100	3.57	3.16	0.41
>=100	1.50	1.02	0.49
Total	29.46	77.82	-48.37

Source: Own calculations from INE database Agricultural Census 1999, 2000.

Dairy farms are quite diverse in geographical terms, both in structure and in production systems, with a marked contrast between the humid northern regions, where are located 80% of the farms, and those situated in the rest of Spain, with larger size and in general under irrigation and more intensive production systems (figure 2).

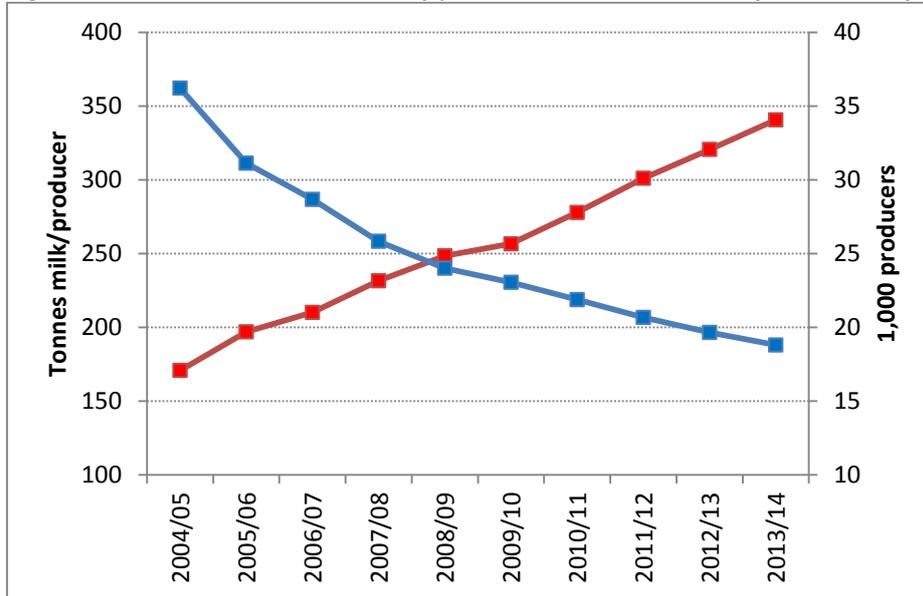
*Figure 2. Geographical distribution of dairy cows (number by municipality in 2009).*



Source: Agricultural Census 2009, INE

This adjustment process has remained high in recent years as can be seen by the number of producers and means deliveries of milk, which is a more updated data and directly related to the production than the statistics on farm structure. In the last ten campaigns the number of producers has been halved down to 18,800 and the average size has doubled up to 341 tonnes of milk in 2013/14 (figure 3).

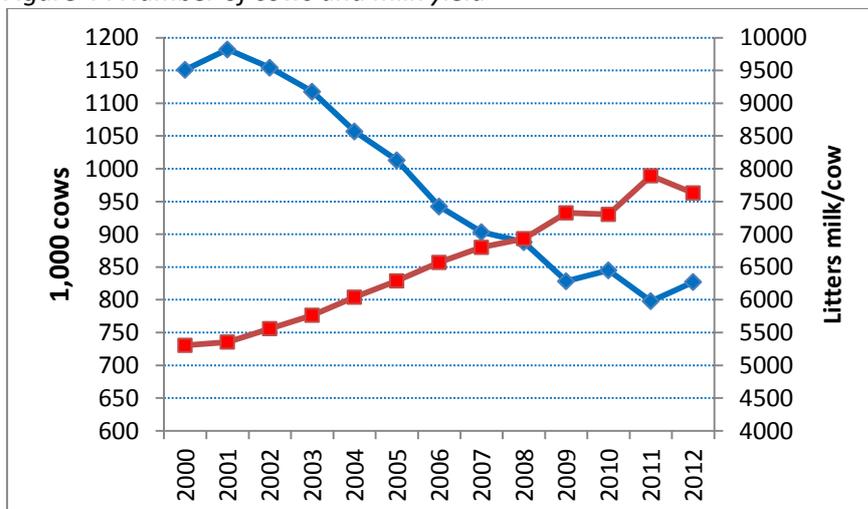
Figure 3. Evolution in the number of producers and mean size of deliveries of milk



Source: FEAGA, data deliveries and milk quota

During the same period there has been a large increase in milk yields that have been raised at an annual rate of 3.1% up to reach 7630 liters/cow in 2012, as estimated from the census of dairy cows and total milk production (figure 4). This has enabled to maintain the level of production despite the decline of 28% in the number of cows (Magrama, 2013a). This increase in yield was the combined result of improvements in nutrition, genetics, health care and livestock management. Yields are even higher in cows into milk control that reached 9504 kg milk in 2012 into 305-day lactations and covers 42% of the dairy herd (Conafe, 2014).

