

The Moroccan dairy chain: recent evolutions and future prospects

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Introduction

Located in north western Africa, Morocco is essentially a semi-arid to arid country. Nevertheless, the agricultural sector has always been considered as a pillar of the economy. In 2008, the Moroccan authorities have reiterated their commitment to the promotion of agriculture, through the adoption of the 'Green Morocco Plan'. The Moroccan population has witnessed a rapid growth (12.8 to 33.3 million from 1964 to 2014), coupled to a massive urbanization. It is entering a phase of demographic transition, with marked effects on consumption behaviours: food, health services, housing, etc.

Morocco also faces important challenges due to its limited water supply. Official data reveal that the annual water availability *per capita* stands at about 750 m³. Consequently, water shortages are already threatening a steady increase in staple food production. Climate change will certainly affect the country as the cereal grains' yields in rain-fed zones (which cover up to 84% of total arable land in the region) have become highly variable. This is also true for the animal products' output (milk, meat, etc.), because of their important water requirements (Hoekstra, 2012). Moreover, the ongoing social changes are also impacting the demand in food and imply huge challenges for supply chains to cater to the future needs. The aim of this review is to assess the current situation of the Moroccan dairy chain, by an evaluation of its achievements, as well as a critical review of its bottlenecks and the challenges it will have to deal with in the near future.

The Moroccan dairy chain

Raw milk production encouragement by the "Green Morocco Plan"

Morocco's milk output has been steadily increasing. In 2013, around 2.2 million tonnes of raw milk were produced, after a record of 2.5 million tonnes in 2012 (Table 1). The launching of the 'Green Morocco Plan' in year 2008 has allowed boosting the domestic milk output. It was also consolidated by rainfall levels above the average values in 2008 and 2012.

Table 1
Milk Production by Species (10³ tonnes), 2004 – 2013

Year	Cattle	Goat	Sheep	Camel
2004	1,375	41.7	27.3	4.4
2005	1,400	42.4	27.8	4.5
2006	1,500	45.5	29.8	6.9
2007	1,600	48.5	31.8	7.4
2008	1,680	51.5	33.7	5.0
2009	1,700	40.0	32.8	6.5
2010	1,900	57.6	37.7	5.8
2011	2,200	58.5	38.0	6.2
2012	2,500	60.0	40.0	6.2
2013	2,300	58.0	37.5	5.9

Source: FAOSTAT (2014) and local statistics

Milk production has concentrated itself in large-scale irrigation schemes to overcome water scarcity. Recently, there has been also the emergence of very large dairy farms, mainly driven by public aid programmes. Milk production in Morocco is geared towards increasing volumes. It is expected that the support to the local sector will continue as the 'Green Morocco Plan' foresees an output of 5.0 mn tonnes in 2020.

Farm gate milk prices have not changed significantly during the last decade. However, in August 2013, the leading dairy company (*Centrale Laitière*) has decided to increase by almost 9% the prices of drink milk (Table 2). It has justified that by acknowledging it will share the additional incomes with the farmers. At the beginning of September 2013, farm gate milk price was increased by 5% (from 0.33 to 0.35 US\$ per litre). Since that time, *Centrale Laitière* has inflicted to consumers a 10% increase in the prices of yogurts and cottage cheese (May 2014).

Table 2
Milk Prices in Morocco, 1995-2013

Year	Farm gate price, Dirham/litre	Farm gate price, US\$/litre	Consumer milk price, Dirham/litre	Consumer milk price, US\$/litre	Share of farm gate price in final consumer milk price, %
1995	2.94	0.33	5.00	0.55	58.8
2000	2.94	0.33	5.40	0.60	54.4
2005	2.94	0.33	6.20	0.69	47.4
2010	3.00	0.33	6.40	0.71	46.9
2013	3.15	0.35	7.00	0.78	45.0

