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Sectoral Impact: An Insight into How the Maltese Dairy Sector Adapted to EU Membership

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Introduction

The process of Europeanisation, particularly downloading, often requires radical adjustments in sectors. It is often used by decision-makers to effect long-standing and long postponed reforms of important sectors. The Maltese dairy sector lends itself as a typical example of this sort of change. It is a crucial sector, with the 'strategic' importance of ensuring a continuous supply of fresh dairy products for the local market and a source of economic activity for many.

Failure to adapt could have wiped out the sector after accession as the small domestic market would have been penetrated by similar goods from producers who enjoyed some key advantages over their Maltese counterparts, not least of these the advantages of economies of scale. As Malta approached membership what was at stake was evident both to the governing authorities, the operators within the sector and consumers. In the end the sector managed to adapt itself to membership, achieve a high degree of Europeanisation and maintain its buoyancy in the domestic market against what were considered to be great odds.

The Maltese dairy sector is considered to be of strategic importance as it provides and guarantees the Maltese population and visitors with a daily supply of a variety of high quality fresh milk products at comparatively low prices. From an economic, social and environmental perspective, it also contributes to the value added of the domestic economy by providing employment to hundreds of people - directly and indirectly - throughout the production and supply chain. This includes production on the farms, on-farm related support services and supplies, transport, activities at the grain discharging terminal, feed mills, the dairy processing plants, milk distribution and all other support services in the milk chain. The dairy sector generates a considerable amount of economic activity by supplying an annual production of 41,000 tonnes of fresh milk to the dairy processing

plant with annual retail sales estimated at €38 million. About 50 per cent of the economic activity generated is considered as local value added[1]

From an environment perspective, 5,290 hectares or 59 per cent of agricultural arable land in the Maltese Islands is used to produce forage, mainly for the dairy sector. This helps in no small way to support the use of Malta and Gozo's limited arable land and agriculture, but it is as equally important in maintaining the rural landscape and environmental character of the Maltese Islands[2]. The environmental benefit arising from this should not be underestimated and without the local dairy sector there would be no or very limited alternative use for the land other than urban development. These multiple functions of the local dairy sector puts its contribution to Maltese society well above its economic value.

Following an explanation of the natural and structural disadvantages or major limitations of the Maltese dairy sector, this paper traces the challenges faced and the investment and changes that have taken place in the dairy sector as a result of EU membership; the sector's performance as a result of this investment and upgrading in the first ten years of EU membership; and finally the future challenges facing the sector. This paper, therefore, shows the impact that EU membership has had on one particular sector and how, by adopting the EU *acquis*, usually referred to as ´Europeanisation', the sector was able to modernise and maintain its buoyancy in the face of fierce competition which followed in the wake of the liberalisation of the domestic market.

Major limitations of the Maltese dairy sector

The size of the Maltese Islands as well as their geographical location creates a number of natural and structural disadvantages for the dairy sector. Unsurprisingly, and because of these limitations, the dairy sector has witnessed wholesale changes across the supply chain in the period between 2003 and 2013, mainly as a consequence of EU membership.

A major limitation is the very limited arable land as well as small land holdings due to land fragmentation that results from traditional inheritance practices whereby the occupant divides farmland between progeny. The total utilised agriculture area (UAA) amounts to 11,689 hectares with arable land accounting for 76.7 per cent of the total UAA, and the cultivation of fodder plants (59.0 per cent) being predominant in the tenure of arable land.[3]

[1] Government of Malta (2009), *National Rural Development Strategy, 2007-2013*, Malta: Government of Malta.
[2] P. von Brockdorff (2002), *Development and Agri-Food Policies in the Mediterranean Region* (Malta Report), CIHEAM Annual Report 2002, Paris: Presses de Sciences Po.
[3] National Statistics Office (2013), *Farm Structure Survey, 2013.*

Apart from land constraints, another major limitation is limited rainfall and limited access to water. This affects the dairy sector by rendering virtually non-existent pastures for livestock and the production of grains and feed materials. Together with the low organic content of soils, the limited rainfall also affects the quality of locally-produced forage.

The livestock sector also suffers from various constraints, apart from those connected with limited land and water. This sector is in fact constrained by the total reliance on imported grains and other feed materials unlike its counterparts in the EU where dairy farmers can source grains produced locally in addition to imports or purchases from other EU states. In Malta, purchases or imports of grains and other feed materials are also subject to higher sea transport costs given the comparatively small volume of purchases or imports, as well as the logistical constraints associated with Malta's geographical size and location in the periphery of Europe.