Figure 4 . Number of cows and milk yield



Source: MAGRAMA, statistics and livestock surveys

Specialized farms include 92% of the herd. The 4800 farms with more than 50 dairy cows have 56% of the herd and manage an average of 38 cows per worker. The low availability of land is a limiting factor in many of them, restricting their ability to provide fodder. This deficit is especially noticeable in some of the larger farms that reach 4.7 cows / ha of forages (INE, 2013) (table 2).

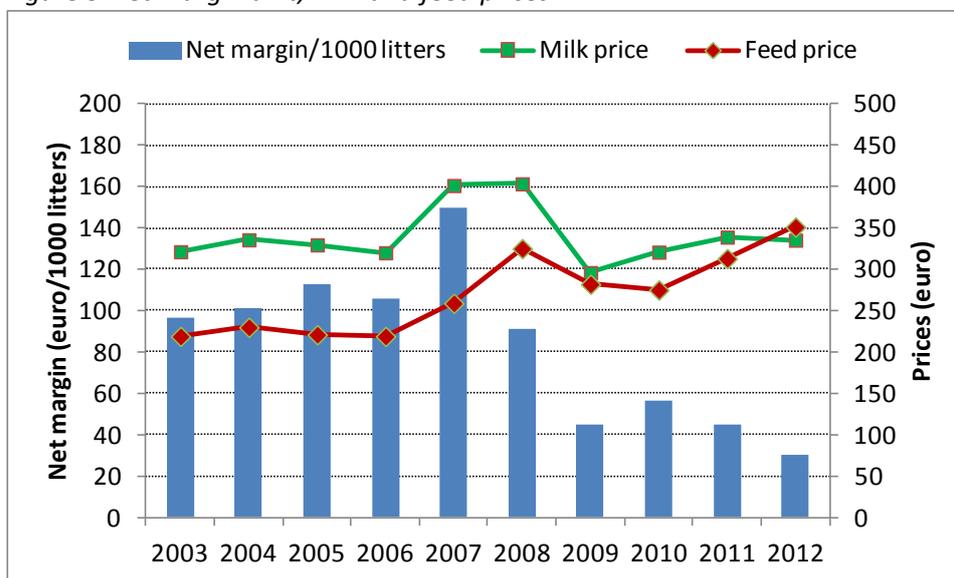
Table 2. Number and structural characteristics of specialized dairy farms

	Number (1,000)	Average values/farm		
		dairy cows	forage area (ha)	annual working units
<20	9.37	5.9	4.5	0.8
20 a 50	8.99	31.3	16.5	1.5
50 a 100	3.33	65.7	25.4	2.0
>=100	1.43	179.2	36.3	3.5
total	23.12	36.5	12.6	1.3

Source: Own calculations from INE database Agricultural Census 1999, 2009. INE

Since 2007 there is a new situation in the EU dairy market due to the overall result of changes made in the CAP, the rise in the input prices, especially on feeds, and the increased demand for dairy products in developing countries. As a consequence of these changes there is greater dependence on the international market situation and a high volatility in the prices of milk and its inputs, in contrast to the previous situation of reduced variability and higher prices for milk the internal market. Moreover the changes already made in the CAP with the reduction measures of market regulation will be followed with the removal of quotas from April 2015 and the implementation of new CAP regulation for the period 2014/2020.

