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UkrainianAgribusinessClub



Kingdom of the Netherlands



# [CHAIN COMPARISON OF THE DAIRY SECTOR IN UKRAINE AND NETHERLANDS]

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## Abbreviations

AE	Agricultural Enterprises
CIS	Commonwealth of Independent states
CPP	Crop Protection Products
CBS	Dutch Central Bureau of Statistics
DCFTA	Deep and Comprehensive Free Trade Area
EDA	European Dairy Association
FE	Farm enterprise
GDP	Gross Domestic Product
Ha	Hectare (hectares)
LLC	Limited liability company
MAPF	Ministry of agricultural policy and food of Ukraine
MEDT	Ministry of economic development and trade of Ukraine
MY	Marketing Year
NZO	Nederlandse Zuivel Organisatie (Dutch Dairy Association)
PH	Private Household
SFS	State Fiscal Service
SME	Small and medium enterprises
UCAB	Ukrainian Agribusiness Club
USD	United States Dollar
VAT	Value Added Tax

## I.Introduction and objectives

The Netherlands has the right climate and geo position for efficient and sustainable dairy production, and a wealth of knowledge in this field. The Netherlands accounts for 8% of European milk production, fifth after Germany, the United Kingdom, France and Poland. The Netherlands is the first exporter of dairy products out of the EU. 28 companies and 52 factories in the Netherlands process 98% of raw milk into dairy products like cheese, butter, pasteurized milk and milk powder. The sector does even more with milk. From whey, a byproduct of cheese, high-grade proteins are extracted for products like baby food and sports drinks.<sup>1</sup>

The sector's size is about 1/6 of the total Dutch food industry and, for comparison, is larger than the country's electrical appliance, pharmaceutical or automotive industries. In terms of revenue per capita, the Netherlands dairy sector is second in the EU.

Of the world's five largest companies in the dairy industry, one is Dutch: FrieslandCampina, a cooperative of 19,000 member dairy farms in the Netherlands and abroad. And three of the five have research or production locations in the Netherlands, namely Danone, Fonterra and Nestlé.<sup>2</sup> Ahead of the end of the milk quota at the end of March 2015, Dutch dairy farmers heavily invested in expansions of milking parlors and herds. The CBS<sup>3</sup> agricultural census for 2015 showed the number of dairy cows and calves grew by 3% compared to 2014, reaching about 1,6 million animals. As a result of major expansions in the dairy herd and a higher average milk yield per cow, milk production in 2015 grew by almost 7% and reached a record high of around 13,5 mln tons. The old record was from 1983 (13.2 billion kg), the year before the milk quota went into effect. The structural developments in dairy farming have seen decreasing numbers of farms and continuous growth of scale. According to the CBS, the number of dairy farmers dropped by 1,7% in 2015, to around 18 thousand farms. Due to larger herds and higher yields per cow, average milk production per farm reached a volume of 740 thousand, 8,7% higher than in 2014.<sup>4</sup>

Milk production in Ukraine counts for 11,2% of its gross agricultural production. In 2015, 10,4 mln tons of milk were produced in Ukraine of which 74% by the private households (PH). During last years, the share of PH decreased. In nearest future it is expected an increase in the share of agricultural enterprises (AE) in milk production. According to State statistics service of Ukraine the number of cows in Ukraine at the 1<sup>st</sup> January 2017 was at the level of 2 172,3 thousand. Changes in milk production share led to the increase in productivity of cows. In 2015, the average milk yield increased to 4 644 kg/cow. Use of fodders in animal production per unit of animal production in agricultural enterprises decreased from 1,18 in 2010 to 1,00 in 2015 in hundredweight. This year Ukraine starts with the lowest number of a herd of cattle: as of the beginning of 2017 it reached 3 675 thousand heads.

Ukraine is in a fast moving process of transition. A large part of the national economy depends on activities in the AgriFood sector with export markets in Europe, Middle East, Far East and North Africa. On 27 June 2014 the Deep and Comprehensive Free Trade Agreement (DCFTA) between the European Union (EU) and Ukraine was signed. The DCFTA entered into force on 1 January 2016. Overall Ukraine and the EU will eliminate 99,1% and 98,1% of duties in trade value respectively. For Ukraine the DCFTA opens

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<sup>1</sup> Nederlandse Zuivel Organisatie (Dutch Dairy Association), NZO

<sup>2</sup> The European Dairy Association, EDA

<sup>3</sup> Statistics Netherlands, CBS

<sup>4</sup> Organisation of the Dutch dairy supply chain, ZuivelNL (DairyNL)

## Chain comparison of the dairy sector in Ukraine and Netherlands

up an export market of 28 EU Member States: more than 500 million consumers with purchasing power and high demand.

The EU is Ukraine's largest trading partner, accounting for more than a third of its trade in 2015. Ukrainian export to the EU reached 40% of the total amount in the period January-February 2016. The Netherlands is one of the key partners for Ukrainian AgriFood export.

The amount of quotas that can be used by Ukraine for the duty-free exports of animal products to the EU in 2017 is follows:

- Bovine meat – 12 000 tons
- Milk, Cream, Condensed Milk & Yoghurts – 8 400 tons
- Milk powder – 2 200 tons
- Butter and dairy spreads – 1 800 tons
- Processed products from milk cream – 340 tons
- Processed products from butter – 250 tons

In particular, the Ukrainian food processing industry shows a high potential. The DCFTA provides an opportunity to make the sector more competitive and diversify its exports. Ukrainian AgriFood companies and government officials perceive the opportunities. They understand that Ukrainian food safety standards should correspond with the European ones. For the purpose of their improvement and better control, the State Service of Ukraine on Food Safety and Consumer Protection was founded in September 2014, which is nowadays fully operational.

### *FoodTechLink consortium*

Currently many Ukrainian AgriFood companies meet the European and Global standards for food safety, and are already exporting to the EU, namely 16 milk production entities. Experienced Dutch suppliers of food processing equipment, packaging lines, storage technology and logistics may support Ukrainian AgriFood companies that are in the process of transition.

Dutch suppliers formed a consortium of Dutch companies that have a lot of experience in doing business abroad, most of them also in Ukraine. Participants of the consortium are complementary in their scope of activities. They strongly believe that by joining forces – and under the flag of Holland Branding – they can reach much better marketing and commercial results. As a group, these companies have agreed to collaborate with the Dutch government to enter the Ukrainian market in a renewed way, as a Public-Private Partnership with focus on food safety, food security and chain management.

Partners for International Business (PIB) FoodTechLink Ukraine has been formalized on 25 March 2015 by signing a covenant between the Netherlands' Ministry of Foreign Affairs, the Ministry of Economic Affairs, the Netherlands Enterprise Agency and a consortium of Dutch companies. The cooperation will last for at least 3 years and gives Dutch equipment suppliers the opportunity to compete for large projects in the Ukrainian food processing industry. This means the installation of complete processing & packaging lines, inclusive temperature controlled storage facilities and wastewater treatment installations. These processing lines meet the regular standards of food safety in the EU, confirmed by HACCP, BRC and IFS certificates.

PIB FoodTechLink Ukraine focuses on the most promising food processing sectors in Ukraine:

- Fruits & Vegetables
- Industrial Bakery & Confectionery
- Dairy
- Meat



## Chain comparison of the dairy sector in Ukraine and Netherlands



More information about FoodTechLink by <http://foodtechlink.com/en/>



## II. A knowledge comparison

Dairy industry in Netherlands is famous for its cluster/cooperative system. All industry functions as a one mechanism, every stakeholder has its own place and role – farms to financial institutions and research centers. Beginning of the chain are farms where over the last years farm management practices improved significantly due to a base of well-trained and highly skilled dairy farmers, who manage their highly capitalized farms purely as businesses enterprises.

In the 1990s the agriculture and the feed & food sectors in the Netherlands and other parts of Europe, were confronted with food scandals related to heavy metal pollution, mycotoxins, dioxins and pesticides in raw materials and products. Food safety, animal welfare and responsible use of the environment became increasingly important societal and political issues and agricultural value chain operators were forced to structurally review sustainability of their operations. One of the results of these developments was further consolidation in the agricultural sector and crowding-out of producers, processors and input and service providers that were not able or willing to comply.

In addition, the number of cooperatives in the agriculture sector has decreased due to this consolidation process, which was followed by a large series of mergers both in the cooperative sector and in privately operated firms. This was triggered by the need for economies of scale to be able to compete in the market and to counterbalance powerful food processing companies and retail chains. As a result, many of the cooperatives have developed into semi-corporate business organizations run by professionals and highly skilled staff. The next step was the restructuring of research, practical training and farmer extension services. From approximately 1995 onwards the Dutch government initiated a process of retreating from direct investments and funding to many of the earlier government induced and established institutions. This phase is characterized by a restructuring of the financial and management models of agricultural research, academic and practical training, and farmer extension. Most of the institutions operating in this field were (semi-) privatized and responsibility for the upkeep of services and its financing is now largely the responsibility of the value chain actors themselves, with the challenge to operate according to a (more) commercially driven business model on cost recovery basis.<sup>5</sup>

Knowledge in the Netherlands is transferred mostly from father to son at the farm level or within a dairy cluster (cooperative). In addition, a huge role play the research and developing centers and institutions.

Information has a value and is accepted worldwide as one of the most decisive factors influencing productivity, efficiency, competitiveness and income generation in an economic activity. In this case Ukraine has clearly lacked these information systems. Up to the present moment, farmers rarely have the necessary access to information on market opportunities.

Currently, there are several main channels of knowledge transfer in the Ukrainian dairy sector:

- Processing company

Due to problems with supplying of high-quality raw materials, processing enterprises provide active dissemination of knowledge and technology and training among their suppliers. This is accomplished through the use of its own professional staff engaged in the development and monitoring of their suppliers, advisory support, aid in financing, professional development and involvement of external consultants.

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<sup>5</sup> Netherlands Development Organization, SNV



- Equipment and technology suppliers

Equipment and technology suppliers are the main innovation and technology distribution channel in the dairy sector in Ukraine now. Because of weak sophistication of information channels and technological backwardness of dairy sector suppliers have to conduct active dissemination of knowledge and information through an active communication with agricultural producers, seminars, exhibitions and others.

- Extension service (consulting)

Currently, there are only a few centers of extension services. The experience of dairies and other agribusiness operators proves the existence of a growing demand for such services. Private extension has also been developing in Ukraine. Public extension has been showing very insignificant, if any, result, despite constant budget financing of such activities. Such services can be financed both by the budget and donor technical assistance projects. Nevertheless, the current financing of public extension services in Ukraine remains rather low. Besides, Ukrainian extension services often provide consulting only on general issues, mostly in the area of social and private small business initiatives.

- Communication between farms

For dairy producers an important distribution channel experience and technology in Ukraine is communication with other producers. But such communication occurs only between local producers.

- Education and science

Currently, domestic education and science system use outdated technical basis and does not meet modern requirements of the market, but remains one of the ways of knowledge and technology transfer mainly through the use of international experience and help from market participants.

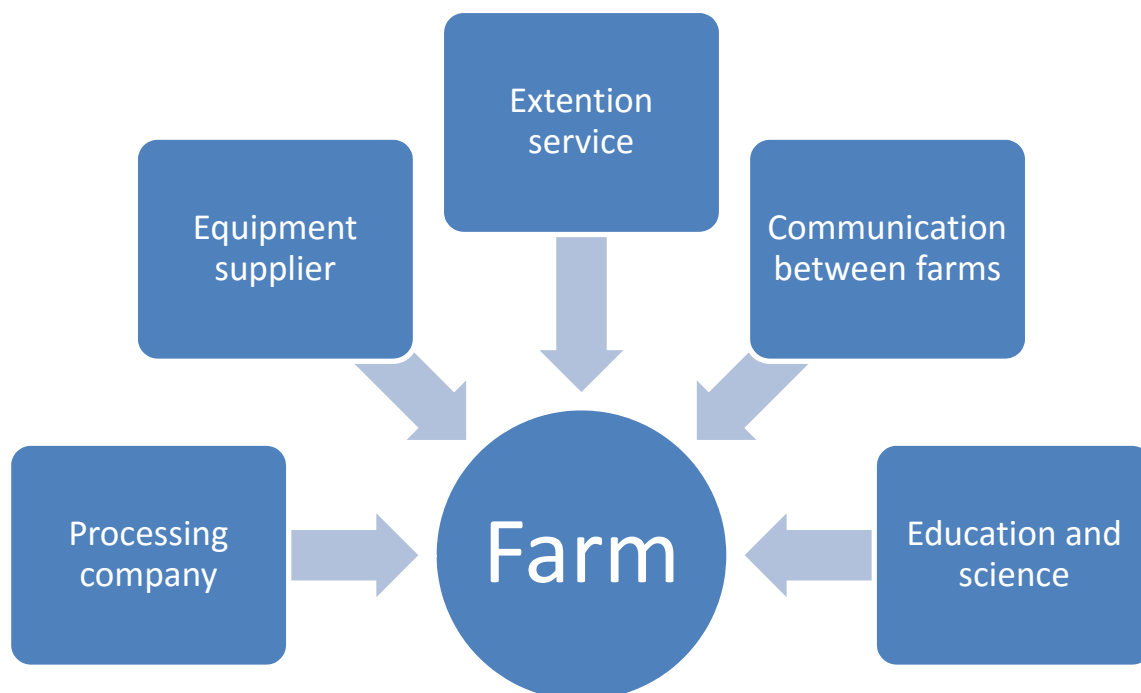


Chart 2.1: Knowledge transfers in dairy sector of Ukraine





### III. Size, structure and organization of the dairy sector

A traditional dairy supply chain includes, first of all, all elements of the production process, including the supply of equipment and machinery for agricultural farms, households for milk production, and for milk processing plants, as well as the provision of the needed high-quality labor, extension services, and other necessary services. Furthermore, this supply chain describes the nature of linkages between the main components of the traditional dairy supply chain including such components as milk producers, milk processing plants, retailers, and dairy product wholesalers.

In Ukraine 77% of dairy cows are keeping in the households and 23% in agricultural enterprises. The majority of households have problems with getting capital (financing, loans) for developing which makes milk production unfavorable. For Ukraine it is common to have a large herd, as noticed in the table below the majority of enterprises (16.2%) have cattle in size of 500-999 heads. However, the beef production in Ukraine leads to losses, so it is obviously that amount of enterprises is decreasing.

**Table 3.1 Groupings of agricultural enterprises by number of cattle at the end of 2015**

<b>Enterprises which have cattle – total</b>	<b>Number of enterprises</b>		<b>Of which private farms</b>	
	<i>units</i>	<i>percentage to total enterprises</i>	<i>units</i>	<i>percentage to total private farms</i>
	<b>2826</b>	<b>100</b>	<b>735</b>	<b>100</b>
<i>of which, heads</i>				
<i>no more than 5</i>	191	6,8	120	16,3
<i>6–20</i>	321	11,4	147	20
<i>21–49</i>	296	10,4	123	16,7
<i>50–99</i>	269	9,5	94	12,8
<i>100–199</i>	357	12,6	111	15,1
<i>200–299</i>	203	7,2	46	6,3
<i>300–499</i>	377	13,3	40	5,4
<i>500–999</i>	457	16,2	38	5,2
<i>1000–1999</i>	253	9	13	1,8
<i>2000–2999</i>	64	2,3	2	0,3
<i>more than 2999</i>	38	1,3	1	0,1

Source: State statistics service of Ukraine

Agricultural enterprises that keep 23% of dairy cows and produce 26% of total milk is small but perspective branch.

The amount of milking equipment in Ukraine during last 10 years decreased by 39% to 10,2 thousand units. The share of this equipment has the follow categories: business partnership – 6.1 thousand units, private enterprises – 1.9 thousand units, cooperatives – 0.7 thousand units, private farms – 0.8 thousand units, state enterprises – 0.4 thousand units, enterprises of other types of business - 0.3 thousand units.