Another major limitation faced by Maltese agriculture and the dairy sectors is the small size of the local market which in turn gives rise to low economies of scale and relatively higher costs throughout the production and food supply chain. Additionally, local dairy is based on fresh milk products many of which have a very short shelf life. For economic reasons hardly any milk products of longer shelf life such as long-life milk (UHT), butter or powder milk are produced. These types of products serve as a buffer for unsold fresh milk for many dairies across the EU. For this reason, it is much more onerous on the local dairy sector to maintain stability between daily supply and demand for milk. All these natural and structural limitations, which cannot be changed and which will persist in the long-term, make the local dairy sector vulnerable to importation and external market forces. They also explain the relevance of support measures to mitigate these disadvantages and in ensuring a level playing field in this sector while justifying why it fully deserves the attention of policy makers.

Despite all of the above, and by adopting a flexible and coherent strategy, the local dairy sector was able to meet the challenges during the initial ten year period of EU membership. In doing so, it had to undergo several changes, some of which were nothing short of radical.

Meeting the challenges of EU membership

Malta's accession to the EU was without doubt the major challenge the local dairy sector and stakeholders had to face throughout the historical development of this sector. Moreover, in joining the EU, the limitations mentioned in the previous section were the cornerstone of negotiations with the European Commission, resulting in an unprecedented number of derogations and transition periods, as outlined in the Treaty of Accession, including a post-accession derogation allowing 75 per

cent of dairy farmers to receive EU payments despite having no agriculture land to show for their farms.[4] However, the underlying natural disadvantages remained.

These disadvantages provided the justification for negotiating a transitory package of state aid in addition to a number of derogations comprising a five-year transition period on stocking density of the herd size in farms; a five-year transition period on a minimum of 2.5 per cent fat content in milk; a six-year transition period on EU-standard hygiene and quality requests for dairy farms; supplementary EU bonuses for suckler cows, slaughtering and beef; transfer of payments allowable in cases where land is not owned by the dairy farmer; and of course direct income support to mitigate the effect of the removal of levies on imported dairy products through the Special Market Programme for Maltese Agriculture (SMPPMA). The SMPPMA was a transitory financial package for the various agriculture sectors including the dairy sector from 2004 to 2010 with the aim of providing direct income support to farmers to help them compete with imports following the removal of levies.[5]

For the dairy sector, this income support totalled €8.38 million by end of 2010. Additionally, farmers became entitled to Common Agriculture Policy (CAP) payments for which dairy farmers were eligible. The so-called First Pillar CAP payments took the form of Single Payments based on entitlements decoupled from production: a system whereby payments were made independently of future levels of production.

These replaced the initial direct premium payments to dairy farmers, known as the Common Market Organisation (CMO) Dairy Premium, as outlined in EC Regulation 1782/2003, Art 95 and Art 96 in respect of additional payments. According to this Regulation, the total sum available for dairy premiums in any given year was based on the quota level held at the end of the previous year, but additional payments were paid only if the required milk standards were met.

Prior to accession, milk and milk products, as well as all other local agriculture products were safeguarded by a system of tariffs, levies and/or quotas on imported primary and processed products. The local dairy and agriculture sector was, therefore, protected by a closed market mechanism that regulated supply, stabilised prices and farmers' income. However, and as one would expect under a closed market, and in the absence of investment aid policies, the farming community and processors alike had little motivation to modernise and undertake major investments.

[4] European Commission (2003), *Treaty of Accession to the European Union* [Official Journal L236, 23.09.003].
[5] European Commission (2003), *Council Regulation (EC) No.1788/2003*.

All this changed with EU membership. The dismantling of all import tariffs/levies and quotas with all EU countries, and hence the complete liberalisation of the import market for dairy products resulted in an altogether different scenario with local products facing unprecedented levels of competition.

This notwithstanding, the removal of the closed market regime had both positive and negative effects on local agriculture, including the dairy sector. As expected, adapting to a totally new environment impacted on the previously held strength of farmers and cooperatives in the supply chain. Though temporary state aid was intended to provide a *soft landing* approach to the removal of protectionism, it could never compensate for the farming community's more vulnerable position in the market. Nonetheless, state aid (SMPPMA) sought to compensate local producers for the initial years of EU membership on the basis of the difference between the (higher) price of local as against the (lower) price of the same produce in Italy (deemed as the closest market).

In terms of production, processing, and along the supply chain, yet another challenge of EU membership was the adaptation of all agriculture sectors in a short time frame to the relevant EU policies, directives and regulations. This could never be an easy process and the extraordinary derogations agreed during negotiations bear testimony to the difficulties of this adaptation for a small island economy. Ultimately, all production holdings and agro-processing plants, and businesses as well as feed mills had to comply with food and veterinary standards. Equally as onerous were the cross-compliance regulations applicable in the dairy sector, particularly for milk production holdings, and compliance to the expected standards in waste management, food hygiene and safety, and animal welfare.