Figure 5. Net margin unit, milk and feed prices



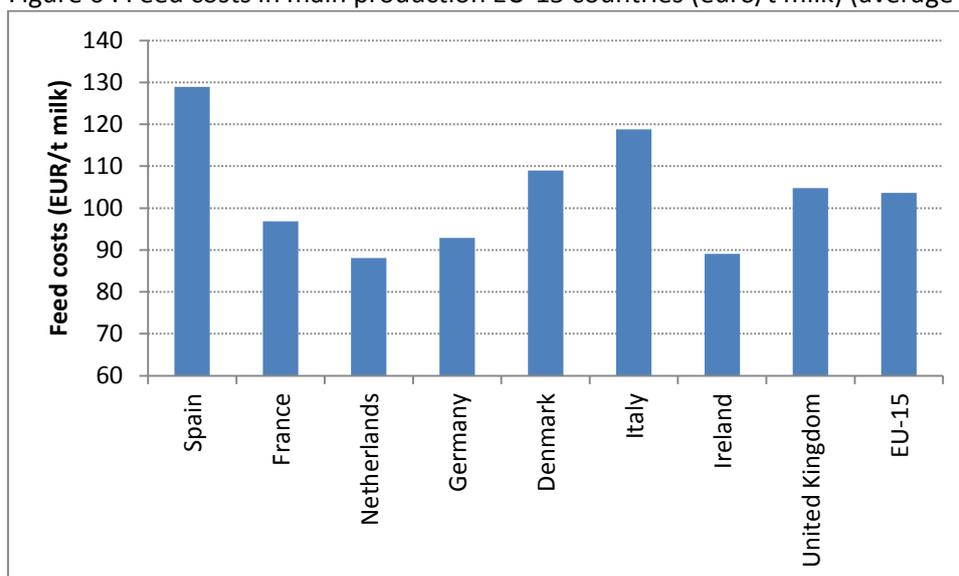
Source: Dairy farms economics, Magrama

The impact the new situation on the farm economy can be followed on the mean results of a large group of farms (745 in 2012) from the main producing areas. The net margin per unit of milk was relatively stable until 2006, but has undergone major changes since then. It reached a peak in 2007 due to higher milk prices and declined between 2009 and 2012 by an

unfavourable ratio price of milk to concentrates<sup>3</sup> (figure 5). This deterioration in the unit margin has moved to a reduction in net income per occupied, since the increase of 53% in productivity up to 278 thousand liters per worker in 2012 was unable to compensate for the fall in unit margin.

Under this new situation are particularly relevant the differences in feed cost (produced plus purchased) with dairy farms of other European Countries. According to the Farm Accountancy Data Network (FADN) in recent years feed costs are 24% higher than the average of EU-15. Most of the main producing countries are below this average and only results of Italian farms are close to the Spanish costs (figure 6). This situation is also reflected in the IFCN network of farms, where most of the Spanish farms have higher feed costs than other EC-15 countries (Rengrati, 2014)

Figure 6 . Feed costs in main production EU-15 countries (euro/t milk) (average 2009 to 2012)



Source: Dairy report 2013, FADN

### Dairy industry

The dairy industry process 7.657 million tonnes of milk equivalent obtained from the collection of cow's milk plus 685 thousand tonnes of sheep and goat milk and another 615 of raw milk and other dairy products imported by the industry. We cannot treat separately the industrial use of cow milk from sheep and goat because part of it goes to make mixture cheese with the other types of milk.

The dairies mainly produce fresh products: 48% of drinking milk (which rises to 58% when considering only cow's milk) and another 19% of acidified milks, cream and drinks and milk-based desserts (table 3). Another 28% is used to make cheese and are much reduced the fabrications of industrial products with less than 4% of the collection dedicated to the production of milk powders and butter and is also very low the production of lacto serum due the reduced volume of cheese (362 thousand tonnes).

Thus the profile of the products manufactured by the Spanish dairies is very different from that in the main EU countries, where cheeses are the main product manufactured and industrial products can amount to more than a quarter of the production in milk equivalents.

Several reasons can assist to understand this situation: the restrictions on the own raw material established by quota and the limited volume of raw milk available to import from neighbouring countries, the business structure in dairies with leading companies oriented

<sup>3</sup> Net margin as difference between milk and cattle revenues plus subsidies less paid costs and depreciation; but without discounting the opportunity costs of family labour and capital

towards the processing of fresh products, the absence of large multiproduct firms manufacturing different types of dairy products, as those found in the main European countries. Most companies are dedicated to one of the three branches of drinking milk, fresh dairy products and cheese, with very limited penetration initiatives segments outside the main orientation of each industry.