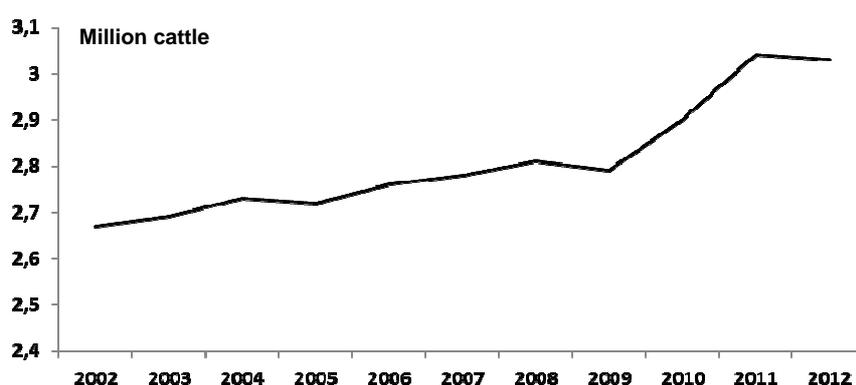
Source: Author's fieldwork and observations

A complete liberalisation of milk prices occurred in 1992. There has been since that date a perpetual debate within the dairy chain on the value split. In fact, cattle farmers' associations argue that milk prices do not allow them having a profitable business. The issue of milk quality and its fair payment is also crucial. It is however difficult to do so, as the offer is fragmented: very small volumes delivered daily by numerous smallholder farms to collection cooperatives (1,850 throughout the country) before supplying the processing unit. Therefore, the quality of individual batches can hardly be analysed due to economic and logistical limitations. Payments to farmers are therefore only based on the volumes delivered. This implies there are almost no incentives to improve milk quality, as it won't be rewarded (Sraïri *et al.*, 2009).

Structure of the Dairy Farming Sector

Morocco has a herd of about 3.03 mn cattle. This figure has been steadily increasing since 2002 (Figure 1).

Figure 1
Number of cattle in Morocco (2002-2012)



Source: FAO STAT (2014)

The average milk yield remains very low (less than 1,350 kg per cow per year), even in the most favourable areas, because of insufficient and imbalanced dietary rations (Sraïri *et al.*, 2015). The herd's genetic structure is also characterized by a huge heterogeneity:

- Cattle of local breeds, with less than 600 litres per cow per annum – some 45% of total cattle
- Crosses between local and imported cattle breeds – this group represents up to 40% of total cattle
- Purebred imported cows – these are specialised dairy breeds such as the Holstein, the Montbéliarde and the Fleckvieh. This genetic cluster represents some 15% of the Moroccan herd.

Geographically, around 65% of total milk output originates from the large scale irrigation schemes (Figure 2 and Table 4).

Figure 2
Localization of the Main irrigation schemes in Morocco



The degree of mechanisation/automation on dairy farms remains marginal in smallholder dairy farms. This means that milking is mainly done by hand and automated milking can only be found in a minority of large farms.

Table 4
Milk Production in Irrigation Schemes, Share of Milk Output – year 2013

Scheme	Name and location	Size, ha	Share of milk output, %
PID	Doukkala	104,600	18.0%
PIGL	Gharb/Loukkos	132,000	16.2%
PIH	Haouz	142,000	8.1%
PIM	Moulouya	77,000	2.5%
PIO	Oasian	65,000	0.8%
PIS-M	Souss Massa	40,000	7.2%
PIT	Tadla	109,000	12.3%
TOTAL			65.1%

Milk industrial processing: a fierce competition between operators

The Moroccan industrial milk processing sector comprises around 82 companies (Figure 3), classified into four categories:

- 3 companies of important size (more than 50 tonnes/day);
- 32 medium-sized companies (10-50 tonnes/day);
- 47 small dairy processors (2-10 tonnes of raw milk daily).

In addition, an unknown number of workshops (*mahlabates*) operate in the informal milk processing. These are small shops found in urban areas and have strong business opportunities. Because of the ongoing trend of urbanization, this sector is likely to continue representing an important contribution to the Moroccan urban dwellers' supply of dairy products. Around 65% of Morocco's milk production is processed by the formal sector, with another 13% processed by informal operators. The remaining 22% are used on-farm, for auto consumption and/or fed to calves.