All of this necessitated unprecedented levels of investment by dairy farmers, the milk processing plant, and the feed mills in a very short time frame at a moment when local agriculture experienced stiff competition from imports following the total removal of tariffs, levies and quotas for all products circulating in the EU.[6]

The new highly competitive environment created by market liberalisation weakened the position of local agriculture within the local food chain with the countervailing power often shifting from upstream (producer stage) to downstream (processing stage). This meant that with the removal of levies, processors now had an opportunity to buy primary products from other EU markets weakening the position of primary producers. The situation in the dairy sector was no less precarious. However, and unlike most other sectors in agriculture, the dairy sector's strength amid

[6] G. Buttiġieġ and E. Zahra (2012), *Support for Farmers' Cooperatives; Country Report Malta*, Wageningen: Wageningen UR.

adversity has been its organisational set up with the dairy directly linked with milk producers through the cooperative.

The two principal stakeholders in the dairy sector were and still are *Koperattiva Produtturi tal-Ħalib* (KPH), the milk producers' cooperative, and its subsidiary company, Malta Dairy Products (MDP). KPH has been established since 1958 and incorporates almost all milk producers delivering milk to the dairy (MDP). It is the largest farmers' organisation in terms of turnover both within the cooperative movement as well as the agriculture sector.

The members of KPH, the milk producers are the owners, users and beneficiaries, and the main aim of the cooperative is to sustain and continuously improve the economic and social interests of its members, and develop the milk sector in Malta. To achieve this, over the years KPH invested heavily and developed a vertically integrated organisation to run its core business.

These activities include the importation of grains and feed raw materials; the manufacture of animal balanced feed at its own feed mill; the provision of members' requirements for farm equipment, consumables and services; education and training, and technical support to its members to improve nutrition, management, efficiency, and quality. KPH also supports its members through its subsidiaries in finding a market for their production of beef and raw milk and in enhancing market competitiveness.

KPH's role in the first ten years of EU membership was instrumental in managing the process of change and adaptation, particularly the change required of milk producers to adapt to a completely new competitive scenario and introduce EU standards. This applied not only to those in the milk production sector but also to all the human resources in the milk supply chain: the feed mill, the dairy processing plant, and distribution. The investment in the human resources in this difficult change process was equally as important and had to complement the massive investment in the farm upgrade/re-structuring and all related infrastructure in the milk supply chain.

KPH was at the centre of this process of change with continuous information sessions being organised to give all the necessary information about all relevant regulations and standards, and the adaptation process to its members; direct and indirect assistance schemes; plans to integrate and adapt to the new requirements, and new policies introduced in the local sector. Apart from the information aspects, these regular meetings were characterised by a high degree of participation and feedback of all the members and all the stakeholders in the sector and helped them to understand better the challenges ahead. Without any doubt, this process helped KPH to formulate the most appropriate and effective implementation strategies and plans.

On a more practical and hands on approach, during the period under review, KPH provided technical support with the help of highly qualified local and foreign experts, and also assisted members in all the aspects of farm restructuring and upgrading; designs and Malta Environment and Planning Authority permits; procurement of equipment and material; project management and implementation; bank loans and aid schemes; soft loans from KPH; and coordination with all government entities. KPH also embarked on a continuous programme of training, education and technical support to help dairy producers achieve cross compliance and standards required by EU regulations and to improve farm management, nutrition, efficiency and quality in milk production to be more competitive and oriented to market requirements. Practically all the dairy farmers and their employees on the farms attended a two year (2011-2012) course organised by KPH about all aspects of modern milk production.

Likewise all the other employees and operators in the milk supply chain – feed mill, milk processing plant, distribution – received all the necessary support and training from KPH and MDP and other technical expertise to adapt to EU regulations and standards applicable to the plant and equipment, processes and products of these establishments. The extent of this massive effort to change the mind sets and upgrade the human resources to adapt to the new scenario cannot be underestimated. This process was in fact instrumental in attaining the performance levels reached by the dairy sector and its ability to meet the overall challenges of EU membership.

Achieving the hygiene and quality standards, stipulated by EU regulations and within the short time frame available and bringing them up to the levels reached in the then EU-15 was also one of the crucial challenges of EU membership. Apart from the mammoth tasks and initiatives explained above, in May 2005, MDP and KPH, introduced a Quality Payment Scheme whereby payment for raw milk to milk producers was no longer based on the volume supplied but also on fat and protein levels. This scheme meant a considerable increase in cost to MDP but incentivised milk producers to commit themselves to improve quality and income. Moreover, this scheme also provided incentives on hygiene levels, particularly total bacterial count (TBC) and somatic cell count (SCC) with the minimum target of equalling the EU set standards (in line with EU regulations, raw milk supply must have TBC less than 100,000 cells/litre and SCC less than 400,000 cfu/ml). This improvement in raw milk hygiene and quality standards helped in no small way to improve the final quality of MDP fresh milk products to the consumers.