*Table 3. Products manufactured by dairies (in products and milk equivalents), 2013*

	products	milk equivalents	
	(1,000 t)	(1,000 t)	% total
Drinking milk	3669	3669	47.9
Cream	128	128	1.7
Acidified milk	897	823	10.7
Other fresh products	519	480	6.3
Concentrated milk	63	143	1.9
Powder milk	23	228	3.0
Butter	35	28	0.4
Cheeses	362	2157	28.2
Total industrialized	-	7657	100.0

Source: own calculations on Survey of dairy industries, Magrama

There are 106 enterprises that process more than 5 thousand tonnes of raw milk and another 582 below that amount, most of them dedicated to the production of cheese (table 3). The level of concentration is relatively low compared with other EC. The first three companies by volume of milk collected concentrates about a third of total, but the situation varies with product groups: the first two firms companies on fermented milk and milk-based desserts have a market share of almost 80%, while there is no cheese company producing above 40,000 tonnes. The industrial capacity to regulate milk production is low by the small number and limited capacity of drying installations milk and whey, all below 20 thousand tonnes of annual production

*Table 3. Characteristics of dairy enterprises, 2012*

Size category of enterprises	Percentage of total volume raw milk	Number enterprises	Average volume/enterprise (1,000 t)
Large >100,000 t	66.2	19	253.7
Medium 5,000-100,000 t	28.2	87	23.6
Small <5,000 t	5.6	582	0.7

Source: Survey of dairy industries, Magrama

The dairy industry is dominated by private companies. The cooperatives have a low market share of about 21% of the total milk processed and another 40% is under foreign owned companies. There is a “spot market” for raw milk, which comprises about 10% of production, of a floating nature and without a stable relationship with the processing industry, that resells the milk in refrigerated tanks according to demand. This situation is caused by the small size of most dairies and by the existence of only a few drying facilities of milk and whey. In drinking milk and fresh products there is a high penetration of store brands that reach a market share of 55%, driving prices down and trivializing brands manufacturers.

### **Consumption and external trade**

The per capita household consumption of milk and dairy products is stabilized at about 160 kg. It is high in drinking milk and other fresh products, while it is considerably lower than in other European countries and especially cheese (8.1 kg) with butter (0.3kg), due to preferential

consumption of vegetable fats (table 4). Only in cheese seems to be a tendency to a slight increase in consumption

Table 4. Household consumption: per capita and total in milk equivalents

	Consumption/hab (kg)	Total consumption milk equivalents	
		1,000 t	% total
Drinking milk	74.8	3423	45.9
Concentrated milk	0.7	111	1.5
Milk shakes	3.3	150	2.0
Fermented milk	15.7	648	8.7
Other fresh products	4.2	160	2.1
Cheese	8.1	2956	39.6
Butter	0.3	14	0.2
Total		7462	100.0

Source: own calculations on Food consumption panel, MAGRAMA

Final consumption of dairy products in volume amounts to 8.68 million tonnes of milk equivalent, of which 7.46 corresponds to households consumption and the rest to the extra-domestic. There are no direct estimates of industrial consumption (milk powder, butter, whey and cheese used as ingredients by the food industry), but that can be evaluated indirectly through the balance of supply of internal production + imports-exports. With this purpose we calculated the average values of the last three years to reduce the effect of variations in stocks. This apparent global consumption amounts to about 9.48 million tonnes of milk equivalent (table 5). Thereby the degree of self-sufficiency by domestic production is about 74%.

Table 5. Balance supply of dairy products

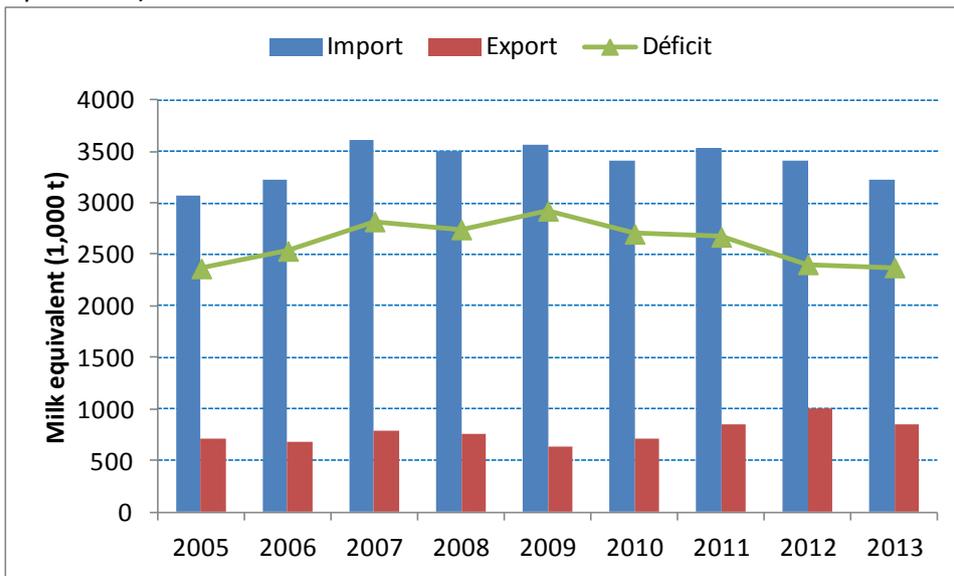
	milk equivalents (1,000 t)
Milk production (cow, sheep and goats)	6993
Imports	3388
Exports	905
Balance supply	9477