**Table 3.2 Groupings of agricultural enterprises by number of cows at the end of 2015**

<b>Enterprises which have cows – total</b>	<b>Number of enterprises</b>		<b>Of which private farms</b>	
	<i>units</i>	<i>percentage to total enterprises</i>	<i>units</i>	<i>percentage to total private farms</i>
	<b>2614</b>	<b>100</b>	<b>682</b>	<b>100</b>
<i>of which, heads</i>				
<i>no more than 5</i>	269	10,3	164	24
<i>6–20</i>	411	15,7	165	24,2
<i>21–49</i>	305	11,6	143	21
<i>50–99</i>	326	12,5	94	13,8
<i>100–199</i>	470	18	63	9,2
<i>200–299</i>	292	11,2	30	4,4
<i>300–399</i>	186	7,1	10	1,5
<i>400–499</i>	104	4	7	1
<i>500–999</i>	187	7,2	5	0,7
<i>more than 999</i>	64	2,4	1	0,2

Source: State statistics service of Ukraine

For Ukraine, the farm with big herd is more common rather than in Europe or Netherlands. Majority of producers (18%) have herd with 100-199 heads. Nevertheless, the majority of private farms owns from 6 to 20 cows. (Table 3.2)

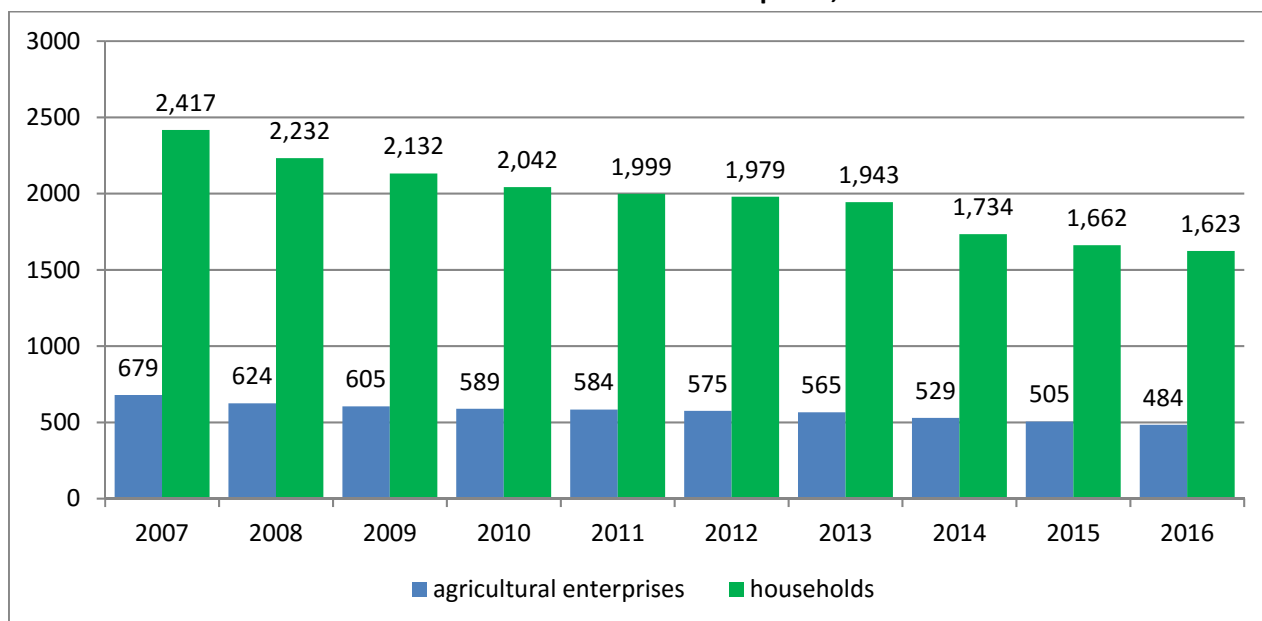
**Table 3.3 Groupings of agricultural enterprises by production of cow milk in 2015**

<b>Enterprises producing milk – total</b>	<b>Number of enterprises</b>		<b>Gross milk yield</b>	
	<i>units</i>	<i>percentage to total enterprises</i>	<i>thou t</i>	<i>percentage to total production</i>
	<b>2647</b>	<b>100</b>	<b>2667</b>	<b>100</b>
<i>of which, t</i>				
<i>no more than 100,0</i>	915	34,6	27,6	1
<i>100,1–500,0</i>	661	25	175,8	6,6
<i>500,1–1000,0</i>	334	12,6	243,2	9,1
<i>1000,1–1500,0</i>	237	9	294,1	11
<i>1500,1–2000,0</i>	133	5	232	8,7
<i>2000,1–2500,0</i>	90	3,4	201,5	7,5
<i>2500,1–3000,0</i>	50	1,9	137,5	5,2
<i>3000,1–3500,0</i>	35	1,3	112,7	4,2
<i>3500,1–4000,0</i>	41	1,5	153,8	5,8
<i>4000,1–4500,0</i>	21	0,8	88,1	3,3
<i>4500,1–5000,0</i>	18	0,7	84,4	3,2
<i>more than 5000,0</i>	112	4,2	916,4	34,4

Source: State statistics service of Ukraine

Majority of milk market covers enterprises that produce more than 5000 t of milk/ year, they cover 34.4% to total production, and second place has enterprises with production from 1000 t up to 1500 t of milk per year.



**Table 3.4 The number of cows in enterprises, 2007-2016**

Source: State statistics service of Ukraine

Generally, in Ukraine milk is being sold to processing plants that produce dairy products. Difference in milk price for agricultural enterprises and households in Ukraine may be 2 times the average. Milk after processing on the milk plants is sold mostly in internal markets. If the producer is small it usually covers the demand from the consumers in local (regional) level. Nevertheless, more than 10 enterprises in Ukraine have access to European market.

In the schedule below there is a proportion between numbers of cows in households and agricultural enterprises. According to this data, in households cows number is 3,55 times higher than in agricultural enterprises in 2007. However, in 2016 the proportion decreased to 3,35 times, that means agricultural enterprises slowly increasing the share of the market.

#### Netherlands

Most dairy farmers have organized themselves into cooperatives through which they sell their milk to the cooperative-owned milk processing company. The cooperative gives farmers security, market power and an investment in future generations. But the dairy sector also has private businesses, bringing a balance to the sector that makes it strong.

The dairy sector is part of a larger dairy cluster. Wholesalers buy dairy products which retailers and food service companies sell to consumers. There are companies that supply special semen for breeding new cattle with higher yields. Other companies supply animal feed, products to make or keep livestock healthy, the newest barns and machinery, financial services, education, knowledge and technology<sup>6</sup>

Dutch dairy companies deliver quality dairy products 365 days a year. These companies are part of a unique quality infrastructure that spans the entire dairy chain to prevent incidents. At all stages of this chain, companies work closely together to enforce and, where possible, improve quality. Independent experts monitor every step. From 'grass to glass', every drop of milk is guaranteed for its quality and safety.

<sup>6</sup> The European Dairy Association, EDA

Raw materials and products are traceable across the entire chain so that when problems arise, they can be tackled quickly and effectively. Every dairy company in the Netherlands has its own quality assurance system that establishes how products and processes are handled.<sup>7</sup>

The dairy farming sector is the largest production sector within the Dutch agricultural complex in terms of the number of holdings and the use of land. The sector is also distributed relatively evenly throughout the country.<sup>8</sup>

The Dutch dairy cluster is composed of a large number of dairy farmers, usually gathered in large cooperatives which process the milk, transform it into different dairy products and in some cases distribute it. However most of those cooperatives do not distribute the dairy products abroad and instead sell their products to consumer packaged goods companies.

Cooperation includes:

- Equipment/stalls
- Breeding
- Research institutes
- Livestock feed and health
- Wholesalers, retailers and food services
- Business and financial services

**What is the role of Food Valley NL in the Netherlands?** It is a sector platform, also described as 'the golden triangle', which brings together the key stakeholders in business.<sup>9</sup>

### III. Top Sector Approach: The Triple Helix or The Dutch Golden Triangle

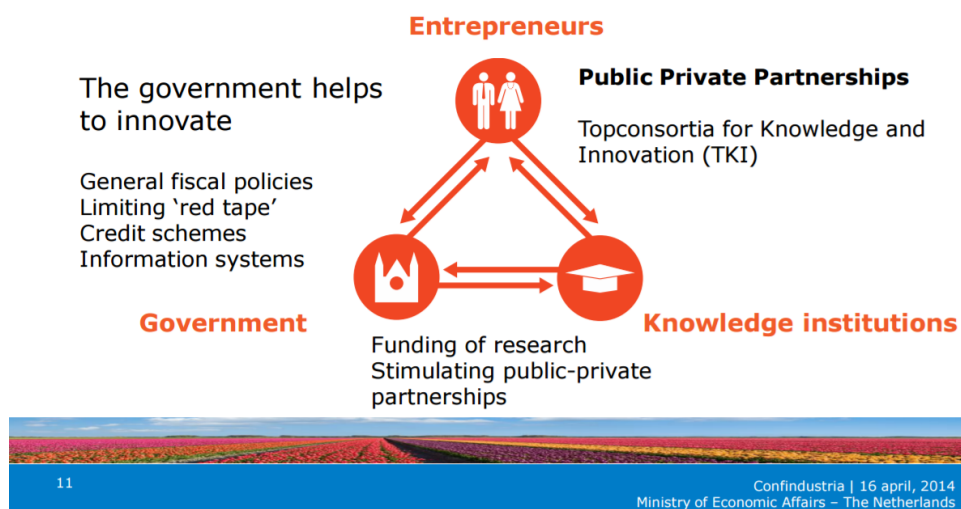


Chart 3.1 The Dutch Golden Triangle<sup>10</sup>

The Dutch dairy sector is characterised by a high degree of organisation. Each segment of the production chain has its own organisation(s) to represent its interests. A large proportion of the dairy farmers are represented by the Dutch Federation of Agriculture and Horticulture (LTO Nederland), in particular by the LTO Dairy Committee, while there is also the Dutch Dairy Farmers Union (NMV). Industry is represented

<sup>7</sup> Organisation of the Dutch dairy supply chain, ZuivelNL (DairyNL)

<sup>8</sup> Wageningen University and Research Centre, WUR

<sup>9</sup> Nederlandse Zuivel Organisatie (Dutch Dairy Association), NZO

<sup>10</sup> Ministry of Economic Affairs – The Netherlands

## Chain comparison of the dairy sector in Ukraine and Netherlands

by the Dutch Dairy Association (NZO), traders by the organisation of Dutch Dairy Traders (Gemzu) and retailers by the Dutch Food Retail Association (CBL).

According to the ZuivelNL in 2015 there were 1,6 million of dairy cows in 18 thousand milk farms. With processing of milk deals 25 companies and 54 dairy plants. The production of milk reached 13,5 billion kg – the highest production during the last 20 years. Dairy farming brought 4,5 billion euro to the country in 2015 while processing plants – 4,5 billion euro. 55% of milk was processed into cheese, 13% into milk powder, 7% - drinking milk and other milk products, 7% - condensed milk.

The structural developments in dairy farming have seen decreasing numbers of farms and continuous growth of scale. According to the CBS, the number of dairy farmers dropped by 1.7% in 2015, to around 18 thousand farms. Due to larger herds and higher yields per cow, average milk production per farm reached a volume of 740 thousand, 8.7% higher than in 2014. The increases in scale are also evident in the number of dairy farmers with more than 150 dairy cows. In 2015, the number of farms in this category grew from about 1,700 to approximately 1,900.<sup>11</sup>

Cooperation lies at the foundations of the Netherlands' competitive power. The country's strengths have been coming together in the cooperative model for a hundred years. Cooperation in the golden triangle of business, research institutes and government has realized the main conditions for success, which include a strong foundation of knowledge and excellent education; it is a continual challenge to keep this triangle in motion.<sup>12</sup>

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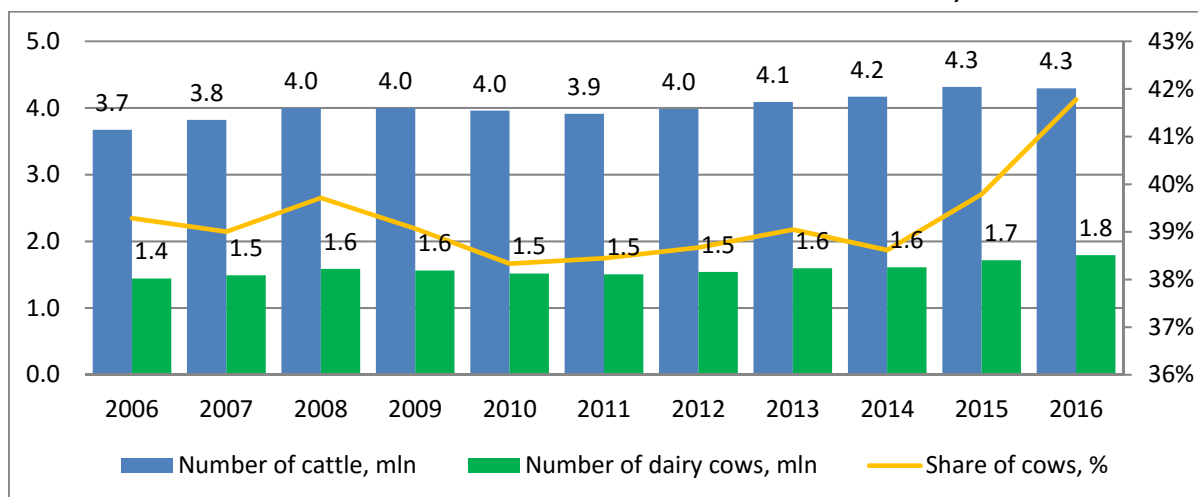
<sup>11</sup> Organisation of the Dutch dairy supply chain, ZuivelNL (DairyNL)

<sup>12</sup> Nederlandse Zuivel Organisatie (Dutch Dairy Association), NZO

#### IV. Meat and dairy production

The Dutch dairy sector is in relatively excellent condition: the country's climate and soil are good for dairy cows and for the grass they eat, the Netherlands is strategically located in Europe, with good access to potential markets, and the logistics infrastructure here is first-rate. For the Netherlands, dairy is a logical choice.<sup>13</sup>

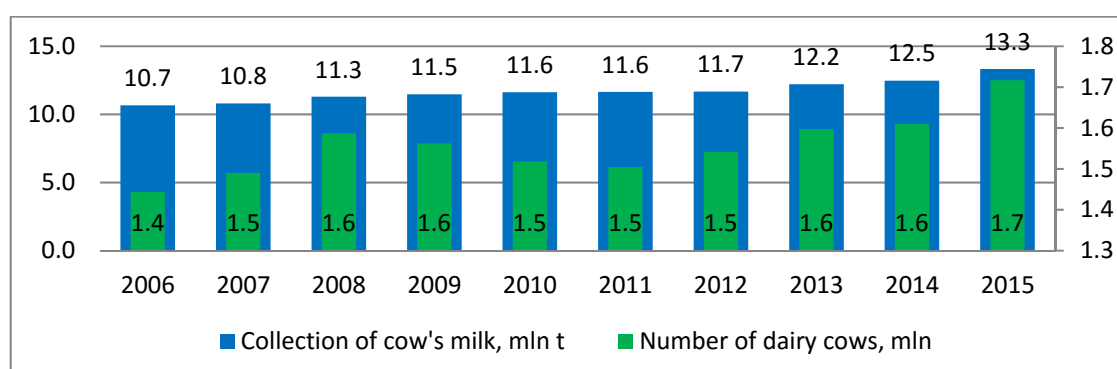
**Table 4.1 The number of cattle and share of cows in Netherlands, 2006-2016**



Source: Eurostat - European Commission

According to the Eurostat total cattle number in 2016 was 0,5% lower compared with a year earlier (-21 thous heads). In fact dairy cows number increased by 4,5% - to 1 794 thous heads in 2016. During the last 10 years the number of cows in the Netherlands remained more or less stable, which is the result of a milk quota, which functioned in the Netherlands until mid-2015. Milk production within the quotas held back the growth of livestock at the level of 1,5-1,6 million heads. Instead, the abolition of quotas contributed to the increase of the herd size. So the average increase in the number (CAGR) during 2006-2014 was + 22 thou heads per year. But in 2015 compared to 2014 the number of cows increased by 107 thousand heads and in 2016 compared to 2015 by 77 thousand heads more.

**Table 4.2 Production of cow's milk in Netherlands, 2006-2015**



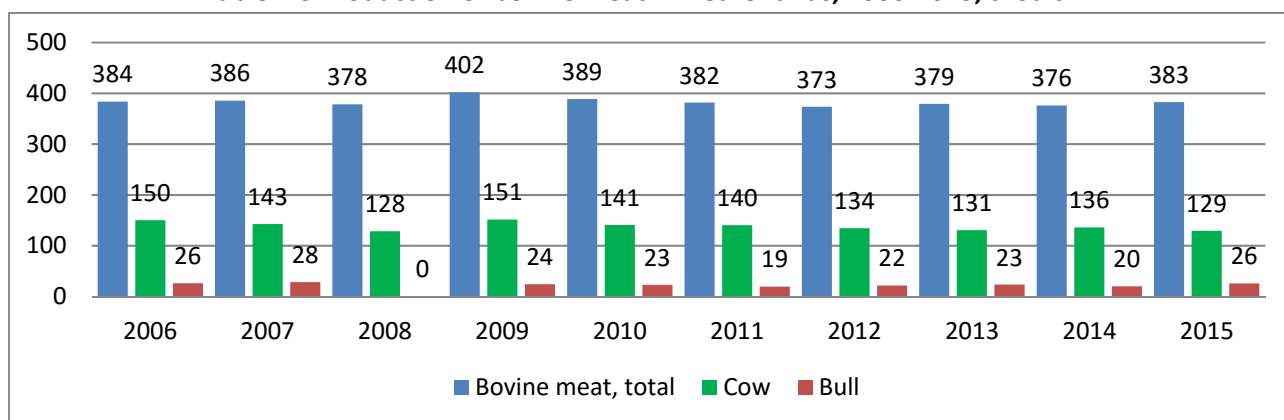
Source: Eurostat - European Commission

<sup>13</sup> Nederlandse Zuivel Organisatie (Dutch Dairy Association), NZO

### Chain comparison of the dairy sector in Ukraine and Netherlands

For the last 10 years with a stable number of cows we can see an increase in milk production, which indicates an intense type of dairy industry development through increasing productivity of cows instead of their quantity. The average increase in milk production (CAGR) during last 10 years was 25 thousand tons/year. Production in 2015 has reached record-breaking mark in 13,3 million tons.

**Table 4.3 Production of bovine meat in Netherlands, 2006-2015, thou t**



Source: Eurostat - European Commission

Meat production in the Netherlands is holding steady at the level of 380 thou t (the exception is year 2009 – production reached 402 thou t). In 2015 compared with 2014 production increased by 6,3 thou t or by 1,7%.

### FORECAST

During the next decade, global and EU production growth is expected to be more moderate, driven by a sustained increase in world demand, albeit at a slower pace than in the past decade, the most recent EU outlook report found. It expects the rise in EU milk production in the next decade to be moderate – in the region of 1,3 mln tons of milk per year on average – and lower than in recent years. Still, the EU is expected to become the world's top exporter of dairy products by 2026, just ahead of New Zealand.

However, despite the expected strong increase in exports, by 2026 more than 85 % of EU milk and dairy products will be consumed within the EU, according to the outlook report. The decrease in the fresh milk consumption is expected to continue, but the use of cheese and butter by households and for processing is expected to increase further, which, together with expected population growth, would support consumption.