In this respect, the several Treaty of Accession derogations for the dairy sector were necessary to give the dairy sector much needed time for compliance and adaptation. However, the game changer must have been the Quality Payment Scheme as together with the education and training received

by dairy producers, it proved to be a crucial tool to encourage the upgrading of farms and the delivery of quality raw milk to the dairy or MDP.

KPH holds 70 per cent shareholding of MDP (the Government of Malta has a 30 per cent shareholding) and over the years its members developed a strong and efficient supplier-buyer relationship. This also ensured total quality control over the milk supply chain with KPH as the sole owner of the feed mill supplying animal feed to its members. The feed mill at KPH together with its processes and products required EU certification to be able to operate after EU membership. The same applied to its subsidiary, MDP.

MDP was and still is the leading processing dairy plant in Malta and guarantees the purchase of all milk produced by licensed milk producers and delivered to the dairy. MDP processes, packs and distributes fresh liquid milk produced locally and collected daily from around 85 dairy farms in Malta and another 34 in Gozo. MDP's principal product is fresh pasteurised milk with a range of fat contents and flavours. MDP also produces yogurts, cream and a range of cheeses including mozzarella and traditional products such as *irkotta* and a variety of *gbejniet*. MDP employs around 120 full time employees both in Malta and Gozo, with its main operation located in Malta. Its products are distributed daily ensuring that customers are provided with a reliable supply of fresh milk and other dairy products.

Further Challenges

Another major challenge for the milk sector with EU accession was the change in local policy regarding grain importation from abroad. With EU membership purchases of grains were liberalised and KPH and all other users had to source their requirements of maize and barley primarily from EU countries. Prior to EU membership, importation of grains was the responsibility of Medi-Grain, a state-owned entity which upon membership had to cease its operations with importation of grains becoming liberalised. Thereafter, imports of grains had to be sourced mainly from the EU countries whereas prior to EU membership, grains could be sourced from non-EU international markets without an import levy. This was no longer possible with EU membership, upon which Malta was obliged to impose an import levy, the Common External Tariff (CET) on similar imports from non-EU countries.

For this reason, state aid was allowed for a transitory period (as part of the transition package negotiated with the EU prior to accession) during which international prices were expected to converge with EU prices. The state aid was intended to offset part, if not all, of the increase in the purchase price of grains and hence the resulting increase in prices of animal balance feed. This aid

was suspended in 2007 when the prices of cereals increased to record levels and convergence between EU and international prices was reached. Despite higher prices for grains, the granting of state aid beyond 2007 was no longer possible as a result of converging EU and international prices.

Up to mid-2007, the price of dairy concentrates from imported grains had been stable (also with the support of state aid, as negotiated in the Treaty of Accession) at an average rate of €185.6 per tonne. However, as of mid-2007 the price rose to €279.6 per tonne.[7] Sourcing grains at the lowest price possible became a formidable challenge especially in 2008 and 2009. The suspension of the CET helped to ease somewhat the effects of rising prices of cereals but prices did not return to pre-mid-2007 levels. Inevitably, dairy farmers had to be compensated for the increase in the price of concentrates produced locally and the primary objective of KPH was to avoid shocks to the system and maintain the competitiveness of its members given that cattle feed was and remains one of the main feed components and cost parameters in local milk production.

Table 1 shows the average cost of the main feed materials between 2003 and 2013 with prices rising sharply for barley, maize and soya bean meal. Rising prices occurred at a time when dairy farmers had to commit themselves to invest in farm upgrading in order to comply with EU standards.

Table 1: **Average Cost of Main Feed Materials (Years 2003 and 2013)**

		2003		2013
		€/MT		€/MT
Barley		134		255
Maize		131		256
Soyabeanmeal		282		495

Source: *KPH*

Higher costs of feed raw materials for KPH inevitably resulted in higher prices for dairy balanced feed charged to dairy farmers, as shown in Table 2, with price per metric tonne rising 53 per cent between 2003 and 2013. This price hike was partly absorbed by a higher price of raw milk. This will be discussed at more length further on in this paper.

[7] S. Cutajar (2008), *The Estimation of the Minimum Efficiency Levels in the Maltese Dairy Sector*, dissertation in part fulfilment of a Bachelor of Commerce (Honours) degree, Department of Economics, University of Malta.