Source: own calculations on FEAGA, survey of dairy industries, MAGRAMA, and Data Comex, MEC

External trade of dairy products has had a deficit of about 2.37 million tonnes of milk equivalent in 2013, having decreased in 0.44 million tonnes in recent years due to increased domestic production and also a possible reduction in imports under the effect of the current economic crisis (figure 7). Almost all imports come from the EC for all dairy products, while exports of cheese are somewhat more diversified to send 18% of the volume to non-EC countries.

The main imported products are cheeses with 55% of the total, milk powder with 20% and liquid milk with 15%, of which more than half is raw milk to be processed in dairies. Exports are more diversified, although cheeses are also its main component with almost half of them.

Figure 7. Imports, exports and deficit in the external trade of dairy products (1,000 tonnes milk equivalents)



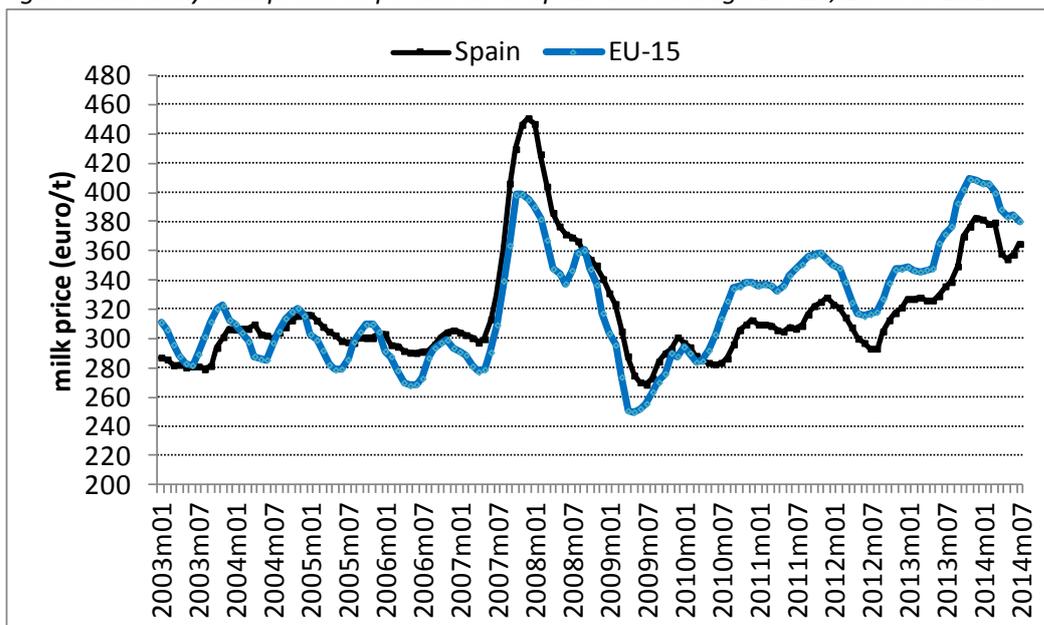
Source: Own calculations Datacomex, MEC

#### Milk prices and the organization of the dairy chain

The limited role of cooperatives and the low development of relationships along the chain is another distinguishing feature compared with the situation in other countries, where the dairy sectors are more structured and organized due to the strong presence of cooperatives in some of the northern countries (Denmark, Netherlands, Ireland) or to the combined effect of the cooperatives and inter-branch organizations, as are the cases of France and Italy.

Cooperatives process 21% of milk in Spain, although this figure is doubled for milk collection. An inter-branch organization was formed in 2000, but so far it has developed a very limited activity.