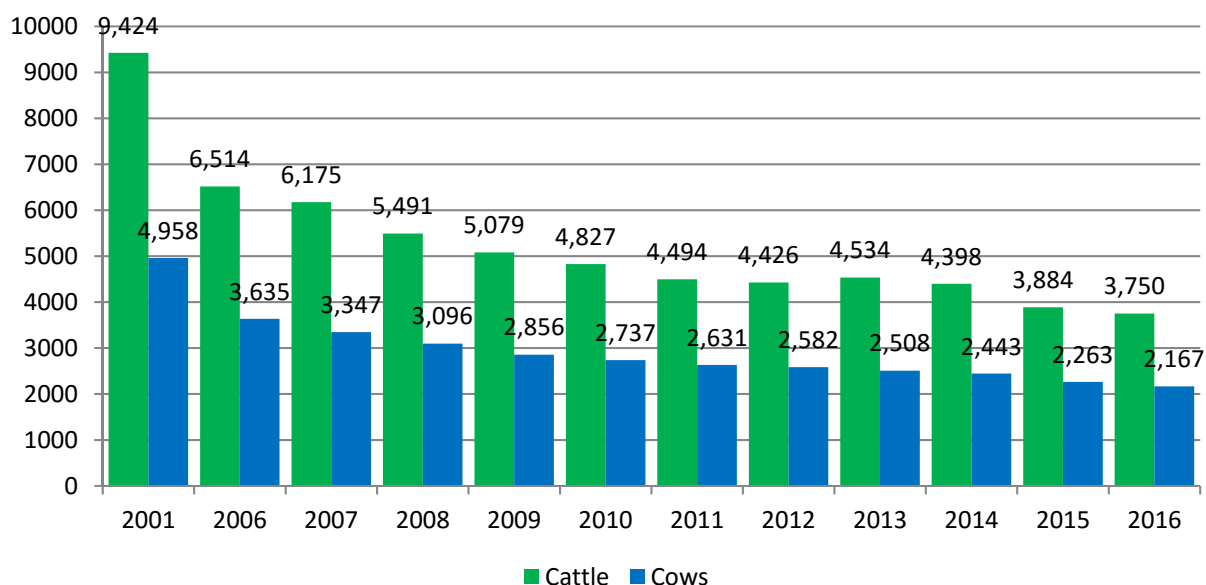
The Dutch dairy sector has the room for grow, and it uses it. Production in Europe was artificially restricted until April 2015 (abolishment of milk quota by EU). A result of the milk quota in the EU was that farmers could not produce more than a certain amount of milk. In April 2015, this milk quota was eliminated, leaving room to grow, export and compete – especially for the Netherlands, a big exporter to countries outside Europe. However, this also offers the Netherlands opportunities to compete on the European market and to further grow its market share there. The dairy farm thus loses a cost factor, namely the interest/write-off/rental for the quota. Between 2013 and 2015, the Dutch dairy industry will have

## Chain comparison of the dairy sector in Ukraine and Netherlands

invested a total EUR 2 billion in new factories and expansions of existing factories. This also means a lot of new employment.<sup>14</sup>

The meat and dairy production in Ukraine is characterized by a negative trend. During the last 15 years in Ukraine the number of live cattle demonstrated the decreasing of heads. Number of live cattle in 2016 is 42% less compared with 2006, number of milking cows decreased by 40% during the same period.

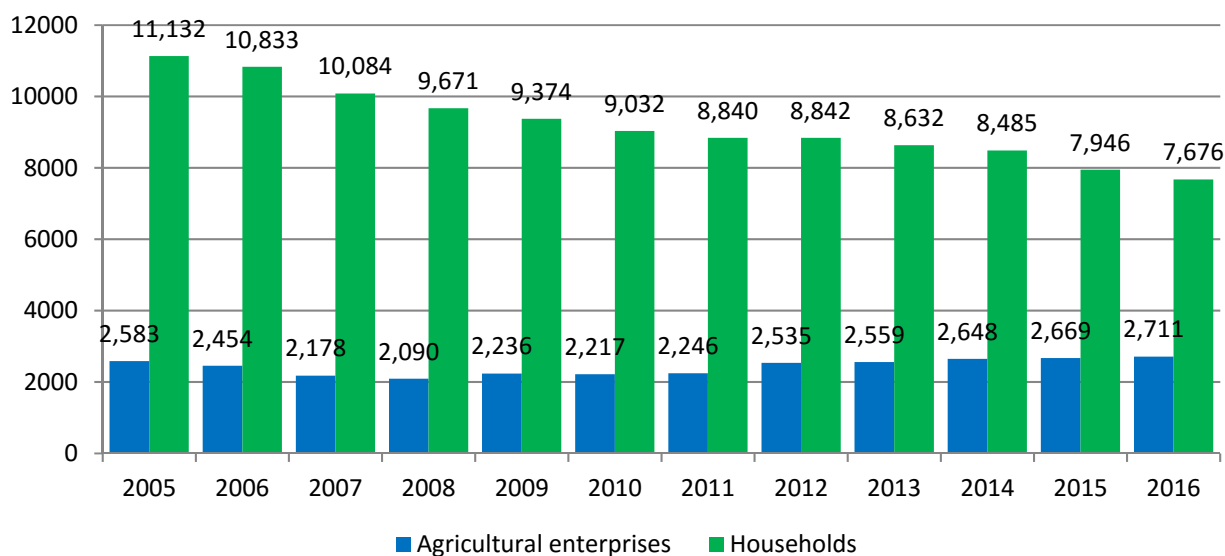
**Table 4.4 Numbers of live cattle, thousand heads**



Source: State statistics service of Ukraine

Decreasing of live cattle number due to constantly losses is a tendency in agricultural sector of Ukraine. For example in 2006 the losses in production of bovine meat was at the level of -38,4%, milk production – 3,7%. In ten years the situation in market did not change a lot, bovine production experiences losses - 17,9%, milk production showed profit at the level of 12,6%.

**Table 4.5 Milk production, thousand tons**



Source: State statistics service of Ukraine

<sup>14</sup> Nederlandse Zuivel Organisatie (Dutch Dairy Association), NZO



**Table 4.6 Milk balance**

Item	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Total Production (1000 t)</b>	12262,1	11761,3	11609,6	11248,5	11086	11377,6	11488,2	11132,8	10615,1	10387,2
- production in Ag. Enterprises (1000 t)	2178	2089,9	2236	2216,6	2245,9	2535,3	2582,5	2647,5	2669,1	2711,2
- production in Households (1000 t)	10084,1	9671,4	9373,6	9031,9	8840,1	8842,3	8905,7	8485,3	7946	7676
<b>Imports (1000 t)</b>	192,19	228,72	515,75	295,97	272,9	424,9	549,27	353,79	76,64	103,86
<b>Exports (1000 t)</b>	1041,15	1226,88	892,87	908	904,52	762,66	709,56	623,33	664,11	467,45
- exports to Crimea (1000 t)	0	0	0	0	0	0	0	95,58	177,35	0
<b>Food Consumption (1000 t)</b>	10268,18	9752,71	10212,22	9551,4	9336,83	10163,91	10314,19	9898,69	9182,46	9209,83
- consumption of Industrial Processing milk (1000 t)	5259,14	4621,53	4369,87	4120,27	3904,46	4438,65	4442,69	4316,58	3705,85	3829,82
- consumption of milk production of own Household (1000 t)	3983,58	3732,88	4144,14	3878,59	3670,86	3781,95	3722,62	3472	3565,49	3414,46
- consumption of milk products from Households (1000 t)	1025,47	1398,3	1698,21	1552,54	1761,52	1943,31	2148,88	2110,11	1911,12	1965,54
<b>Other Uses (1000 t)</b>	1203,39	1126,39	1079,94	1007,11	1003,05	1034,74	1055,66	900,9	887,48	820,79
<b>Stock Variation (1000 t)</b>	-58,43	-115,96	-59,67	77,97	114,5	-158,81	-41,94	63,67	-42,31	-7
<b>Cows, Total (1000 heads)</b>	3095,9	2856,3	2736,5	2631,2	2582,2	2554,3	2508,8	2262,7	2166,6	2107,1
- cows, Ag. Enterprises (1000 heads)	678,6	624,3	604,6	589,1	583,7	575,2	565,4	529,2	505,1	484
- cows, Households (1000 heads)	2417,3	2232	2131,9	2042,1	1998,5	1979,1	1943,4	1733,5	1661,5	1623,1

Source: [milkbalance.org.ua](http://milkbalance.org.ua) by European Bank of Reconstruction and Development (EBRD) and Food and Agriculture Organization of the United Nations (FAO)

Dairy farming is one of the major livestock industries in Ukraine and, before crisis, this segment demonstrated a positive trend towards an active development, but the situation in the dairy sector became more complicated in 2014. The biggest problem for the dairy sector was the loss of the Russian market, which accounted for about 80% of exports of dairy products. At the same time, average milk yield during last 10 years increased in 62% to 5 658 kg/cow.

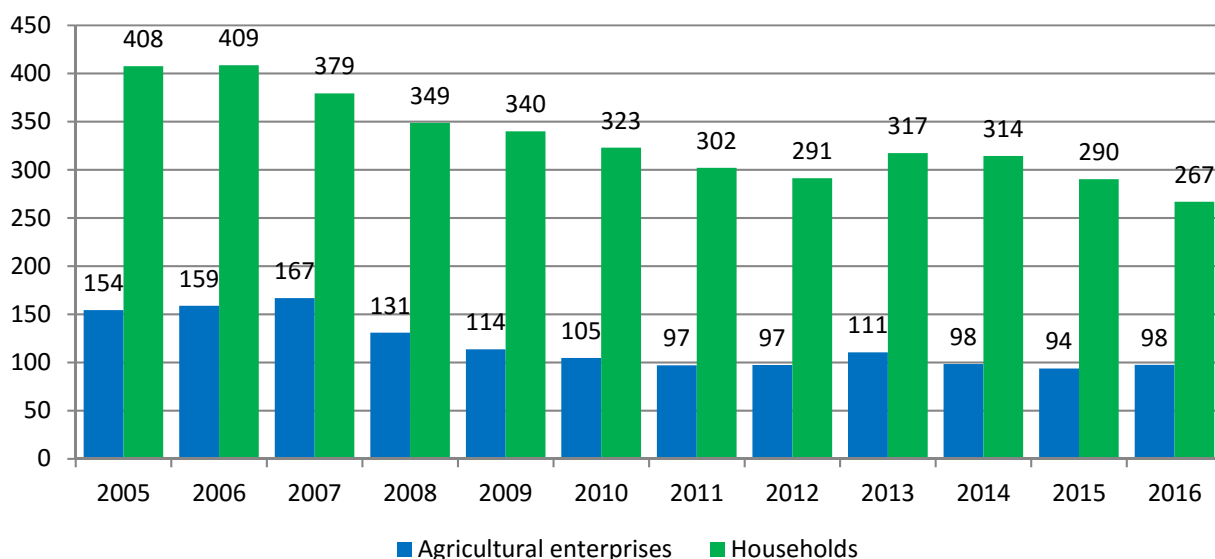
During last year's milk production in Ukraine demonstrated a digressive trend in production. In 2007 Ukraine produced 12.2 mln tones of milk, 10 mln.t – were produced by households, 2.2 mln.t – were produced by agricultural enterprises. Major share of milk production is covered by households, its great possibilities for cooperative work, as it exist in some Europe countries, but in Ukraine such share of households is too bad for high quality products. Almost all milk that produced household is third class or less. In 2016 the agricultural enterprises share in milk production increased to 26% (2,7 mln.t) and it's led increasing the share of extra milk that was processed to 14%.

**Table 4.7 Meat balance**

Item	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Beginning stocks</b>	20	22,49	17,97	16,41	14,66	14,71	15,94	14,39	15,66
<b>Production</b>	383,2	363,2	342,81	320,14	311,49	342,75	330,82	307,33	291,5
- commercial farms	103,38	89,66	82,99	76,93	76,79	87,24	78,14	73,15	76,19
- households	279,83	273,54	259,82	243,22	234,7	255,51	252,68	234,18	215,31
<b>Imports</b>	31,19	12,75	5,56	5,93	5,87	5,64	2,99	1,79	2,17
- import: fresh or chilled	0,15	0,01	0,07	0,47	0,13	0,15	0,21	0,22	0,22
- import: frozen	26,2	12,42	5,08	4,37	5,2	5,05	2,47	1,35	1,79
- import: preparations	4,84	0,32	0,4	1,09	0,54	0,44	0,31	0,22	0,16
<b>Exports</b>	17,22	19,28	13,88	14,26	19,23	28,23	26,88	39,71	44,63
- export: fresh or chilled	0	0,05	0,24	5,54	10,8	13,69	7,69	10,4	19,1
- export: frozen	16,82	18,87	13,19	8,44	7,81	13,75	18,61	28,67	24,48
- export: preparations	0,35	0,35	0,45	0,28	0,62	0,79	0,57	0,63	1,05
<b>Supply to Crimea</b>	0	0	0	0	0	0	3	12,2	0
<b>Food consumption</b>	386,4	353,25	329,08	307,05	291,73	311,96	298,8	249,76	245,27
<b>Losses, residual use</b>	8,29	7,52	6,97	6,52	6,35	6,97	6,68	6,18	5,87
<b>Ending stocks</b>	22,49	18,38	16,41	14,66	14,71	15,94	14,39	15,66	13,56

Source: meatbalance.org.ua by European Bank of Reconstruction and Development (EBRD) and Food and Agriculture Organization of the United Nations (FAO)

Decreasing of cattle number, low culture of beef consumption and high price for such product led to decreasing of meat consumption to 245 thousand tons compare with 386 thousand tones in 2008. On meat market households have the same as at the milk market major share. About ¾ of market is households and ¼ - agricultural enterprises. Small amount that agricultural enterprises producing occurred by losses in production. During last 10 years beef meat production is unprofitable at all.

**Table 4.8 Beef and veal production, thousand tons**

Source: State statistics service of Ukraine

Decreasing of live cattle leads to the same trend in meat production. Meat production in agricultural enterprises decreased by 39% in 2016 compared to 2006, households' meat production decreased by 35%.

Forecast for meat sector in short/medium term that supports the digressive trend:

- Losses during last years led to decrease the number of bulls and in perspective, the same trend will continue.
- Main external market for beef in 2010 was Russia, but ban for export of meat production to Russia makes such sector of agricultural activities more unfavorable.
- Low level of beef consumption in Ukraine – 11% from total meat consumption
- Changes in VAT system since the 1<sup>st</sup> of January 2017 that makes production of animal goods less competitive.

Facts, which in short/medium term will stimulate bovine meat production:

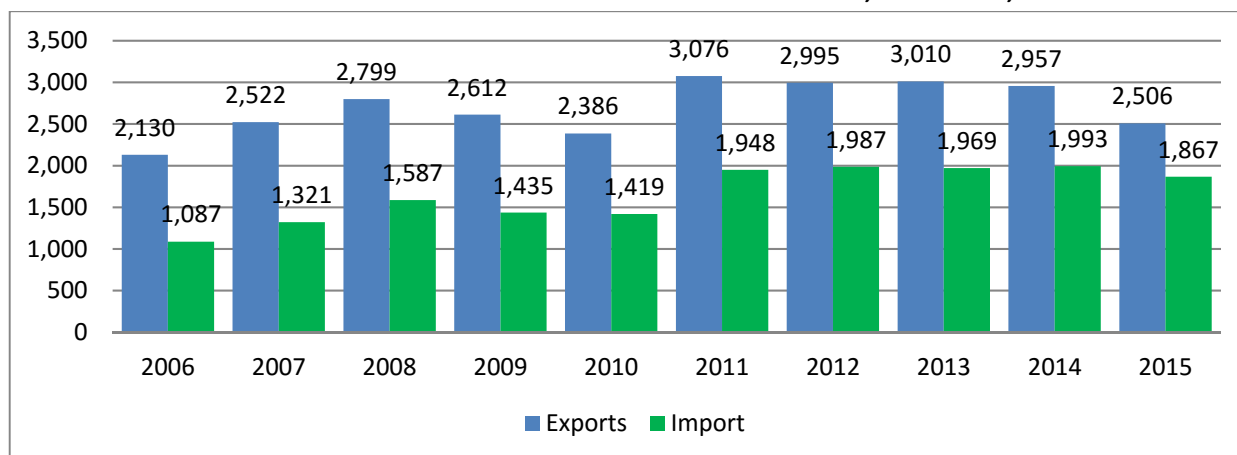
- This year Ukrainian business and government with World Bank and UCAB support planning to initiate the BSE<sup>15</sup> monitoring, that in nearest future might open the EU market and stimulate to increase number of cattle because of increasing potential of external markets
- Complicated epizootic situation in Ukraine with African swine fever might lead to a reduction of pig meat consumption. In such case, demand for the bovine meat will increase.

<sup>15</sup> Bovine Spongiform Encephalopathy  
Ukrainian Agribusiness Club, 2017

## V. Imports and exports of meat and dairy

The Netherlands is both a large importer and exporter of beef and veal, the second biggest fresh beef-exporting nation after US. In 2015 Netherlands became the third country, after Ireland and Lithuania, in the EU which can export beef and veal to US (US had imposed a ban on Dutch beef imports because of crisis over mad cow disease in 1980s). The end of Dutch beef trade ban in short perspective may lead to an increase in export of bovine meat.

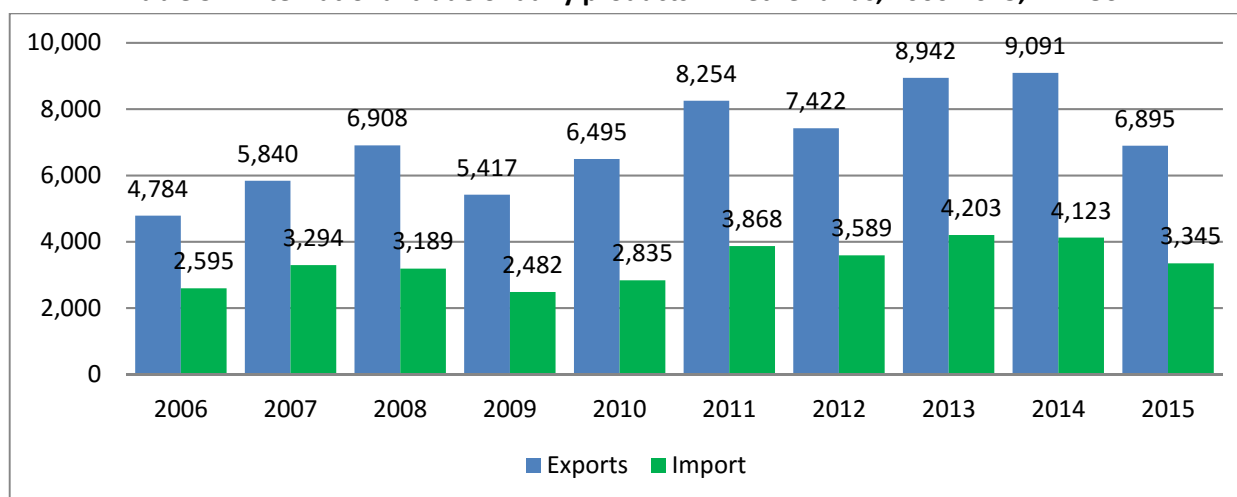
**Table 5.1 International trade of bovine meat in Netherlands, 2006-2015, mln USD**



Source: Market Analysis and Research, International Trade Centre (ITC)

In 2015 Netherlands' total exports of bovine meat (fresh or chilled and frozen) dropped by 15,3% to 2,5 billion USD. Imports also showed a short decline by 6,3% to 1,9 billion USD.