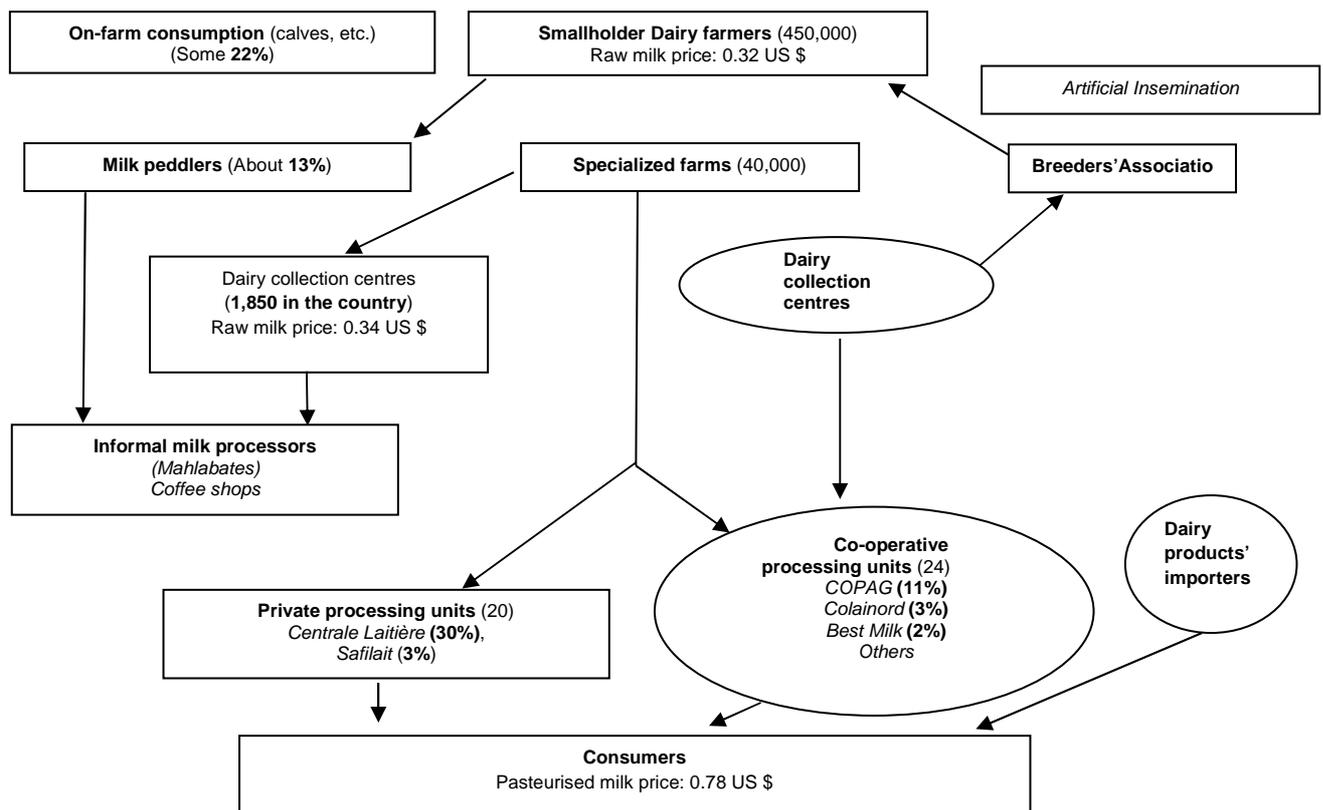
Recent developments in the dairy processing sector can be summarised as follows:

- *Centrale Laitière's* leadership remains strong, particularly since the global player *Danone* controls 96% of its capital. By this investment, *Danone* aims to get access to neighbouring emerging markets in North African and Sub Saharan countries;
- Emerging private processors which use milk from their own farms – companies like *Jibal* and *Les Domaines Agricoles*;
- A strong competition between operators, in particular in milk derivatives with high margins: yogurts, cheeses, etc.