Figure 8. Monthly milk prices to producers in Spain and average EU-15, 2000 to 2014



Source: Milk Market Observatory, EC

Bilateral relationships between dairies and farmers, although relatively stable, have developed outside any contractual framework. This situation resulted in a market characterized by a lack of transparency regarding the prices received by producers, which move over a wide range, and sometimes with differences even among the suppliers within the same dairy.

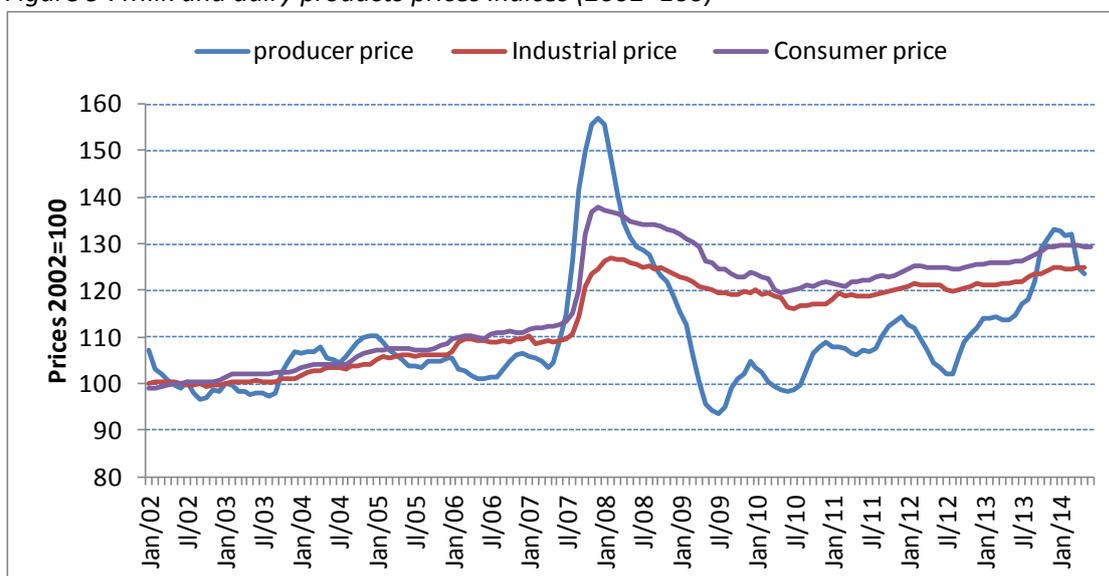
The monthly milk prices show a somewhat different pattern compared to price development in other EU countries. Until the last years the differences were relatively reduced with some periods over the average UE-15 and others below. The greater differences happened in periods of tension on the international market when the price could be higher in Spain, as it occurred in the 2007-2008 peaks. However since 2010 seems to be developing a new situation in which the price of milk in Spain is continually falling below (figure 8).

The lack of an organizational structure and the weak chain relationships limit the efforts to achieve a greater stability and a better balanced transmission of price and margins along the chain. Index prices o

There is a 'spot market' for raw milk, which comprises about 10% of production. This market, however, is very volatile without stable relationship between processors and milk producers. The spot market operates in normal situations with no major differences in average prices with respect to direct procurement, but it tends to increase price movements in times of supply-demand imbalance, such as has occurred in recent years, with a greater rise in prices at the end of 2007 and a sharper decline in 2009.

Price indices to producer, at the industrial level and to consumers have been relatively close up to the beginning of 2006. Afterwards industrial and consumption price indexes have exceeded the producers in 2006 and have fallen below in 2007-2008 being unable to transfer to the consumption the abrupt rise in milk prices. However from 2009 onwards the decline in these prices was considerably smaller than that recorded in milk (figure 9).

Figure 9 . Milk and dairy products prices indices (2002=100)



Source: Raw milk prices, DG AGRI, Industrial Product Index, INE; Consumer Price Index, INE

Precisely to improve transmission along the chain and a greater transparency in price formation have been established in CAP new measures on producer organizations and on the functions to be developed by inter-branch organizations. It was developed a regulation that sets the obligation to establish written contracts and the formation of producer organizations for the price negotiations with dairies. However, its practical application has barely developed after nearly two years from its approval. Most of the contracts have duration less than the

minimum term of one year and there is no price negotiation between dairies and producer organizations.