**Table 5.2 International trade of dairy products in Netherlands, 2006-2015, mln USD**



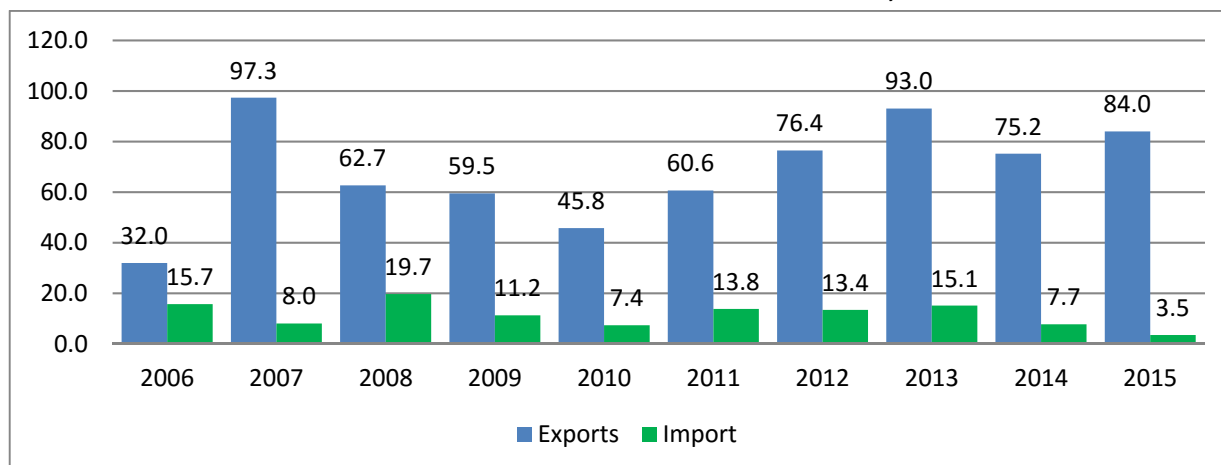
Source: Market Analysis and Research, International Trade Centre (ITC)

With the lower prices in the dairy market, the Dutch dairy export value in 2015 showed a sharp drop of 24,2%, decreasing to a level of € 6,9 billion USD. With the exception of whey and whey products, nearly all product groups saw a drop in value. Despite the considerably higher volumes, the export value of cheese fell sharply as a result of the significantly lower average price level. The drop in value mainly hit trade within the EU. In addition, imports of dairy products showed a decline of 19% to 3,3 billion USD in 2015.

Meanwhile, the export value for trade destinations outside the EU fell only slightly, which was mainly due to a significant expansion of export volumes going to Asia and Africa. This largely compensated for the negative

Chain comparison of the dairy sector in Ukraine and Netherlands  
 impact of the Russian import ban. In addition, export values of butter and -oil and non-skimmed milk powder  
 dropped with increasing volumes.<sup>16</sup>

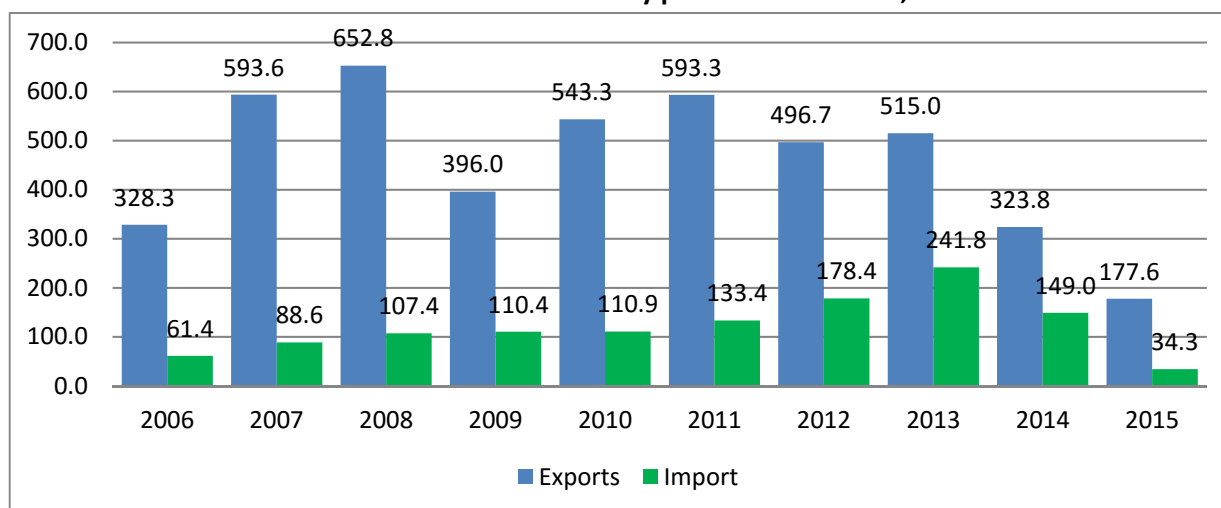
**Table 5.3 International trade of bovine meat in Ukraine, 2006-2015**



Source: State statistics service of Ukraine

Ukraine's foreign trade of bovine meat is characterized by positive trade balance - exports prevail over imports. By 2013, the increase of the volume of beef exports is observed, but beginning with 2014 we can see a significant slowdown. This situation is the result of entered food embargoes by Russia. Instead, in 2015 we can see an export growth by 11,7% up to 84 million USD and in 2016 a minor decline by 1,4% to 82.8 million USD. Due to the complex political situation in Ukraine and the devaluation of hryvna there is a decrease in the volume of bovine meat import of Ukraine. In 2015 the import of meat dropped by 54,8%, but in 2016 – increased by 22,3% to 4,3 million USD.

**Table 5.4 International trade of dairy products in Ukraine, 2006-2015**



Source: State statistics service of Ukraine

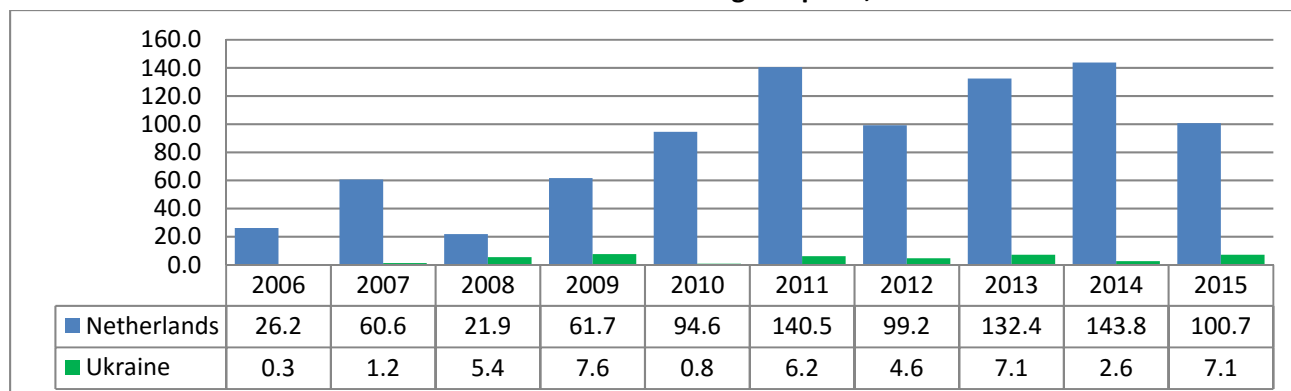
According to the official statistics, for the last couple of years the volume of exports of dairy products has been unstable. This situation is explained by the orientation of most of the Ukrainian dairy exports to the markets of the former Soviet Union, and first of all, to Russia. Dairy market of Ukraine has undergone more influence from food embargo of Russia than meat market. In 2014 the export of dairy products dropped by 37,1% compared to 2013, in 2015 by -45% more to 177,6 million USD. In 2016 we see a further decrease in export of dairy products by 11,1%, to 158 million USD. The main impact on the dairy export reduction was

<sup>16</sup> Organisation of the Dutch dairy supply chain, ZuivelNL (DairyNL)

### Chain comparison of the dairy sector in Ukraine and Netherlands

reduction of cheese exports by 71% in 2015 compared to 2014. Due to the closure of the dairy market of Russia and the decrease in exports of dairy products Ukrainian market experienced oversupply, together with the devaluation of hryvna all these circumstances led to a decrease in imports of dairy products. In 2015 the import of dairy products dropped by 77% to 34,3 mln. USD.

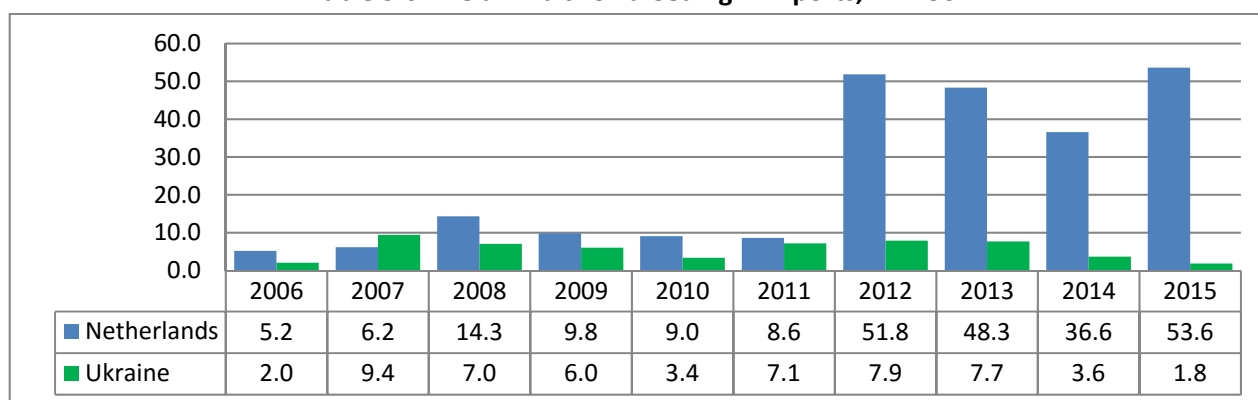
**Table 5.5 Live animals for breeding – Exports, mln USD**



Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

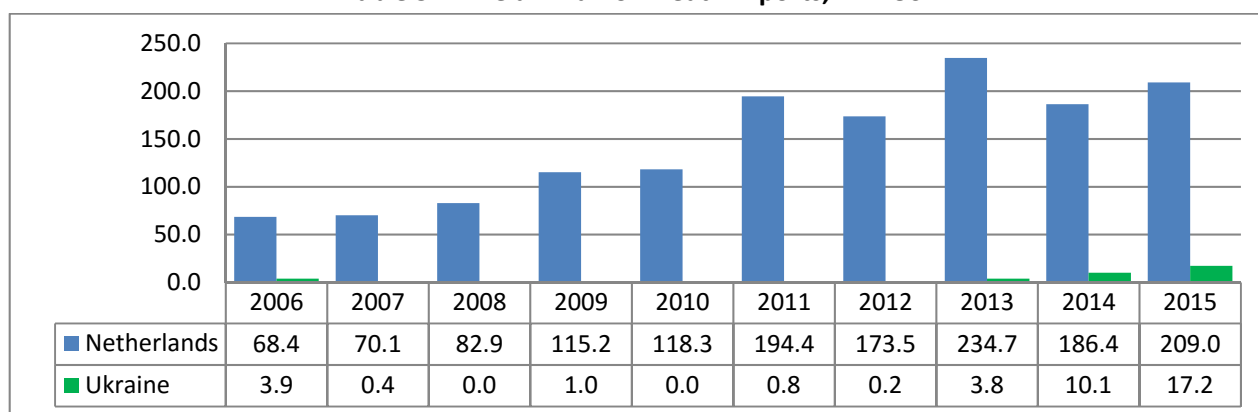
The export of live animals for breeding from the Netherlands is 14 times the volume of the export of Ukraine. This is primarily due to the less developed livestock breeding in Ukraine compared to the Netherlands. The average productivity of cows in the Netherlands reaches around 8-8,5 tons per year, while in Ukraine – 4,5–5 t/year. However, Ukraine also increases the volumes of exports of live cows. In 2015 export increased by 2,7 times, through establishing business ties with the Middle East.

**Table 5.6 Live animals for breeding – Imports, mln USD**



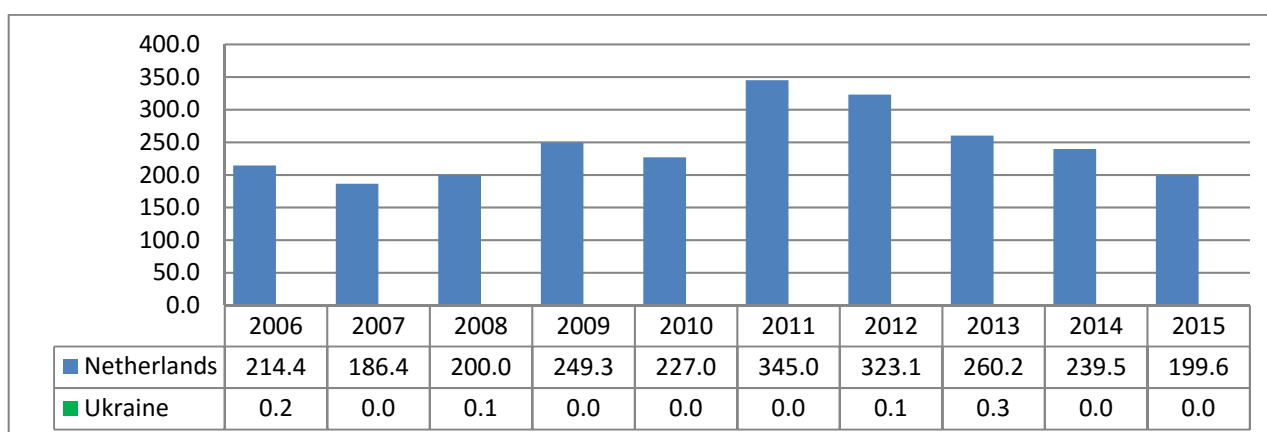
Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

Imports of live animals for breeding to Netherlands were stable until 2012, then we can see a rise in 6 times and future dynamics within 40-50 million USD/year. Import of live animals to Ukraine reducing from beginning of 2012 and in 2015 reaches the lowest value over the past 10 years – 1,8 mln USD.

**Table 5.7 Live animal for meat– Exports, mln USD**

Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

Exports of live animal for meat from the Netherlands gradually grow from 2014. In 2015 it increased by 12,2% compared to 2014 reaching 209 mln USD. We can observe the increase of exports of meat breeds cattle in Ukraine by 70,4% in 2015 compared to 2014. However, the Ukrainian export is held back by export tariffs (in 2015 it was 15%), which should stimulate the development of the internal livestock market but in contrary, through the low prices on live cattle within the country it leads to stagnation of branch.

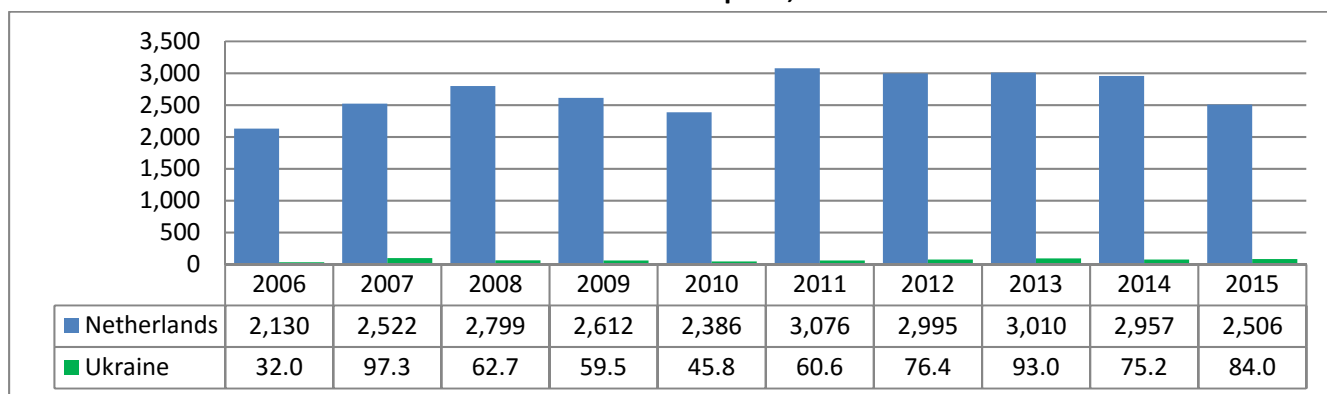
**Table 5.8 Live animal for meat– Imports, mln USD**

Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

Import of meat breeds of cattle to the Netherlands recently reduced. In 2015 we see a decrease in imports by 16,7% to 199,6 million USD. Import of live cattle for meat by Ukraine is on a rather low level, 33 thousand USD in 2015. Ukrainian producers prefer the breeds of domestic breeding because they are considerably cheaper than European.