Table 2: Dairy Feeds (Years 2003 and 2013)

		€/MT in Bags
2003		189.15 (01/01/2003)
2013		290.00 (31/12/2013)

Source: *KPH*

In view of these developments, KPH's role in providing strategic direction to its members proved crucial. Additionally, by providing direction, technical and financial support to its members on the required upgrading of farms and through the provision of loans at low interest rates, KPH helped ease the financial commitment required of its members at a time of rapid change and adaptation.

The estimated investment in farm upgrading in the dairy sector in the first ten years of EU membership totalled €40 million. This expenditure was partly financed through various schemes under the Rural Development Programmes (RDP), but dairy farmers also had to rely on borrowing mainly from local banks and also from KPH at low rates of interest. The aid schemes covering the programming period 2004-2006 and 2007-2013 under Axis One (Improving the Competitiveness of the Agriculture Sector) were Measure 121 otherwise known as the 'Modernisation of Agriculture Holdings' which entitled farmers to 50 per cent of their investment but capped at a maximum possible aid of €150,000; Measure 123 or 'Adding Value to Agriculture Products' which was utilised in part by MDP; Measure 124 otherwise known as 'Cooperation for Development of New Products, Processes and Technologies and Food Sectors' and utilised in part by both KPH and MDP; Measure 111 or 'Vocational Training and Information Action' available to KPH; and Measures 114 and 115 or 'Setting up and Use of Farm Advisory Services' and utilised by both milk producers and land farmers.

Under Axis Two, and with the Maltese Islands designated as less favoured area, all land farmers (this group included a relatively small number of milk producers) received payments under Measure 122 or the 'Natural Handicap Areas Payments', and 'Environment Payments' under Measure 214.

Dairy farmers were also entitled to the 'Meeting Standards' scheme under the Rural Development Programme 2006-2006. This financial aid was intended to provide support for compliance with waste management, nitrates and environmental conditions.

These various schemes were all important but accounted for only a part of the overall total investment in farm upgrading estimated at €40 million from 2003 to 2013 (as indicated earlier). Most of the investment had to be forked out by dairy farmers themselves. The investment was huge in

relative terms and by far the largest investment in the history of the dairy sector and likewise when compared with other primary agriculture sectors. This investment included both on-farm investment to comply with EU standards and regulations, as well as investment at the processing plant. No other sector in Maltese agriculture was required to comply with as many regulations as in the case of the dairy sector and no other sector had a vertically integrated system whereby producers and the operators of the feed mill and processing plant were one and the same. Inevitably, the on-farm investment resulted in a huge burden on milk producers for the repayment of loans and interest on borrowing.

Besides farm upgrading, unprecedented levels of investment were also required at MDP, as the only processor of fresh pasteurised milk (besides other milk products). The advantage associated with a dairy being linked directly to KPH cannot be downplayed, but this would not have mattered so much had it not been for the upgrading of facilities at MDP's production plant with investment reaching €17.3 million by 2013. Investment at MDP included a major upgrading of premises and most of the plant, equipment and facilities. The aid received on this investment by MDP under EU support schemes (RDP) amounted to 444,000 euro or just 2.6 per cent of the total investment outlay. MDP financed about 97.4 per cent of the total investment in its upgrading from its own resources. As for state aid, MDP benefitted from a total of €0.6 million, which was made available from the 'Quality Enhancement Scheme' under the Special Market Policy Programme for Maltese Agriculture (SMPPMA) negotiated with the EU.

Faced by stiff competition, MDP sought to expand and diversify its product portfolio to include a creamier tasting whole milk with 3.5 per cent fat, a new range of milk drinks, a new diversified range of yogurts and desserts, limited edition yogurts, plant sterol yoghurts as well as the introduction of pasteurised fresh cheeselets (*gbejna friska*) and new *ġbejniet* varieties (*mhawra* and *tal-habaq*), and *irkotta* 250g. In 2010, MDP also implemented an extensive rebranding exercise (change in logo, design, new packaging) to strengthen and enhance the brand image of the local fresh milk products. Moreover, MDP had to invest heavily in promotion campaigns and marketing on annual basis to promote its products in a highly competitive scenario.

A recent development in the local dairy sector was the establishment of a new privately-owned processing plant in Gozo with a new brand for dairy products, specifically traditional cheese products and cheeselets, thus further increasing consumers' choice for such products. Of course, this resulted in more competition for MDP's products.

Performance of local dairy sector since membership (2003 to 2013)

As explained in the previous section, the dairy sector went through a radical upgrading and consolidation process in the first ten years of EU membership with the aim of improving efficiency, quality and hence competitiveness along the whole milk production and supply chain.