### **Perspectives in the new scenario without quota**

With the removal of quotas there is the opportunity to increase milk production and further development of the dairy industry, which has been limited by the supply of milk, and thus to improve the level of self-sufficiency of the domestic market. The abolition of quotas also presents threats, linked to both the risk of relocation and abandonment of production and an increased pressure on the internal market with imports from the countries that are expanding their productions, if are not met the export expectations to third Countries by major European dairy groups.

The increase in milk production will depend on both the general market trends, and on internal factors, among which are: 1) improving competitiveness in production, 2) the ability of the industry and markets to absorb production increases and 3) establishing a greater stability in producer-industry-distribution relationships to limit the effects of volatility.

Improving competitiveness in production focuses primarily on two issues: a) higher forage autonomy, which depends on the increase in the provision of land and improvements in production, quality and management of forages; b) the adaptation to the new situation of greater volatility in the price of milk and its inputs

The other two elements with a special significance in the new scenario are the high dairy dependence on drinking milk and existing gaps in the organization of the production chain.

The dairy industry is very dependent on drinking milk, which receives more than half of the collection, while production is low in cheeses and industrial products (milk powder, whey and butter), which precisely form the bulk of imports. The potential for increase in production depend largely on increased industrial capacity of these products both to improve the supply of our market and for export.

The improvement in the organization of the production chain is another key issue from two points of view: to encompass milk production to demand of dairies and to improve the functioning of the chain in the transmission of prices and bargaining power between operators. Poor price transmission along the chain harms the industry as a whole; producers and dairies have a limited ability to incorporate changes in production costs or withstand the stresses in prices of their products. The volatility conditions that already operates in dairy sector, and which likely will be consolidated with the abolition of quotas, should force to rethink relations along the production-processing-distribution chain and to build instruments that provide some stability to limit the effects of imbalances on the respective incomes

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## SUMMARY

The Spanish dairy sector is characterized by a low self-sufficiency rate, a key role in processing of drinking milk and a weak organization of the dairy chain.

In recent decades milk quotas have limited the dynamic of farms and industry to meet the increasing demand for dairy products, which has resulted in a lower relative weight of the milk in the agricultural production and in a deficit of a quarter of the consumption that is covered by imports from other European countries.

Milk production reaches 6.4 million tons obtained from 19 thousand dairy farms and 830 thousand cows. There has been an intense process of structural adjustment that has caused a large decrease in the number of farms, its specialization and the increase in size up to 341 thousands tons and yields to 7.8 t per cow.

The level of concentration in processing and the share of cooperatives is considerably lower than in other Western European countries. Retailer brands have over 50% market share of drinking milk and yoghurts. Inter-Branch and Producer Organisations have a very limited development in actions of common interest and in promoting price negotiations.

The removal of quotas is an opportunity to increase milk production and thus to improve the level of self-supply of the domestic market, but also presents threats, linked to risk of relocation and abandonment of production and to increased pressure on the internal market of imports from other EC countries.

## RESUMEN

El sector lácteo español se caracteriza por una baja tasa de autosuficiencia, una elevada dependencia en la leche envasada y una organización débil de la cadena láctea.

En las últimas décadas las cuotas lecheras han limitado la dinámica de las explotaciones y la industria para satisfacer la creciente demanda de productos lácteos, que se ha traducido en un

menor peso relativo de la leche en la producción agraria y en un déficit de una cuarta parte del consumo que está cubierta por importaciones de otros países europeos.

La producción de leche alcanza 6,4 millones de toneladas obtenidos de 19 mil explotaciones y 830 mil vacas. Ha habido un intenso proceso de ajuste estructural que ha causado una gran disminución en el número de explotaciones, su especialización y el aumento de tamaño de hasta 341 toneladas y del rendimientos de 7,8 t por vaca.

El nivel de concentración en la industria y la participación de las cooperativas es considerablemente menor que en otros países de Europa occidental. Las marcas de distribuidor tienen más del 50% de cuota de mercado de la leche de consumo y yogures. Las organizaciones interprofesionales y de productores tienen un desarrollo muy limitado en las acciones de interés común y en la promoción de las negociaciones de precios.

La eliminación de las cuotas es una oportunidad para aumentar la producción de leche y por lo tanto para mejorar el nivel de autoabastecimiento del mercado interno, pero también presenta amenazas, vinculadas al riesgo de deslocalización y abandono de la producción y al aumento de la presión en el mercado interno por las importaciones de otros países de la UE.