## Chain comparison of the dairy sector in Ukraine and Netherlands

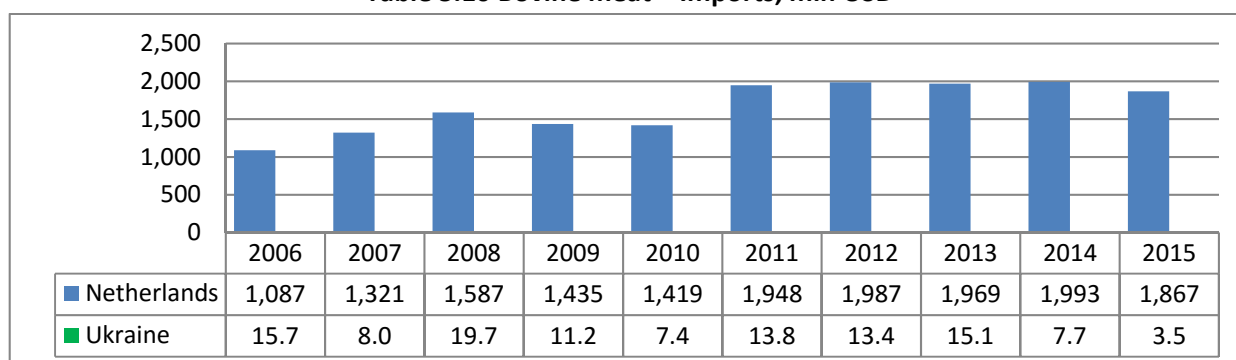
**Table 5.9 Bovine meat – Exports, mln USD**



Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

Netherlands' export of bovine meat stayed in recent years at the level of 3 bln USD, in 2015 we observe a reduction of exports by 15,3% to 2 506 million USD (due to the Russian embargo in 2014). Exports of meat from Ukraine also suffered losses from the loss of the Russian market but in 2015 we can see an export growth by 11,7%, mainly due to the increase of deliveries to the CIS countries.

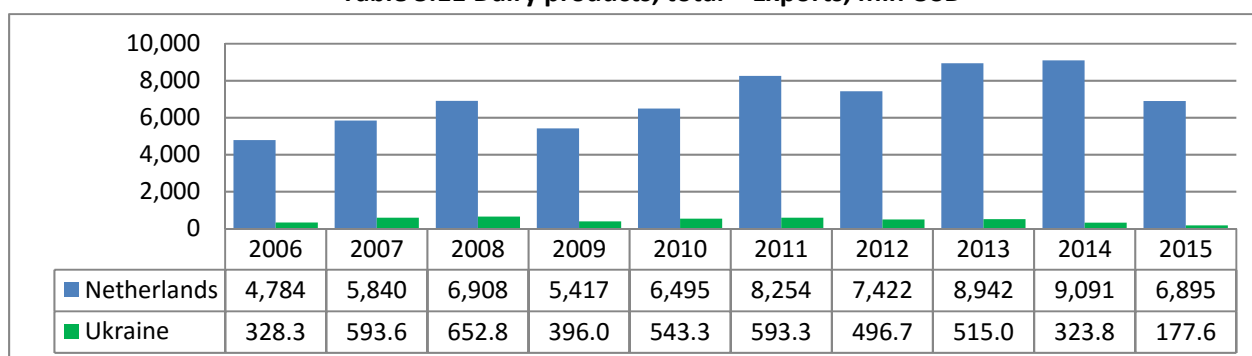
**Table 5.10 Bovine meat – Imports, mln USD**



Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

Import of bovine meat by the Netherlands was stable staying around 2 billion USD, however, in 2015 the import fell by 6,3% to 1 867 million USD. Import of beef to Ukraine also shows a tendency to a reduction, in 2015 imports shrank to 3,5 million USD by 77%, the main cause of reduction was the devaluation of national currency and changing of consumer tastes toward the cheaper meat (offal or poultry).

**Table 5.11 Dairy products, total – Exports, mln USD**



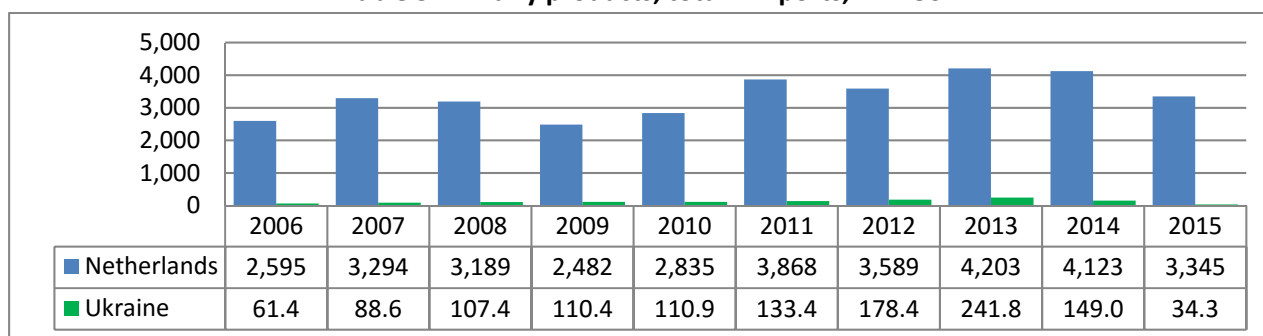
Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)



### Chain comparison of the dairy sector in Ukraine and Netherlands

The abolition of the milk quota as of April 1, 2015 led to significant increases in the EU milk production. Demand, however, lagged significantly behind. The economic slowdown and large stocks in China reduced its willingness to buy. The Russian import ban (which started in August 2014) also played a major role in the shrinking demand. On top of this, the low price of oil meant that oil-producing countries cut their budgets and imported less dairy. Combined, these factors have put market prices under pressure, causing them to fall sharply since the second quarter of 2015.<sup>17</sup> As the result exports of dairy products in Netherlands decreased by 24,2%. At the same time we observe a declining tendency in Ukrainian dairy export by -45%, caused mostly by Russian import ban.

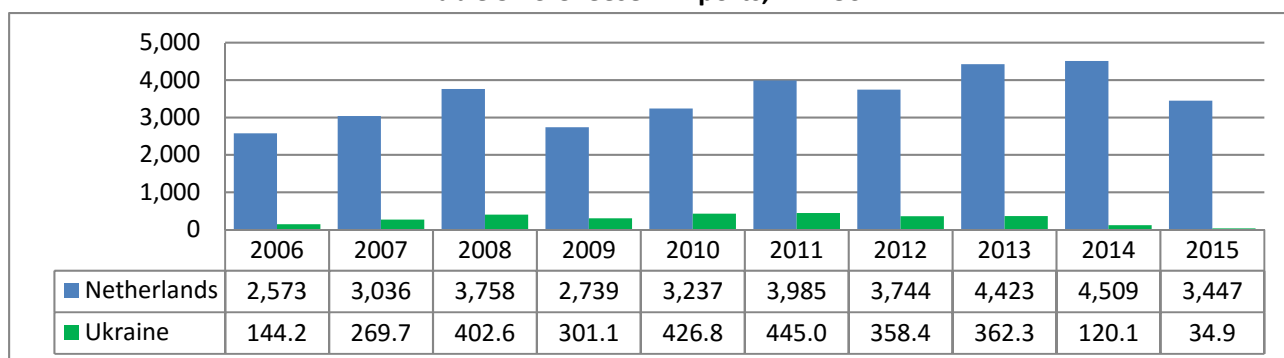
**Table 5.12 Dairy products, total– Imports, mln USD**



Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

Imports of dairy products also decreased by 19% to 3 345 mln USD. As to import of Ukraine – decreased by 77% to 34,3 mln USD.

**Table 5.13 Cheese – Exports, mln USD**



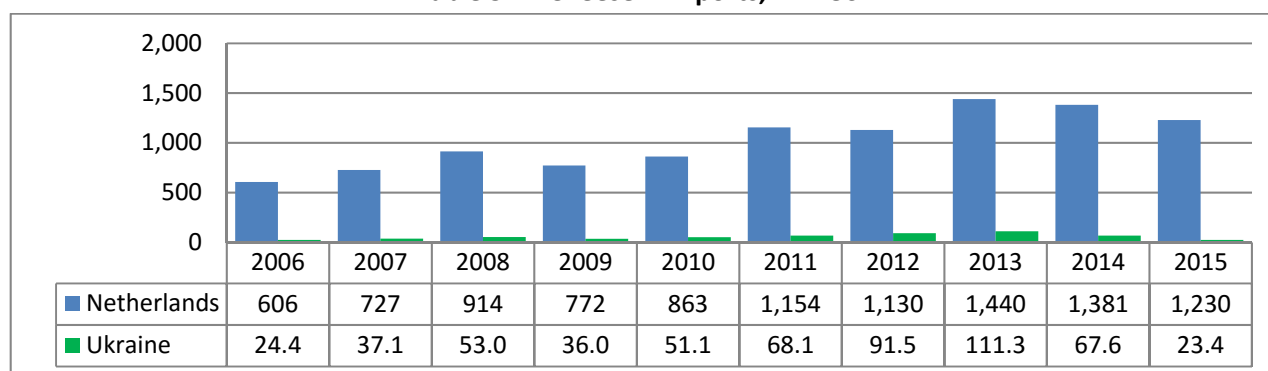
Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

In the Netherlands despite the considerably higher volumes, the export value of cheese fell sharply (by 23,5%) as a result of the significantly lower average price level. The drop in value mainly hit trade within the EU, particularly the Netherlands. Ukrainian export of cheese was affected mostly by Russian import ban. The export value dropped more than in three times in 2014 compared to 2013 and in 3,4 times in 2015 compared to 2014.

<sup>17</sup> <http://www.zuivel.nl/wp-content/uploads/2016/09/Dutch-dairy-in-figures-2015.pdf>

## Chain comparison of the dairy sector in Ukraine and Netherlands

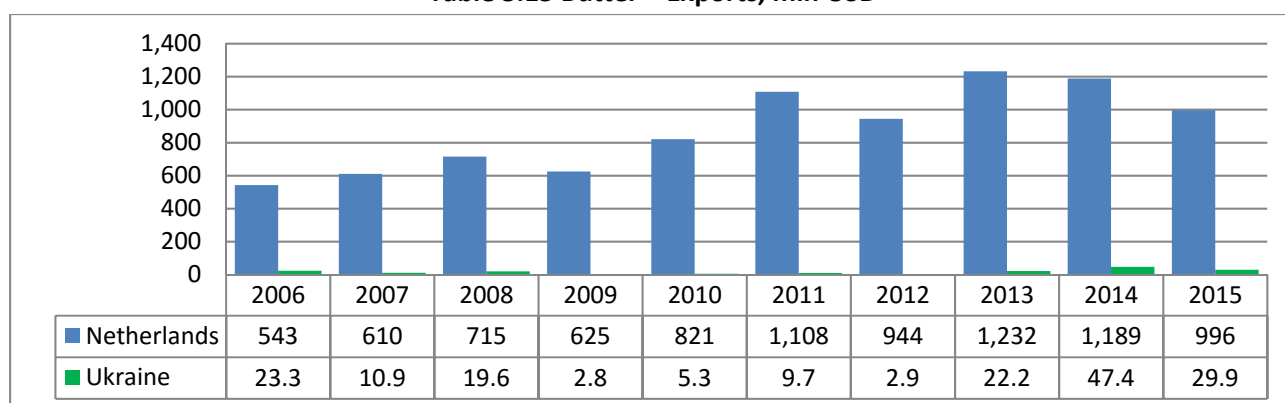
**Table 5.14 Cheese – Imports, mln USD**



Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

Import of cheese by Netherlands dropped by 11% in 2015 in value but increased by 13% (+ 40,4 thou t) in weight. At the same time import of chesses by Ukrainian consumers decreased by 65,3% in 2015 caused by low purchasing power.

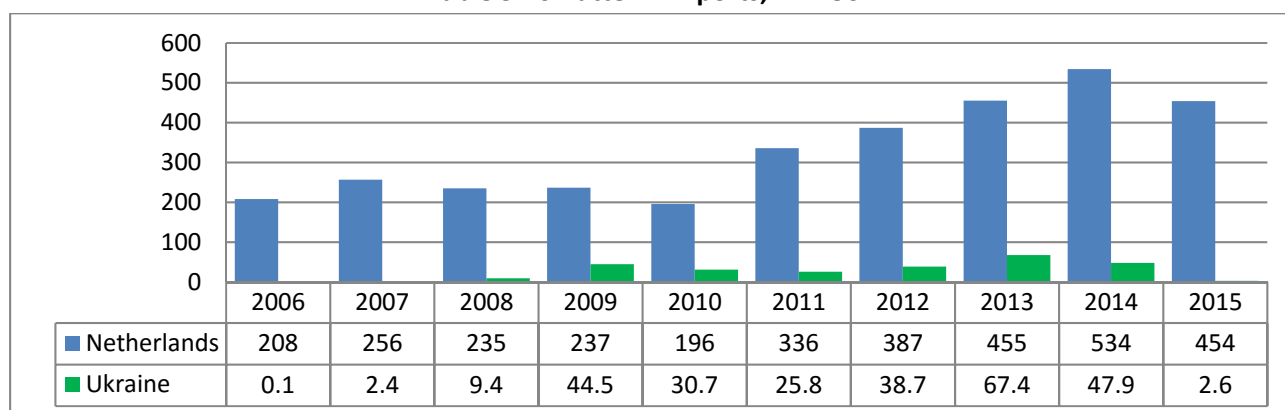
**Table 5.15 Butter – Exports, mln USD**



Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

Export of butter in the Netherlands declined by 16,2% in 2015 compared to 2014 due to a price volatility (export in weight increased by 13,4% or + 32,3 thou t). The export value of butter in Ukraine dropped by 36,6%.

**Table 5.16 Butter – Imports, mln USD**

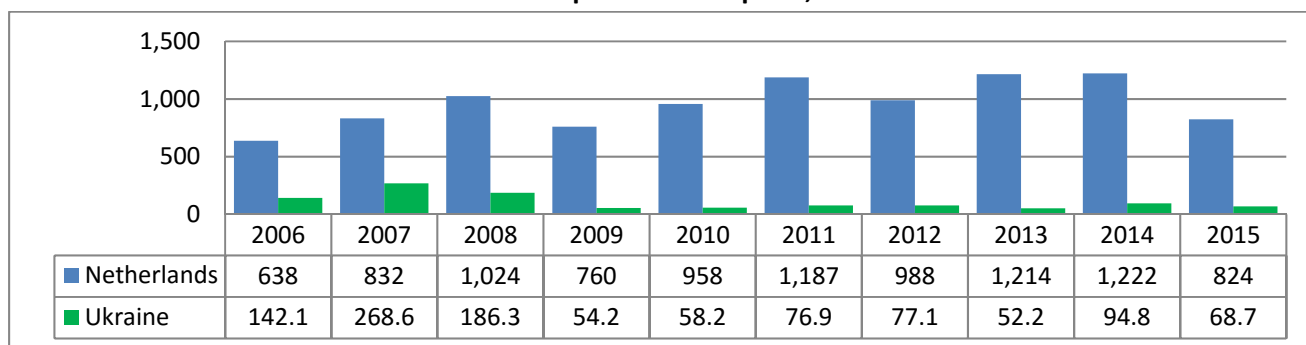


Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

Import of butter in Netherlands showed a decline in 2015 by 15,1% at the same time decrease in Ukrainian import reached 94,6%

## Chain comparison of the dairy sector in Ukraine and Netherlands

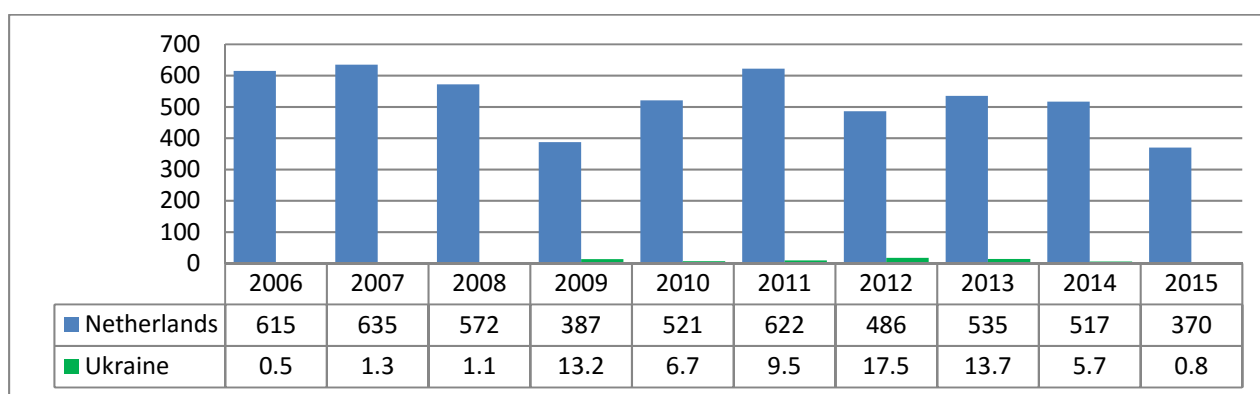
**Table 5.17 Milk powder<sup>18</sup> – Exports, mln USD**



Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

The Netherlands' trade of milk powder dropped in value by 32,6% (-398 mln USD) but rose in volume by 16,1% (+35,3 thou t). IN Ukraine we can observe the same situation – exports value decreased by 27,5% but volume increased by 25,4%.

**Table 5.18 Milk powder – Imports, mln USD**



Source: State statistics service of Ukraine, Market Analysis and Research, International Trade Centre (ITC)

Milk powder import in Netherlands also declined in 2015 by 28,5% to 370 mln USD. Import of Ukraine dropped by 85,7% to 0,8 mln USD.

In short terms may take place price fluctuations, market instability and problems such as changes in relation to dairy products and requirements concerning the protection of the environment or new commercial agreements between certain countries and regions will affect the milk sector and trade in dairy products more. All of these challenges are more pressing for the countries of Eastern Europe, considering certain internal problems such as unstable market structure or uncertain policy of the state. In this case, the countries of the eastern region and their competitive advantages in the global market of raw milk can play a crucial role in the future developing of these countries as exporters of dairy products.

The DCFTA entered into force on 1 January 2016 and opened for Ukraine perspectives of exports of value-added goods to countries with high incomes. The DCFTA provides an opportunity to make the sector more competitive and diversify its export. Nowadays 16 Ukrainian milk companies can export dairy products to EU according to its standards. As of March 2017 Ukraine has already used 50% of duty-free export quota to the EU on butter and 13,6% on milk powder. The rising demand for milk products by Asian countries (mostly by China) and Middle East also stimulates exports of Ukrainian dairy, especially milk powder.