The recombining of milk is marginal because of high duties on imported milk powder and dairy derivatives. Imports may occur in periods of drought and also to cater to an increased demand, like during the Holy month of Ramadan. The main categories of dairy products produced by Moroccan processors are:

- Liquid drinking milk – this accounts for more than 75% of the total milk volume processed, some 49.2 kg *per capita* per year.
- Yoghurts and yoghurt drinks – some 16% of total volumes, with an average *per capita* consumption of 13.6 kg annually.
- Cheese – Moroccan *per capita* consumption is around 1.0 kg annually. Cheese consumption is increasing at an annual rate of 5%.
- Butter – *per capita* consumption is around 1.4 kg annually; a significant part of the entire volume is imported.

Figure 3
Structure of the Milk Processing Sector, Morocco
Legend : (20) - Number of operators / (12%) - Percentage of milk processed



Moroccan dairy trade analysis

Dairy Trade Environment

Morocco has a relatively protected market, with high duties levied on certain products. Morocco has recently signed a free trade agreement (FTA) with the USA (2005) and is in advanced negotiations with the EU to liberalise trade. Morocco's tariffs/duties on dairy products range from 17.5% to 102%. According to the official figures of Moroccan customs, milk powder duties represent 100%.

Moroccan Dairy Products' Import Statistics

Dairy products' imports in Morocco have reached some 200 mn US \$ 2013. The structure of imports has noticeably changed, with the emergence of high value derivatives like cheese and butter, which represent almost 70% of the value of imports. According to Office of Currency Change, dairy products' imports in 2013 were as reported in Table 5. Dairy products are mainly imported from the EU and USA (since the implementation of the FTA) and New Zealand (butter).

Table 5
Dairy Imports into Morocco, 2009-2013

Year	Milk powder, tonnes	Cheese, tonnes	Butter, tonnes
2009	14,339	9,870	29,613
2010	11,520	10,190	29,106
2011	7,826	9,818	30,350
2012	8,002	12,417	27,426
2013	5,964	13,355	27,527

Source: Office of Currency Change, 2014

Data illustrate changes in the structure of Moroccan dairy products' imports. Milk powder and butter have been steadily declining, whereas cheese is progressing. These figures indicate a change in consumption behaviours, as the Moroccan society is according more importance to milk derivatives with a high nutritive value, like cheeses.

Conclusion

This article confirms that the Moroccan dairy chain is growing steadily, as it has to supply an increasing domestic demand. The raw milk output has benefitted from the 'Green Morocco Plan' dynamics, particularly through the aides destined to large farms, at a time where the smallholder ones are still looking for technical support. However, the dairy farming sector remains dependent on the level of rainfall which directly impacts fodder production. Farm gate milk price has finally been increased in 2013. In fact, the dairy processors tried to tackle the volatility of inputs' prices by encouraging farmers. That step was also adopted to secure the supply of raw milk, as many farms have begun quitting this activity after realizing it was not profitable.

Milk processing in Morocco has also passed through recent developments. The most prominent one is the investment of *Danone* in *Centrale Laitière*, as the global player controls 96% of the capital of the latter. Other milk processors are also progressing rapidly, particularly private groups like *Safilait* and *Les Domaines Agricoles*, as well as the co-operative group called *COPAG*. Otherwise, some small dairy processing co-operatives are struggling to survive, due to financial difficulties and technical setbacks.

The dairy chain will need in the near future to tackle a series of challenges. The most prominent one will consist in ensuring a steady increase in milk volumes, which implies the necessity to innovative measures to support smallholder farming: a better water productivity in cattle farming, an improved milk quality with the adoption of an adapted system of payment, a revised governance within the chain by regular rounds of negotiations between the stakeholders, etc. Downstream, the Moroccan dairy chain will also have to adapt itself to evolving consumers' needs. This will surely imply an increased effort to supply dairy goods at attractive prices, to ensure steady growing levels of consumption. That may also require an upgrading of the milk processing sector.

Bibliography / More information

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