Unsurprisingly, given the required investment and commitment, the number of licensed milk production holdings supplying raw milk fell from 184 in 2003 to 120 in 2013. Evidently, not all dairy farmers could meet the financial commitment to upgrade their farms. A number of dairy farmers were too old to undertake the investment required and none of their family members were interested in milk production. Others had problems in obtaining Malta Environment and Planning Authority (MEPA) permits for farm restructuring and could not apply for EU funding without one. Faced with these circumstances, a number of farmers withdrew from the sector.

Table 3: Dairy Farm Sizes (Dairy Cows)

	Number of Dairy Cows	≤2	3 - 29	30 - 49	50 – 99	≥100
2003	Farm Size	12	43	36	44	18
	Cows (7,607)	16	707	1,409	3,136	2,339
2013	Farm Size	10	35	31	33	17
	Cows (6,333)	14	644	1,228	2,424	2,213

Source: *Cattle Census 2013 (NSO) and Agriculture & Fisheries Report 2003 (NSO)*

The number of dairy cows fell from 7,607 in 2003 to 6,333 though this was expected in view of the planned higher levels of efficiency, as outlined in the 'Dairy Compensation Scheme' introduced in 2002 and aimed at a more efficient and economical milk production. In spite of the challenges caused by market liberalisation, the stiff competition from especially imported dairy products, the increase in the price of feed, the very heavy financial commitment required by dairy farmers, and the challenge to meet EU regulations and standards (despite EU and state aid), the production of milk after ten years of membership has remained at the levels recorded prior to EU accession. As shown in Table 4, raw milk supply delivered to the processing dairy stood at 40,020 tons in 2003 and 40,986 tonnes in 2013.

Table 4: Raw Milk Supply Delivered to the Dairy 2003 and 2013

	Tons
2003	40,020
2013	40,986

Source*: KPH and MDP*

Retaining 2003 production levels and finding a local market for this milk was no mean achievement given the stiff competition arising from imported products. In spite of a reduction in production holdings and the number of milking cows, milk supply remained at pre-accession levels (it actually increased marginally by about 1,000 tons or 2.4 per cent over the ten-year period) due to higher yield levels relative to the herd size.

Table 5 shows the number of dairy cows as well as the bovine herd in 2003 and 2013. The increase in yield compensated for a 16.7 per cent reduction in the number of milking cows and was mainly attributable to the determination and effort of milk producers, technical support provided by KPH to its members (as explained earlier) as well as the upgrading of equipment, better housing, and improved farm management, better nutrition and animal welfare facilities. This was especially true of larger farms but improvements were achieved across all 120 licensed farm holdings.

Table 5: Dairy Cows Number/Bovine Herd

	Dairy Cows	Bovine Herd
2003	7,607	17,940
2013	6,333	16,220

Source: *Cattle Census 2013 (NSO) Agriculture & Fisheries Report 2003 (NSO)*

Evidence of the increased efficiency reached between 2003 and 2013 is shown in Table 6 with average yearly milk production per cow reaching 6,472 kilograms in 2013, as compared with 5,261 kilograms in 2003. The levels reached in 2013 are almost comparable with the yield in countries with an equally long tradition in milk production.

Table 6: Average Yearly Cow Production 2003 - 2013

	Kgs
2003	5,261
2013	6,472

Source: *KPH*

What also needs to be highlighted is the fact that, as explained earlier, the cost of dairy farming increased substantially due to the rise in the cost of feeds and other operating costs, particularly the cost of utilities. This had to be compensated for by an increase in the quota price of raw milk which rose by 32 per cent over the period under review with the total value of raw milk supply increasing from €15.9 million 2003 to €21.7 million 2013 or 36.5 per cent (see Table 8). In spite of stiff competition, the local milk sector was able to absorb this increase in cost and at the same time sustain the income of dairy farmers during this difficult period of transition.

Equally remarkable is the improvement in raw milk quality with quality levels much better than the EU required standards of TBC and SCC, as shown in Table 7.

Table 7: Milk Quality (Raw Milk) Levels 2013

	EU Limit	2013
TBC	100,000 cells/L	29,000
SCC	400,000 cfu/mL	280,000
FAT%		3.39%

Source: *MDP*

TBC and SCC reached 29,000 cells/L and 280,000 cfu/mL respectively in 2013, much better levels than the EU benchmark. Fat content increased from 2.62 to 3.39 per cent over the period under review, a 30 per cent increase. As for protein, an improvement was also registered and reached 3.22 per cent in 2013.