<sup>18</sup> The Sum of HS codes 402 10/ 402 21/ 402 29

### Chain comparison of the dairy sector in Ukraine and Netherlands

The long-term forecasts for global dairy demand look good, which means big opportunities for an exporting country like the Netherlands. A multiplying and ever more prosperous population is increasing the global demand for dairy products, particularly from emerging countries in Asia, South America and Africa. Growing prosperity means a shift in eating habits, from grains to more expensive animal products like dairy. Urbanization is also giving more people access to grocery stores, where they can buy fresh dairy, and refrigerators in which to store them. Globalization is giving more and more people a taste for dairy.

The OECD<sup>19</sup> and FAO expect that producers in emerging countries in Asia and Africa will not be able to keep up with the growing local demand for milk powder and ingredients. They estimate that the shortage of milk powder in Asia and Africa (demand minus local production) will reach 3,600 kilotons (kt) by 2023 – 18 times today's milk powder production in the Netherlands. Cheese shortages in Asia and Africa are forecasted to rise by 9% a year on average for the coming 10 years. These shortages will have to be supplemented by countries elsewhere. This is a big opportunity for exports for both the Netherlands and Ukraine.

A great deal of the growth in consumption – of fresh products – must be met by local production, where the growth itself is taking place. Here lie opportunities to create value by exporting Dutch knowledge, technology and projects to help achieve higher productivity levels and a more sustainable world.

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<sup>19</sup> Organisation for Economic Co-operation and Development

## **VI. Production costs and prices**

Volatility is a major challenge. Dairy farms which can handle the volatility will be successful in the long run. Managing volatility demands a robust business, entrepreneurship, and the buildup of buffers in better times. In the coming years, this is what many dairy farms will have to do. The Dutch dairy industry, with its vast supplies of entrepreneurship, is in a good position to handle the price volatility. The product mix is diversified relatively well.

One drawback of the Dutch sector is the relatively high cost milk production. Input materials and labor costs are high, and continual increases of production make cost savings a challenge. Costs and profits from milk are often closely tied; in times of dropping prices this can lead to low or even negative margins for dairy farms. The influence of price volatility will gradually push the sector to consolidate: smaller companies and companies whose operations are not as strong will fail, the larger and stronger companies will succeed. Margins will be a deciding factor. In the future, Dutch companies must be cost efficient but above all offer high added value: excellent milk from which high quality, reliable and delicious dairy products can be made in a sustainable and efficient way.

The dairy market is known for its extreme price fluctuations. Peaks can quickly turn into valleys, and vice versa. Last year has once again demonstrated this fact. After a period of steadily declining prices, in recent months the world milk market has rapidly soared. Short supply and steady demand in dairy products led to increased milk prices, also for farmers. The market overly depends on uncertain, largely international factors. In any case, price volatility will also typify the dairy market in 2017.<sup>20</sup>

According to the European Dairy Farm calculation, in 2015 total cost for 100 kg of milk in Ukrainian agricultural enterprises was at the level of 25 cent/kg. Average price that was mentioned in report was 0,256 cent/kg. In such case the average profitability of milk production was 12,6 %. Detailed information about costs showed in the table below.

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<sup>20</sup> Nederlandse Zuivel Organisatie (Dutch Dairy Association), NZO

**Table 6.1 Comparison of production costs in Ukraine and Netherlands, 2015**

in EUR	per cow	per 100 kg of milk	per cow	per 100 kg ECM
	Ukraine		Netherlands	
<b>Total costs</b>	<b>1 194</b>	<b>25</b>	<b>4 742</b>	<b>55,5</b>
<b>Total direct costs</b>	<b>259</b>	<b>5,4</b>	<b>1 442</b>	<b>16,6</b>
Animal purchases	0	0	56	0,6
Heifer rearing by contractor	0	0	53	0,6
Insemination, ET	11	0,2	81	0,9
Animal health, hoof trimming	28	0,6	100	1,2
Feedstuff purchases	19	0,4	792	9,1
Other direct costs of animal production	113	2,4	127	1,5
Seeds	26	0,5	42	0,5
Fertilizer	41	0,9	117	1,4
Pesticides	20	0,4	14	0,2
Other direct costs of fodder production	0	0	59	0,7
<b>Total labour related costs</b>	<b>910</b>	<b>19</b>	<b>1 312</b>	<b>15,5</b>
Personnel expenses	109	2,3	112	1,3
Calculated cost for family labour	0	0	404	4,8
Contract work	38	0,8	382	4,5
Rent/leasing of machinery	0	0	0	0,0
Fuel, lubricants	598	12,5	72	0,9
Energy	30	0,6	77	0,9
Maintenance of machinery and vehicles	23	0,5	140	1,6
Depreciation of machinery and vehicles	17	0,4	102	1,2
Capital costs for machinery and vehicles	95	2	24	0,3
<b>Total building costs</b>	<b>24</b>	<b>0,5</b>	<b>967</b>	<b>11,4</b>
Rent of buildings and installations	0	0	0	0,0
Maintenance of buildings and installations	0	0	311	3,7
Depreciation of buildings and installations	1	0	400	4,7
Capital costs for buildings and installations	24	0,5	256	3,0
<b>Total land costs</b>	<b>-</b>	<b>-</b>	<b>614</b>	<b>7,2</b>
Land rent	-	-	95	1,1
Land improvements, drainage, driveways	-	-	14	0,2
Taxes and fees related to land	-	-	0	0,0
Calculated cost of own land	-	-	505	6,0
<b>Total quota costs</b>	<b>-</b>	<b>-</b>	<b>190</b>	<b>2,3</b>
Milk quota rent	-	-	152	1,8
Super levy	-	-	38	0,5
Capital costs for milk quota	-	-	0	0,0
<b>Other costs</b>	<b>-</b>	<b>-</b>	<b>218</b>	<b>2,5</b>

Source: milk benchmark (EDF)

At the processing level the structure of costs have the follow structure (Euro/kg)

**Table 6.2 Cost at the processing level in Ukraine**

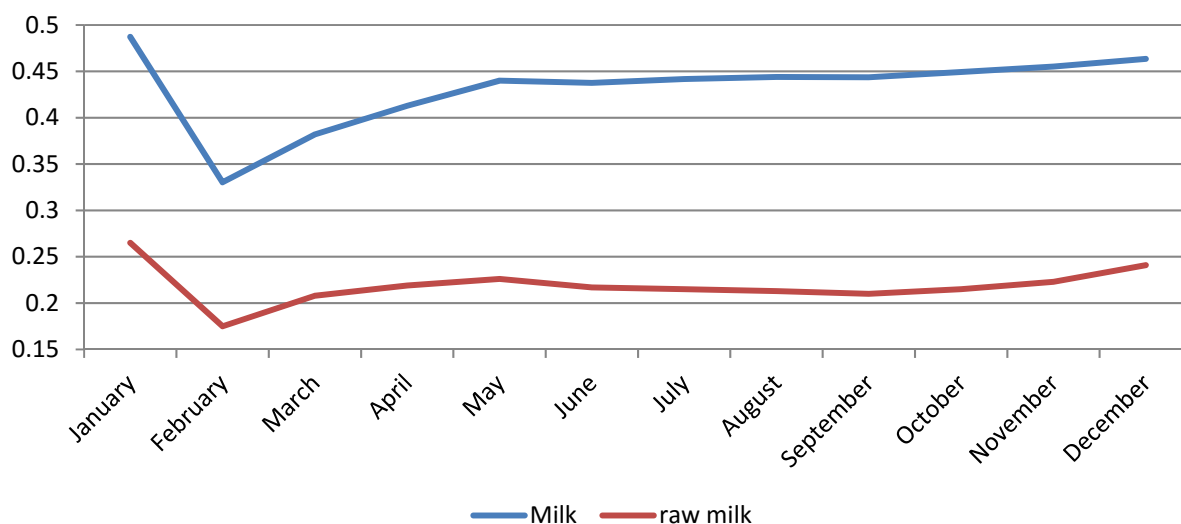
Costs	Share of costs, %	Amount of costs, Euro/kg
Direct labor	6%	0,03
Fixed people costs	7%	0,04
Variable utilities costs	7%	0,04
Packaging	9%	0,05
Amortization	10%	0,05
Fixed other costs	11%	0,06
Raw material	50%	0,26
Total costs	100%	0,51

Source: UCAB calculations

At the retail level, margin depends on the group of product. Nowadays in Ukraine there are some legislations measures that do not allow increasing price higher than 15% for “social milk”<sup>21</sup> that is sold by processing plants. However, at the 4<sup>th</sup> quarter of 2016 was an attempted to cancel that measure, nowadays it is still in process.

Decreasing the share of households in milk market lead to the increase of the quality of raw milk and higher prices for the products. For example, in 2016 processing plants got 2,4 million tons of milk, of which share of extra class increased to 14,6% (in 2015 – 10,3%), high class – 36,7% (35,2% in 2015) and first class – 42% (49,6% in 2015).

According to the cart below, there is a great correlation between the purchasing price for raw milk and milk.

**Table 6.3 Purchasing price of milk 2015 in Ukraine, Euro/kg**

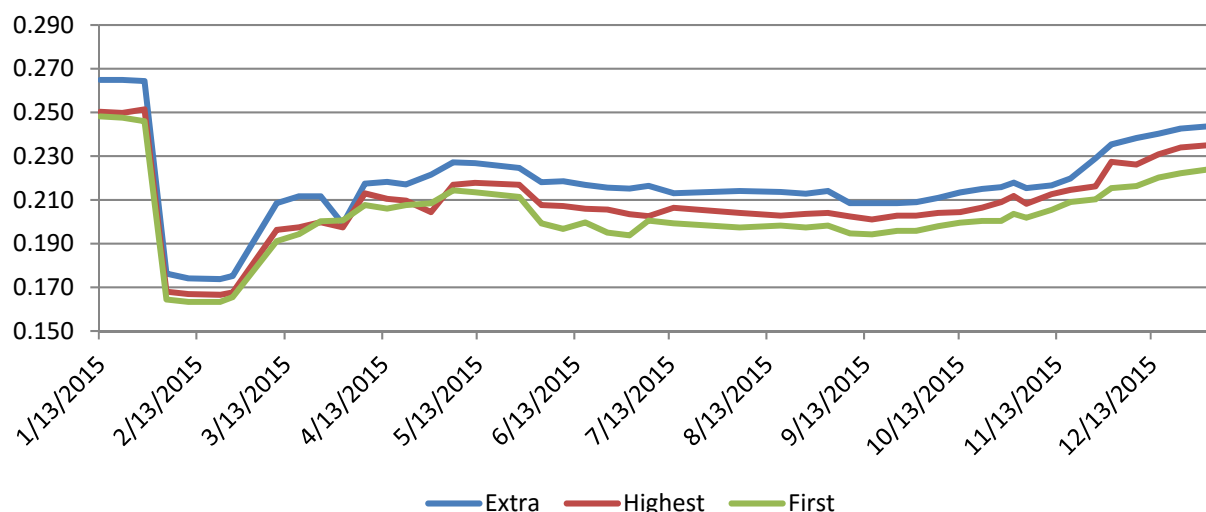
Source: UCAB monitoring, State statistic service of Ukraine

National currency devaluation at the beginning of 2015 led to a fall in prices.

<sup>21</sup> Social milk – 3,2% of fat and packaged in soft pack.

## Chain comparison of the dairy sector in Ukraine and Netherlands

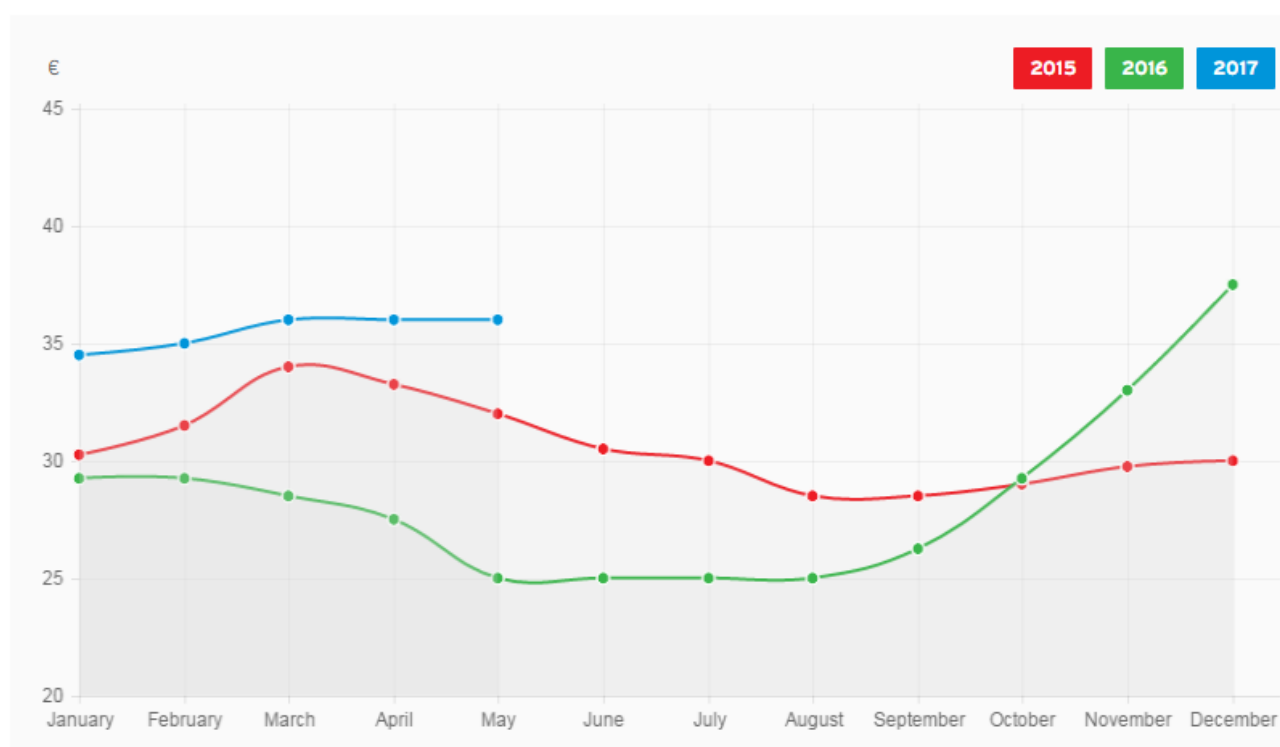
**Table 6.4 Purchasing prices of raw milk in Ukraine, EUR/kg**



Source: State statistic service of Ukraine

Purchasing prices for raw milk in the Netherlands also show an unstable tendency during the years.

**Table 6.5 The Netherlands guaranteed price per month, EUR per 100 kg of milk**



Source: FrieslandCampina Guaranteed price

In 2016 we observe a small rise in average prices for spot raw milk by 4% at the same time a large decline in prices also took place in 2015 (Table 6.6). In 2015 the average price for spot raw milk dropped by 25,6% compared to 2014. This is the result of the abolition of the milk quota as of April 1, 2015 which led to significant increases in EU milk production.



## VII. Performance

Key indicators of milk production Ukraine, milk quality indicators, the average yield per cow substantially inferior to European countries. At the same time evident tendency to withdrawal from the market inefficient producers, thus there is a tendency to increase milk quality and production performance against the background of the decrease in production in the whole Ukraine.

**Table 7.1 Structure of milk by quality standards purchased by processing plants from agricultural enterprises**

	Weight of cow's raw milk	fat, %	protein, %	Weight of cow's raw milk recalculated on installed basic raw fat	extra grade	top grade	1-st grade	2-nd grade	substandard
2014	2 297 890	3,59	3,07	2 428 239	223 202	820 685	1 250 536	128 657	5 159
2015	2 286 905	3,59	3,05	2 412 817	247 633	849 929	1 196 910	113 001	5 344
2016	2 375 457	3,60	3,06	2 511 882	366 363	923 017	1 055 968	160 185	6 349

Source: State statistics service of Ukraine

In contrast to the reduction in milk production and the decrease in the number of cow's recent years Ukraine has been improving quality indicators of produced milk. Thus, in Ukraine agricultural enterprises over the past 3 years increased milk production of the highest quality class "Extra" on 64%.

**Table 7.2 Structure of milk by quality standards purchased by processing plants from private households**

	Weight of cow's raw milk	fat, %	protein, %	Weight of cow's raw milk recalculated on installed basic raw fat	extra grade	top grade	1-st grade	2-nd grade	substandard
2014	1 699 115	3,48	2,93	1 737 006	-	1655	205 223	1 451 560	78 568
2015	1 311 513	3,49	2,92	1 346 066	34	995	119 195	1 162 860	62 982
2016	1 161 395	3,51	2,93	1 197 736	66	611	107 758	1 028 219	61 082

Source: State statistics service of Ukraine

Private households, which previously did not produce milk of the class "Extra" in 2015, supplied to processors 34 tons of "Extra" grade milk, and in 2016 this figure increased almost twice to 66 tons which can be the start of the new tendency in milk production in this category of producers.

**Table 7.3 The grades of quality indicators used in Ukraine**

Quality indicator	Norm for grade			
Unit of measurement	extra grade	top grade	1-st grade	2-nd grade
Acidity, ° T	16-17	16-17	≤19	≤20
The purity by ethanol	I	I	I	II
Common bacterial contamination thousand/Cm3	≤100	≤300	≤500	≤3000
Temperature, ° C	≤6	≤8	≤10	≤10
Mass share of dry matter, %	>12,2	>11,8	>11,5	>10,6
Number of somatic cells, thousand/Cm3	≤400	≤400	≤600	≤800

Source: State statistics service of Ukraine

The quality of raw milk has been one of the major problems in the dairy sector of Ukraine. In fact it is a multi-component problem. First, the Ukrainian milk quality standards are far away from the Western ones. According to the Ukrainian grading system, the milk from households usually is labeled “second grade”. At the same time, in the Netherlands milk of this quality is not used for food production purposes at all. The situation looks better at dairy farms, which supply mostly milk of “first class” grade. Therefore, there is clearly not enough cooperation on this issue between the industry and the government. As a result quality and safety system direct to the control of production quality or producers (but not processes and not enough safety) and key standards meet soviet time requirements in general. There is also lack of cooperation between control bodies.

**Table 7.4 Profitability of Milk production in Ukraine**

	Cost, UAH/t	Feed cost, UAH/t	% of feed cost	Profitability
2006	995	690	69%	-4%
2007	995	698	70%	18%
2008	1698	1205	71%	4%
2009	1736	1234	71%	1%
2010	2289	1629	71%	18%
2011	2640	1890	72%	18%
2012	2662	1911	72%	2%
2013	3026	2200	73%	13%
2014	3283	2265	69%	11%
2015	3529	2509	71%	13%

Source: State statistics service of Ukraine

According to the official statistics during the last 3 years, the profitability of milk production in Ukraine was from 11% to 13%. The main important factor that provided profitability of milk production was state support in form VAT refund. Also, the profitability of milk production for agricultural enterprises offsets the losses from meat production.

**Table 7.5 Profitability of beef production in Ukraine**

	<b>Cost, UAH/t</b>	<b>Feed cost, UAH/t</b>	<b>% of feed cost</b>	<b>Profitability</b>
2006	7737	5836	75%	-38%
2007	7737	5843	76%	-26%
2008	11014	8326	76%	-24%
2009	12369	9499	77%	-3%
2010	13900	10481	75%	-35%
2011	15803	12137	77%	-24%
2012	17349	13376	77%	-28%
2013	18070	13986	77%	-41%
2014	23512	17987	77%	-36%
2015	29090	21730	75%	-18%

Source: State statistics service of Ukraine

In the cost structure of the livestock production in Ukraine, the forages approximately amount to 75-77% of the total costs. From the early 1990s, negative processes occurring in cattle breeding have caused a reduction of the internal demand for forages both by agricultural enterprises and by individual householders. As a result, there were some significant changes in the land using structure which has manifested itself in the reduction of natural hayfields and natural pastures. In particular, this caused reduction in the area of forage tubers cultivation, fodder beet for forage, maize for silo.

**Table 7.6 Annual average milk yield per cow, kg**

	<b><i>All types of agricultural holdings</i></b>	<b><i>Agricultural enterprises</i></b>	<b><i>Households</i></b>
2007	3665	3131	3804
2008	3793	3366	3903
2009	4049	3893	4090
2010	4082	3975	4110
2011	4174	4109	4192
2012	4361	4676	4276
2013	4446	4827	4343
2014	4508	5027	4363
2015	4644	5352	4437

Source: State statistics service of Ukraine

Along with this, a promising tendency is that the number of enterprises with annual yields per cow exceeding 6,000 liters has been constantly on the rise. In 2006, the number of such farms was 181 and in 2015 it rose to 475. The share of these agricultural companies during last 10 years increased from 3.6% to 19% (in the total number of agricultural enterprises, and their share in the total milk production amounts from 13% to 55.1%.

**Table 7.7 Expenditures of feeds for production of 1 kg milk**

	<i>All types of agricultural holdings</i>	<i>Agricultural enterprises</i>	<i>Households</i>
2007	1,03	1,30	0,97
2008	1,02	1,27	0,97
2009	1,05	1,21	1,01
2010	1,02	1,18	0,98
2011	1,01	1,16	0,97
2012	0,98	1,09	0,95
2013	0,98	1,06	0,95
2014	0,97	1,02	0,95
2015	0,96	1,00	0,95

Source: State statistics service of Ukraine

Average expenditures of feeds decreased in 2015 compared to 2007 by 4%. In AE a decrease reached 23.1% in 2015 at the same time by households the fall in expenditures reached only 5%.

**Table 7.8 Groupings of agricultural enterprises by annual average milk yield per cow as of January**

	<i>Number of enterprises</i>		<i>Milk yield of milk cows</i>	
	<i>units</i>	<i>percentage to total enterprises</i>	<i>thsd.t</i>	<i>percentage to the total volume</i>
<i>Enterprises – total</i>	<b>2503</b>	<b>100,0</b>	<b>2613,7</b>	<b>100,0</b>
<i>of which, kg</i>				
<i>no more than 1000</i>	136	5,4	5,5	0,2
1001 – 2000	301	12,0	30,0	1,1
2001 – 3000	531	21,2	117,0	4,5
3001 – 4000	437	17,5	217,5	8,3
4001 – 5000	338	13,5	326,7	12,5
5001 – 6000	285	11,4	477,3	18,3
<i>more than 6000</i>	475	19,0	1439,7	55,1

Source: State statistics service of Ukraine

Another important point to mention is the low productivity of milk production in agri-enterprises. Now the productivity of dairy livestock is very low as compared to the average productivity in developed countries. For example, the average productivity in Netherlands lies in the range of 7-8 tons per year. On the other hand, this figure shows that some dairy farms in Ukraine are also capable of reaching the productivity level of developed. Although at a dairy farm an average cow yields 3.1 tons of milk, table demonstrates that the majority of Ukrainian cows do not produce more than 4,000 liters of milk.

Chain comparison of the dairy sector in Ukraine and Netherlands

**Table 7.9 Expenditures of feeds for production of 1 kg meat**

	<i>All types of agricultural</i>	<i>Agricultural enterprises</i>	<i>Households</i>
2007	11,30	14,80	9,73
2008	11,29	14,49	9,96
2009	11,1	15,23	9,5
2010	10,98	15,69	9,2
2011	10,73	14,98	9,14
2012	11,17	15,52	9,61
2013	11,51	14,97	10,26
2014	11,93	15,05	10,68
2015	10,03	14,80	8,36

Source: State statistics service of Ukraine

Average expenditures of feeds decreased in 2015 compared to 2007 by 11.2%. In AE no change is observed in 2015 compared to 2007 at the same time by households the fall in expenditures for production of 1 kg of meat reached 14%.

**Table 7.10 Groupings of agricultural enterprises by daily average live weight gain obtained by breeding, feeding and fattening of livestock in 2015**

	<i>Number of enterprises</i>		<i>Live weight gain</i>	
	<i>units</i>	<i>percentage to total enterprises</i>	<i>thsd.t</i>	<i>percentage to the total volume</i>
<i>Cattle</i>				
<i>Enterprises – total</i>	<b>2929</b>	<b>100,0</b>	<b>140,4</b>	<b>100,0</b>
<i>of which daily average live weight gain obtained, g</i>				
<i>no more than 100</i>	89	3,0	0,2	0,1
101 – 200	215	7,3	1,1	0,8
201 – 300	379	13,0	5,0	3,6
301 – 400	537	18,3	12,0	8,5
401 – 500	560	19,1	19,6	14,0
501 – 600	437	14,9	29,2	20,8
601 – 700	337	11,5	34,0	24,2
701 – 800	216	7,4	24,3	17,3
801 – 900	78	2,7	9,5	6,8
<i>more than 900</i>	81	2,8	5,5	3,9

Source: State statistics service of Ukraine

*Key figures of the dairy sector performance in the Netherlands:*

The end of the quota system, per 1st April 2015, was a signal for many dairy farmers in the Netherlands to further increase production on their farm. The MPR figures collected by CRV this past year are breaking all records. With 1.51 million dairy cows the year 2015-2016 again shows considerable growth compared to the previous year. An additional 105,000 milk cows have been milked on the farms. Incidentally, the number of companies with milk cows fell to just under 15,000 – 14,951 to be precise. That means a decrease of 1%. Larger companies mean more cows and less companies which also mean that the number of cows per farm has gone up this last year. The size of the dairy herds has never been this large: 101 milk cows on average on



### Chain comparison of the dairy sector in Ukraine and Netherlands

a Dutch dairy farm. This means a growth by 8 cows compared to the year before. When we go a bit further back, we find that in 2006 – ten years ago – the average farm size still was at 67 cows per farm. Which means a 50% increase compared to ten years ago.

A Dutch milk cow produces on average 8,663kg milk with 4.38% fat and 3.55% protein. The lifetime production per culled cows stabilizes. This past year it was at 30,967kg milk with 4.35% fat and 3.53% protein. Ultimately that is almost 100kg milk more than the previous year. In 2014, this lifetime production had been a little bit higher yet, but it may be clear that cows that are culled in the Netherlands have produced around 31,000kg milk on average during their life. The toppers in the company rankings for lifetime production, however, are producing far more than that: up to almost 80,000kg milk. A unique achievement in the world.

In the Netherlands the average calving age of the heifers for years has been fluctuating around 26 months, while the economic advice is to have the heifers calve out at 24 months.<sup>22</sup>

**Table 7.11 Key figures of dairy farms in the Netherlands, 2015**

Category	Amount
Whole farm area, ha	95
Land rented, %	19
Total family labour units (whole farm)	1,4
Total hired labour units (whole farm)	0,5
Herd size, heads of dairy cows	157
Fat in milk, %	4,37
Protein in milk, %	3,46
Somatic cell count, per ml	165 736
Milk yield, kg ECM per cow	8 668
Replacement cattle, heads per 10 dairy cows	6,6
First calving age, month	25,4
Calving interval, days	398
Culling rate, %	27
Lifetime yield, kg per culled cow	26 830
Calf loss, %	13

Source: milk benchmark (EDF)

<sup>22</sup> Veeopro magazine

**VIII. Characteristic of facilities and animal raised**

Ukrainian dairy sector is characterized by technological backwardness both in terms of genetic resources used and in terms of facilities and equipment. Equipment on dairy farms are mostly completely obsolete, except for milking, which must be periodically updated.

**Table 8.1 The structure of breeding livestock of dairy and dairy-beef breeds in Ukraine**

Breed	Number of cattle	Share, %
Ayrshire	981	0%
Angler	634	0%
Bilogolova ukrainska	853	0%
Bura molochna	726	0%
Holstein	40901	13%
Lebedinska	1788	1%
Semental	9667	3%
Ukrainska chervono-ryaba molochna	61513	19%
Ukrainska chorno-ryaba molochna	174388	55%
Chervona polska	716	0%
Chervona stepova	5674	2%
Ukrainska chervona molochna	15200	5%
Chervono-ryaba gollandska	2701	1%
Total	315742	100%

Source: Institute of breeding and animal genetics of National Academy of Agricultural Sciences of Ukraine

As we can see, genetic resources of Ukrainian meat and milk industry is represented mainly by domestic breeds and the growing share of Holstein breeds.

**Table 8.2 The structure of breeding livestock of beef breeds in Ukraine**

The structure of breeding livestock of beef breeds in Ukraine		
Breed	Number of cattle	Share, %
Aberdeen-Angus	7631	25%
Volins'ka m'iasna	7935	26%
Limousine	1167	4%
Light aquitaine	80	0%
Sira ukrainska	903	3%
Semental beef	2142	7%
Ukrainska m'iasna	1824	6%
Charolais	1093	4%
Pivdenna m'iasna	3159	11%
Poliska m'iasna	4113	14%
Total	30047	100%

Source: Institute of breeding and animal genetics of National Academy of Agricultural Sciences of Ukraine

According to information from operators, the domestic breeding industry is far away from meeting the current demand by dairy farming for pedigree cattle. There are three ways of achieving a high quality pedigree cow on farms (with the productivity of 8-12 t/year):

### Chain comparison of the dairy sector in Ukraine and Netherlands

- To import it from abroad. In this case, three problems may appear: a) import procedures; b) the consignments must be rather big, which is possible only for large farms; c) it is very likely that farmers will not be receiving maximum yields because of poor practices and the lack of knowledge on the farm. The more productive the cow is, the more care it requires.
- To buy livestock from domestic breeding organizations. However, productivity is comparatively low. Ukraine possesses over 90 breeding pedigree farms, which are specialized in breeding dairy livestock. Most of these farms are concentrated in Kyiv and Chernigiv regions, correspondingly 17 and 12 farms.
- To inseminate domestic cows with imported semen from pedigree bulls. In this case, the productivity of a cow would be lower compared to an imported one. However, the price would be lower as well.

**Table 8.3 Equipment in Ukrainian dairy sector, units**

	2011	2012	2013	2014	2015
Forage harvesters	7137	6731	5948	5274	4982
Milking machines and equipment	10838	11216	11026	10476	10232
Feeders	4280	4136	3871	3561	3484
Manure transporters	21967	20622	19483	17244	16386
Milk coolers-cleaners	2803	2878	2956	2797	2867
Skimming machines	338	346	316	293	299

*Source: State statistics service of Ukraine*

The number of equipment for dairy and livestock production in Ukraine is constantly decreasing due to the reduction in the number of cows, closure of the farm and its high technical wear. Among the existing equipment is a significant share of Soviet equipment and its analogues produced in Ukraine and the CIS countries that are technologically outdated. At the same time, almost all of the world's leading suppliers of equipment for milk production and animal husbandry are presented on Ukrainian market. However, due to traditional for Ukraine factors producers do not have sufficient financial resources to update equipment and investment in modern technology. Through this milk producers are experiencing a shortage of the necessary equipment, which is one of the reasons for the lower performance indicators.

Netherlands:

The common breeds of dairy cows in Netherlands is the Holstein-Friesian with some Holstein crossbred cows. Holstein Friesians are a breed of dairy cattle originating from the Dutch provinces of North Holland and Friesland, and what is now Schleswig-Holstein in Northern Germany and Jutland. They are known as the world's highest-production dairy animals.

**Table 8.4 Breeds commonly represented in the Netherlands**

Breeds
Belgisch Blauw
Blonde d'Aquitaine
Brandrood
Brown Swiss
Fleckvieh
Fries Hollands (FH) zwartbont
Fries Hollands fundamente foklijn
Fries Roodbont
Groninger Blaarkop
Heidekoe
<b>Holstein Friesian (zwartbont)</b>
<b>Holstein Friesian roodbont</b>



## Chain comparison of the dairy sector in Ukraine and Netherlands

Jersey
Lakenvelder
Maas-Rijn-IJssel
Marchigiana
Montbéliarde
Piemontese
Verbeterd Roodbont
Witrik

Source: European Farm Animal Biodiversity Information System, EFABIS

**Table 8.5 The number of main cow breeds in the Netherlands in 2014, heads**

Breed	2014
Holstein Friesian (Black & White)	270 000
Holstein Friesian red & white	1 248 000

Source: European Farm Animal Biodiversity Information System, EFABIS

Black-and-white Holsteins tops the list with an average production of 9,717 kg of milk, with 4.31% fat and 3.51% protein in 356 days. They are followed by red-and white Holsteins with an average production of 8,904 kg of milk with 4.54 % fat and 3.62% protein in 349 days

Most of the housing solutions on dairy farms in the Netherlands being implemented currently focusing on emission control. Strict laws regarding emissions from agriculture encourage the use of slatted floors and other innovations to regulate ventilation, including barn sides that can close, to control waste emissions. The increased use of milking robots in the Dutch dairy herds also had an impact on barn design.

Some farmers capitalized on their nutrition program by investing in the Lely Vector robotic feeding system. The Vector system custom mixed the feed according to programmed group rations.

Of the farms the majority incorporated technologies in their management practices including automatic milking systems, manure scrapers, feeders, calf feeders, and concentrate feeders. The brand of the technologies varied throughout farms. With automatic milking robots, a couple of differences between systems included their pre-milking routine and attachment of the milking equipment. Automatic milking systems allow cows to be milked individually and with greater frequency. Switching to automatic milking systems tended to increase milk production. Automatic manure scrapers were used to manage waste, while automatic feed pushers also help to reallocate time to manage other tasks while cows still encouraged to visit the feed bunk. Automation also incorporated into calf raising, with calves being introduced to automatic calf feeding systems after birth. These systems allowed for group housing, while allowing individual attention from recorded drinking data, including speed, volume, and number of visits. As with any investment, many considerations had to be made before deciding on the purchase, including cash flow analysis, financial feasibility, technician accessibility, and producer preferences.

## IX. Health status

Animal diseases can have a negative impact on animal being, public health and the economy. This particularly applies to infectious diseases like bird flu, Q fever and swine fever. Farmers, vets and the government should work together to control these diseases.

The member states of the European Union (EU) have agreed which animal diseases are so serious that governments always need to be involved in fighting them. These diseases are known as 'notifiable animal diseases'.

Diseases that are notifiable:

- can spread quickly, also to other EU member states;
- can have a devastating impact on the animal population affected;
- cannot be prevented or controlled by conventional means;
- can cause serious economic damage to farmers and EU member states.

The main notifiable animal diseases in the Netherlands are:

- BSE or mad cow disease
- foot and mouth disease
- Q fever
- parrot fever (psittacosis)
- swine fever
- bird flu
- Schmallenberg virus (SBV)
- equine herpes virus (EHV)
- viral infection in seals.<sup>23</sup>

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<sup>23</sup> Government of the Netherlands <https://www.government.nl/topics/animal-diseases/contents/controlling-animal-diseases>

**Table 9.1 List of main diseases stated in Netherlands and Ukraine during last 10 years**

ANIMAL DISEASE	DUTCH SITUATION	UKRAINIAN SITUATION
Anthrax	Not detected since 1994.	Since 2006 in Ukraine there were 2 cases in 2012 in Cherkasy and Zaporizhzhya regions. In Cherkassy region were found infected cow, which was utilized. Quarantined, vaccinated 214 heads of cattle. Carried out disinfection of infected premises. In the Zaporozhye region afflicted one cow that was utilized. Quarantined, vaccination was not carried out. Conducted disinfection of infected premises.
Bluetongue	Officially free since 2012 (all serotypes).	Officially free. There were no reported cases.
Aujeszky's disease	Officially free since 2004.	Not available.
Bovine spongiform encephalopathy (BSE)	No more cases detected since 2010 (total 88 cases from 1997 - 2009). In 2010 were registered 2 outbreak. In the first case had been registered sick cow was utilized, vaccination was not carried out. In the second case had been registered sick cow and utilized 2 cows, vaccination was not carried out. OIE status: 'negligible risk'.	Cases of the disease are not registered.
Leucosis (EBL)	Officially free since 1999. Upon monitoring of blood samples from slaughtered cattle and bulk milk.	At the beginning of 2017 were 1 664 sick animals. In 2016 were detected 199 cases of bovine leucosis. On February 28, 2017 remained 1 414 sick animal bovine leucosis.
Rabies	Officially free since 2012.	At the beginning of 2016 were 372 animals. For 9 months of 2016 were detected 869 cases of bovine leucosis.
Bovine tuberculosis	Officially free since 1999.	At the beginning of 2016 was 1 sick animal. On October 1, 2016 remained 1 sick animal.
Q fever	73 per cent of dairy farms had antibodies in bulk milk**.	Not available.
Salmonellosis	9,5 per cent of non-dairy farms had animals with antibodies.*	Not available.
Paratuberculosis	99,4 per cent of dairy farms had PPN (Paratuberculosis Programme Netherlands) status, 75 per cent of which had status A.	Not available.
Bovine virus diarrhea (BVD)	8,7 per cent of dairy farms had an indication of recent BVD-virus circulation. 14,5 per cent of non-dairy farms had recent BVD-virus circulation**.	Not available.