Attaining these performance levels, and within a relatively short time frame, required huge efforts on the part of the dairy farmers as well as KPH in terms of the technical support provided, and although

accompanied by an increase in the raw milk price, this increase was mainly attributable to higher feed prices arising from higher international prices for grains.

Table 8 shows the raw milk quota price and total values for 2003 and 2013. For the reasons mentioned before, mainly due the increase in the price of feeds, the raw milk price had to increase from 38 to 50 cents per kg which ranks among the highest prices for dairy farmers in the EU countries. This is to be expected given the total dependence on imports of raw materials, as well as the natural and structural disadvantages of the local dairy sector. It is worth noting that this level of compensation is similar to that of the island of Cyprus where the dairy sector suffers from similar adverse constraints like Malta.

It is also pertinent to note that though Malta virtually had no economic crisis in 2009, the average gross margin (defined as sales of milk and milk products minus operating costs) experienced by dairy farmers with coupled payments fell by 32 EUR/t in 2010 due to a decrease in the milk price on the one hand and in national coupled payments on the other hand.[8]It only partially recovered in 2011 (reaching 77 EUR/t). The dairy sector is in fact characterised by extraordinary high costs as well as high opportunity costs for family labour in an activity dominated by family run holdings.[9]

It should be stressed, however, that the extraordinary high cost is due to the heavy reliance on imported feed which in 2012 totalled €351/t of milk (nominal) of the total operating costs totalling €434/t of milk, more than 80 per cent of the total operating costs.[10] This is quite extraordinary and whereas home grown feed accounts for a small percentage of production costs in Malta, the opposite is true for many EU countries. The difference in operating costs of milk production in Malta is to a large extent due to the higher cost of imported feed and to a lesser extent the cost of utilities. One can also infer from the 2013 report that bar imported feed and utility costs, other operating costs in the Maltese dairy sector are comparable with best practice across the dairy sector in the EU.

The comparatively high price levels for imported feed and its impact on the costs of milk production could only be sustained because of the vertically integrated structure in the local milk supply chain, particularly the direct integration between producers on one side and the dairy (processing plant) on the other. Within a highly competitive environment the advantage of a vertically integrated business in terms of stability of supply of fresh milk to the milk processing facility cannot be underestimated.

[8] European Commission Directorate General for Agriculture and Rural Development (2014), *EU Dairy Farms Report, 2013*, Luxembourg: Publications Office of the European Union.
[9] Ibid.
[10] European Commission Directorate General for Agriculture and Rural Development (2013), *EU Dairy Farms Report, 2012*, Luxembourg: Publications Office of the European Union.

And there is a common objective to maintain equilibrium within the market and to address any supply shortfalls or oversupply, as the case may be.

Table 8: Raw Milk Quota Price and Total Values (2003 and 2013)

	Raw Milk Price (€/Kg)	Total Raw Milk Value (€)
2003	38c16	15.9 million
2013	50c37*	21.7 million
*2013: Average Yearly Price		

Source: *MDP*

A vertically integrated system also provides stability in raw milk pricing as well as retail pricing, though the latter also depends on competitor pricing strategies and market developments outside the control of MDP. Only in this way could the local milk sector sustain the relatively higher price for raw milk received by the milk producers as compensation (and justifiably so) for the unique local circumstances, while at the same time maintain competitive prices for fresh milk and milk products to consumers.

As determined from MDP records, the local retail price for normal liquid milk 3.5 per fat content was set at €0.86 cents per litre in 2013. This was considered to be among the lowest when compared with other Mediterranean countries in the EU: Cyprus, Greece, Italy, France and Spain (it remains so at the time of writing). It also implied that local consumers are spending less on fresh milk than their counterparts in other EU Mediterranean states generating a considerable level of consumers' surplus which, in the absence of local production of fresh milk, would not be the case.

Though the 2003 price was lower, a price level of €0.86 cents per litre in 2013 was noteworthy given the higher costs of production due to developments in the grains market as well as costs arising from higher utility pricing during the period under review. Milk producers are, of course, not immune to these realities and this partly explains why it so vital for them to maintain and further improve efficiency and yields in an environment which remains handicapped by natural and structural disadvantages. For many years, these disadvantages were partly mitigated by an effective quota system that helped stabilise the market for consumers and milk sector in general.

Future challenges and conclusions

As has been explained, the investment of about €57 million in the restructuring and upgrading of the local milk sector all along the supply chain has brought about remarkable improvements in efficiency and quality. The adaptation of complex regulations and standards in this sector is testimony to the effort and commitment of the milk producers and all concerned to change and adapt to the new scenario. These challenges and the change process cannot be underestimated.

Following EU membership and in spite of the liberalisation of imports, the removal of protective levies and the harsh competition from imports, the local milk production did not decrease. On the contrary, since EU membership milk production increased marginally (2.4 per cent) and its value increased by 36.5 per cent. And on its part, MDP managed to increase its product portfolio and marketing initiatives, and to utilise and find a market for all the milk produced. All this enabled consumers to benefit from the security of a daily supply of a variety of high quality fresh milk products at very competitive prices. Maltese society continued to enjoy the economic, social, and environmental contribution of the multifunctional role of the dairy sector. These results need to be judged in the context of natural and structural constraints of the local dairy sector.

A further challenge of EU membership is the dismantling in 2015 of the quota system in milk production. Over the years, the quota system in Malta served to provide market and income stability for dairy farmers and price stability for consumers (with limited price adjustments caused mainly by increasing international prices for grains following EU membership). With the removal of the quota system (quotas were introduced more than 30 years ago to keep a lid on production as EU subsidies had contributed to excess production of milk and milk products, with excess produce stored away at huge cost or dumped on world markets with export subsidies), the market stability enjoyed by producers and consumers alike could be threatened unless remedial measures are put into place as early as possible. Additionally, competition from EU suppliers of milk products is likely to intensify as dairies across the EU consolidate and merge, seeking increased market shares and exploiting their favourable economies of scale and lower costs of production.

The situation is further exacerbated by the fact that, unlike dairies abroad, in times of market instability, the local sector is unable (for reasons explained earlier) to resort to products of long shelf life like long life milk or dairy products, butter or skimmed milk powder. Moreover, the local dairy sector, if faced by market instability, will be unable to benefit from the two main EU intervention mechanisms adopted under CAP regulations, namely the market management tools, particularly public intervention and private storage of butter and skimmed milk powder and export subsidies on skimmed milk powder. This brings us to the *one size does not fit all* argument, with the local dairy

sector, unlike other EU countries, unable to have a safety net provided by EU intervention measures to sustain market instability when milk supply exceeds demand.

In line with the new CAP programme 2014-2020 (applicable to all EU countries) specific funds will be made available from 2013 to 2020 via the 'Voluntary Coupled Support' to the dairy sector. However, the possible risks resulting from the removal of the quota system, the new milk production and highly competitive scenario cannot be underestimated.

Against this background it will be necessary for market, and hence price stability, to be maintained. The removal of the quota system will further strengthen the market position of huge retail businesses across the EU further limiting the countervailing power of primary producers. Developments across the EU will need to be watched closely in Malta as they could negatively impact the stability experienced so far by the milk sector and consumers in general.

Continued improvement in farm management, efficiency, and quality will also be necessary. Though average quantity of local milk per Annual Working Unit (AWU) is the highest among the EU-10 Member States (those that joined in 2004), the farm net value added per annual work unit (FNVA/AWU) which represents the amount available to remunerate all fixed production factors (land, labour, and capital) remains much lower than the EU 15 average.[11]

On its part, MDP and other milk processing establishments will need to continue monitor market developments very closely and take new market initiatives. As for KPH, it will need to continue to provide strategic direction and support to dairy farmers especially in maintaining and improving the performance levels reached since EU membership.

However, the natural and structural disadvantages will persist. These will continue to affect the local higher costs of milk production including the opportunity cost for family labour and all the costs along the milk supply chain. Related to this is the volatility of prices in the grains market and the attempts to avoiding risk of environmental degradation by imposing additional costs on milk producers. Though the dairy sector has not experienced lack of investment, this is a key issue for farmers operating in southern Europe where milk production has fallen except in Cyprus and Malta. Drought and desertification in Southern Europe poses yet another risk to Maltese agriculture and dairy farmers would also be affected by this given that they also rely to some extent on locally-grown silage to feed dairy cows besides on-farm consumption of water.

[11] European Commission Directorate General for Agriculture and Rural Development (2014), *EU Dairy Farms Report, 2013*, Luxembourg: Publications Office of the European Union.

The experience of EU membership has shown how resilient the Maltese dairy sector was at a time of change and formidable challenges with the dismantling of import levies and increased competition. The dairy sector, through KPH, will need to demonstrate the same resolve in the immediate future with the withdrawal of the quota system from April 2015[12] (and the associated risks of an oversaturated market and the pressures this brings on prices), and together with policy makers, find new ways how to address natural and structural disadvantages that have long characterised Maltese agriculture, while at the same time coping with the forces of competition. This is the challenge for all the stakeholders together with policy makers, consumers and Maltese society to continue to enjoy the contribution and benefits of the Maltese dairy sector in the coming years.

[12] European Commission (2003), *Council Regulation (EC) No.1788/2003*.

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