### Chain comparison of the dairy sector in Ukraine and Netherlands

Leptospirosis	0,8 per cent of non-dairy farms had animals with antibodies.* 98 per cent of dairy farms had the L. hardjo-free status in 2016.	At the beginning of 2017 were 49 sick animals. In 2016 were detected 15 cases of bovine leptospirosis. On February 28, 2017 remained 49 sick animal bovine leptospirosis.
Campylobacter fetus ssp. venerealis and Tritrichomonas foetus	Last infection detected by surveillance in 2009.	Not available.
Yersiniosis	Detected occasionally in cattle, mostly in aborted fetuses.	Not available.
Listeriosis	Main source is poorly preserved grass silage.	Not available.
Foot and Mouth Disease (FMD)	Officially free since 2001, last regional outbreaks in 1986 and 2001.	Last occurrence in 1988.

\* Final Report Specific Surveillance 2013-2014; prevalence studies

\*\* Final Report Specific Surveillance 2015-2016; prevalence studies

Sources: World Organization for Animal Health, State Service for Food Safety and Consumer Protection of Ukraine

Short characteristics of mentioned diseases:

Anthrax

Anthrax is an infection caused by the bacterium *Bacillus anthracis*. It can be transmitted in four forms: skin, inhalation, intestinal, and injection. Symptoms begin between one day and two months after the infection is contracted. The skin form presents with a small blister with surrounding swelling that often turns into a painless ulcer with a black center. The inhalation form presents with fever, chest pain, and shortness of breath. The intestinal form presents with nausea, vomiting, diarrhea, or abdominal pain. The injection form presents with fever and an abscess at the site of drug injection.

Bluetongue

Bluetongue disease is a non-contagious, insect-borne, viral disease of ruminants, mainly sheep and less frequently cattle, goats, buffalo, deer, dromedaries, and antelope. It is caused by the Bluetongue virus (BTV). The virus is transmitted by the midge *Culicoides imicola*, *Culicoides variipennis*, and other culicoids. Major signs are high fever, excessive salivation, swelling of the face and tongue and cyanosis of the tongue. Swelling of the lips and tongue gives the tongue its typical blue appearance, though this sign is confined to a minority of the animals. Nasal symptoms may be prominent, with nasal discharge and stertorous respiration. Some animals also develop foot lesions, beginning with coronitis, with consequent lameness. In sheep, this can lead to knee-walking. In cattle, constant changing of position of the feet gives bluetongue the nickname The Dancing Disease. Torsion of the neck (opisthotonos or torticollis) is observed in severely affected animals.

Aujeszky's disease

Aujeszky's disease, which is also known as pseudorabies, affects pigs. It can also infect: cattle, sheep, cats, dogs, rats. Aujeszky's disease is generally spread by direct, nose to nose, contact between animals. The virus can also become airborne and spread over longer distances. It can also be spread through objects contaminated with the virus.

Bovine spongiform encephalopathy (BSE)

BSE is an infectious disease that primarily affects the central nervous system. Symptoms are not seen immediately in cattle due to the diseases' extremely long incubation period. Some cattle have been observed to have an abnormal gait, changes in behavior, tremors and hyperresponsiveness to certain stimuli. Hindlimb ataxia affects the animal's gait and occurs when muscle control is lost. This results in poor balance and coordination. Behavioural changes may include aggression, anxiety relating to certain situations, nervousness, frenzy or an overall change in temperament. Some rare but previously observed symptoms also include persistent pacing, rubbing or licking. Additionally, nonspecific symptoms have also been observed which include weight loss, decreased milk production, lameness, ear infections and teeth grinding due to pain. Some animals may show a combination of these symptoms, while others may only be observed demonstrating one of the many reported. Once clinical symptoms arise, they typically get worse over the upcoming weeks and months, eventually leading to recumbency, coma and death.

Leucosis (EBL)

Bovine leukemia virus (BLV) is a retrovirus that may cause lymphosarcoma in cattle. The virus resides in blood lymphocytes where circulating antibodies are unable to neutralize it. Therefore, once an animal is infected with BLV, it is infected for life. BLV is economically significant to the producer because of premature culling or death as a result of lymphosarcoma. Another concern is the condemnation of carcasses at slaughter, which has a significant economic impact on the dairy and cattle industries. Losses from export restrictions are



another economic concern of BLV infection. Countries that have bovine leukosis control programs require BLV-free certification prior to shipping cattle to their regions. Moreover, exporters of semen are under increasing pressure to ensure that their product is from a BLV-free animal in a BLV-free herd.

#### Rabies

Rabies is a viral disease that causes inflammation of the brain in animals. Early symptoms can include fever and tingling at the site of exposure. These symptoms are followed by one or more of the following symptoms: violent movements, uncontrolled excitement, fear of water, an inability to move parts of the body, confusion, and loss of consciousness. Once symptoms appear, the result is nearly always death. The time period between contracting the disease and the start of symptoms is usually one to three months; however, this time period can vary from less than one week to more than one year. The time is dependent on the distance the virus must travel to reach the central nervous system.

#### Bovine tuberculosis

Tuberculosis (TB) in cattle is caused by the bacterium *Mycobacterium bovis*. *M. bovis* is killed by sunlight, but is resistant to desiccation and can survive in a wide range of acids and alkalis. It is also able to remain viable for long periods in moist and warm soil. Bovine tuberculosis is a zoonotic disease and causes tuberculosis in human. The disease can be transmitted in raw milk but pasteurisation effectively prevents the spread via milk.

#### Q fever

Q fever is a disease caused by infection with *Coxiella burnetii*, a bacterium that affects humans and other animals. This organism is uncommon, but may be found in cattle, sheep, goats, and other domestic mammals, including cats and dogs. The infection results from inhalation of a spore-like small-cell variant, and from contact with the milk, urine, feces, vaginal mucus, or semen of infected animals. Rarely, the disease is tick-borne. The incubation period is 9–40 days. Humans are vulnerable to Q fever, and infection can result from even a few organisms. The bacterium is an obligate intracellular pathogenic parasite.

#### Salmonellosis

*Salmonella* spp. infection occurs when a susceptible animal ingests the bacteria. Dairy cattle ingest feed or water that has been contaminated with feces from animals shedding the organism. Salmonellosis has a wide spectrum of manifestations in cattle. Asymptomatic, mild clinical or fulminant bacteremia/septicemia and endotoxemic infections can occur. The manifestations vary with virulence of the strain, infectious dose, and immunity of the host. On many dairies, salmonellosis is an opportunistic infection.

#### Paratuberculosis

Paratuberculosis is a chronic, contagious granulomatous enteritis characterized in cattle by persistent diarrhea, progressive weight loss, debilitation, and eventually death. It is considered a listed disease by the OIE, meaning it is a priority disease for international trade. Distribution is worldwide. The highest published prevalence is in dairy cattle, with 20%–80% of herds infected in many of the major dairy-producing countries. Limited information is available about the prevalence in other species.

#### Bovine virus diarrhea (BVD)

Bovine Virus Diarrhoea (BVD) is a significant economic disease of cattle which is endemic in the majority of countries throughout the world. The causative agent, bovine viral diarrhea virus (BVDV) is a member of the Pestivirus genus of the family Flaviviridae. BVD infection results in a wide variety of clinical signs, due to its



immunosuppressive effects, as well as having a direct effect on respiratory disease and fertility. In addition, BVD infection of a susceptible dam during a certain period of gestation can result in the production of a persistently infected (PI) fetus. PI animals recognise intra-cellular BVD viral particles as 'self' and shed virus in large quantities throughout life; they represent the cornerstone of the success of BVD as a disease.

#### Leptospirosis

Leptospirosis is an infection caused by corkscrew-shaped bacteria called *Leptospira*. Signs and symptoms can range from none to mild such as headaches, muscle pains, and fevers; to severe with bleeding from the lungs or meningitis. If the infection causes the person to turn yellow, have kidney failure and bleeding, it is then known as Weil's disease. If it causes lots of bleeding into the lungs then it is known as severe pulmonary hemorrhage syndrome.

#### *Campylobacter fetus* ssp. *venerealis* and *Tritrichomonas foetus*

Bulls are carriers of the disease as they show no clinical signs but bacteria can be found in the glandular crypts of the bulls prepuce. *Campylobacter fetus* subsp. *venerealis* is therefore spread by coitus or rarely by artificial insemination. It causes catarrhal inflammation in the female genital tract, temporary infertility and prolonged oestrus cycle. Endometritis prevents implantation until the infection is cleared and causes early embryonic death and occasionally sporadic abortion.

#### Yersiniosis

*Yersinia pseudotuberculosis* is a common inhabitant of the intestine in a wide variety of animals. It is spread via the faeces on pasture and in water. *Yersinia* causes enteritis as a result of heavy infection pressure in animals debilitated from other influences, these include cold wet weather, starvation, and lack of water, change of diet, concurrent disease, and management procedures such as yarding or transport. Outbreaks of enteritis are more common in young stock during the winter, early spring.

#### Listeriosis

Listeriosis is an infectious disease caused by a bacterium, *Listeria monocytogenes*. It is a zoonotic disease. There is a high incidence of intestinal carriers. Encephalitis or meningoencephalitis in adult ruminants is the most frequently recognized form. The reservoirs of infection are the soil and the intestinal tracts of asymptomatic animals. Infected animals can shed *L. monocytogenes* in the feces, milk and uterine discharges. It is also found in aborted fetuses and occasionally in the nasal discharges and urine of symptomatic animals. Soil or fecal contamination results in its presence on plants and in silage.

#### Foot and Mouth Disease (FMD)

Foot-and-mouth disease or hoof-and-mouth disease (*Aphthae epizooticae*) is an infectious and sometimes fatal viral disease that affects cloven-hoofed animals, including domestic and wild bovids. The virus causes a high fever for approximately two to six days, followed by blisters inside the mouth and on the feet that may rupture and cause lameness. Foot-and-mouth disease (FMD) has severe implications for animal farming, since it is highly infectious and can be spread by infected animals through aerosols, through contact with contaminated farming equipment, vehicles, clothing, or feed, and by domestic and wild predators. Its containment demands considerable efforts in vaccination, strict monitoring, trade restrictions, and quarantines, and occasionally the killing of animals.

## Conclusions

Today, milk production in Ukraine is an integral part of national food security and support of the socially vulnerable layers of population, as well as one of the main sources of employment and income of rural areas residents.

Nowadays there is such a situation on the dairy market, when in fact 74% of the total milk is produced by private households (PH), while the remaining 26% comes from agricultural enterprises (AE). At the same time, compared to past years, there is a decrease of the share of PH milk production in total milk production in Ukraine. In particular, if in 2010 their share in production amounted to 80,3%, in 2016 it declined to 74%. In general, starting from the year 2010 milk production in Ukraine is reducing on average -1,8% annually, but in the agricultural enterprises is growing about + 3% annually.

Reasons for this phenomenon are multiple: inconsistent pricing policy of the major participants in the market, which significantly reduces the profitability and the motivation for the development of dairy farms, slow formation of distribution system and lack of service cooperatives.

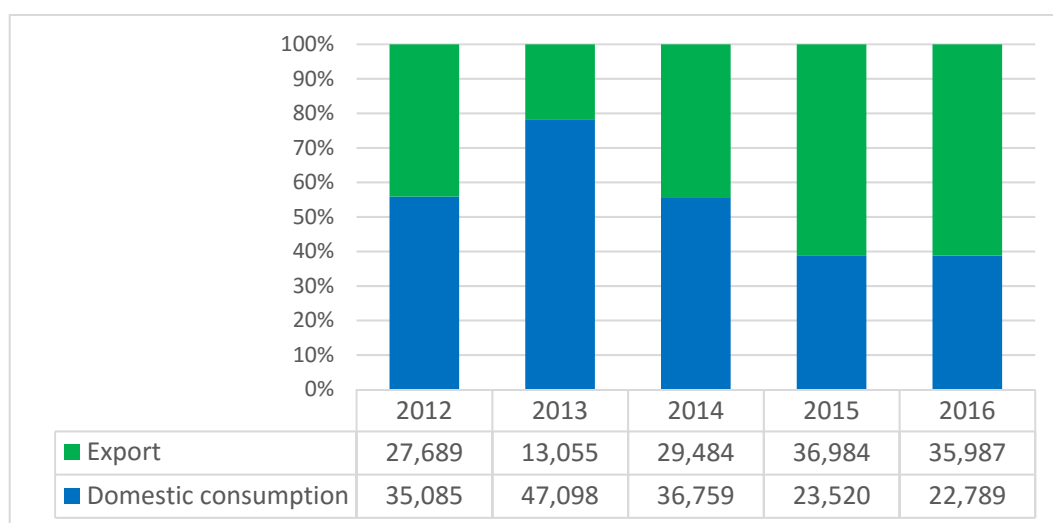
The main problems that restrain the development of the dairy industry, is directly associated with the reduction of raw milk production and low quality of milk supplied to processing plants. The reason lies in the poor conditions of cows keeping, which leads to the occurrence of the diseases of animals, as well as the absence of primary processing (cooling) of milk in the most PH and AE.

Two main drivers for improvement of Ukrainian dairy sector are external and internal markets.

### External market

Ukraine is a net exporter of dairy products. In 2016, the foreign trade of Ukrainian dairy products was 115,6 million USD (158 million USD exports, imports – 42,4 million USD). In 2014 the Ukrainian market, as well as the world market, felt the crisis-food ban from Russia. Gradually the milk market is recovering after the crisis. A part of the exporters were able to refocus the milk export on the CIS and Asia countries, however, we still can observe a sharp drop in exports of cheese, while minimizing its growth on dry milk. After a food embargo from Russia in 2014, manufacturers of dairy products reoriented their exports from dairy products (processed milk, cheese) to milk powder. In 2015, the export of milk powder increased by 25% compared with the amount of exports in 2014. Ukraine has the potential to export of milk powder and dairy products.

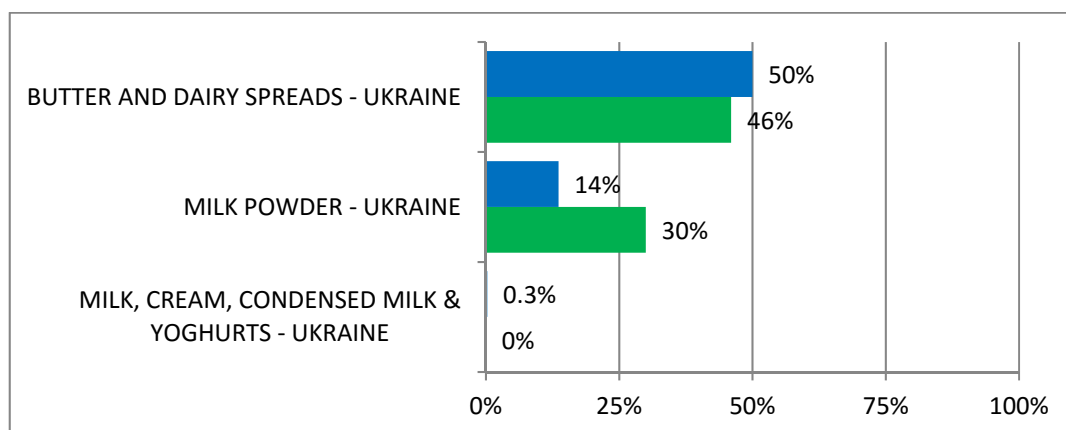
**Table 10.1 The dynamics of exports and consumption of milk powder in Ukraine**



Source: State statistics service of Ukraine

In 2016 the first export of milk products was made within the DCFTA. In 2017 the volume of exports began to increase. As of March 2017 Ukraine has used the 50% quota for duty-free exports of butter and 14% of export quotas for milk.



**Table 10.2 The dynamics of the use of quotas within DCFTA, 2016/17**

Source: European Commission

**Table 10.3 The amount of quotas within DCFTA**

Product	Quota size, t	Linear increase in 5 years to
<b>First come - first served</b>		
Milk-cream processed products	300	500
Fermented-milk processed products	2 000	-
Processed butter products	250	-
<b>Import license</b>		
Milk, cream, condensed milk and yogurts	8 000	10 000
Milk powder	1 500	5 000
Butter and dairy spreads	1 500	3 000

Source: European Commission

In 2017, already 16 Ukrainian dairy companies have the right to export dairy products to the EU countries according to DCFTA. A list of companies that have permission to export to the EU is follows:

1. "Loostdorf" Ltd
2. Limited Liability Company "Lasunka"
3. "Molochniy Dim" Ltd
4. PJSC "Zhytomyr Butter Plant"
5. Subsidiary PJSC "Yagotynskiy Butter Plant" "Yahotynske Dlia Ditei"
6. PJSC "Lactalis-Mykolaiv"
7. LLC "GADYACHSYR"
8. PJSC Dubnomoloko
9. Nedryhailivskyi Cheese Department Branch "Romny Dairy Plant" Private Enterprise "Ross"
10. Branch "Romny Dairy Plant" Private Enterprise "Ross"
11. "Capsular" LLC
12. Limited Liability Company "Danon Dnipro"
13. PJSC "Zolotonosha Butter-Making Combine"
14. Kaniv Branch Of LTD "CHEESE CLUB"
15. Public Joint Stock Company "VINNITSA DAIRY PLANT "ROSHEN"
16. Private Enterprise Consulting Firm "Prometheus" Branch "Mena Cheese"

### Chain comparison of the dairy sector in Ukraine and Netherlands

Foreign market is perspective for Ukrainian producers of dairy products, but the discovery of new markets for export (after the Russian food embargo), exploring the tastes of new consumers and new markets requires a lot of time. Therefore, the export potential of the Ukrainian dairy products has long term perspective and can show a valuable results at least in 5-10 years.

#### Internal market

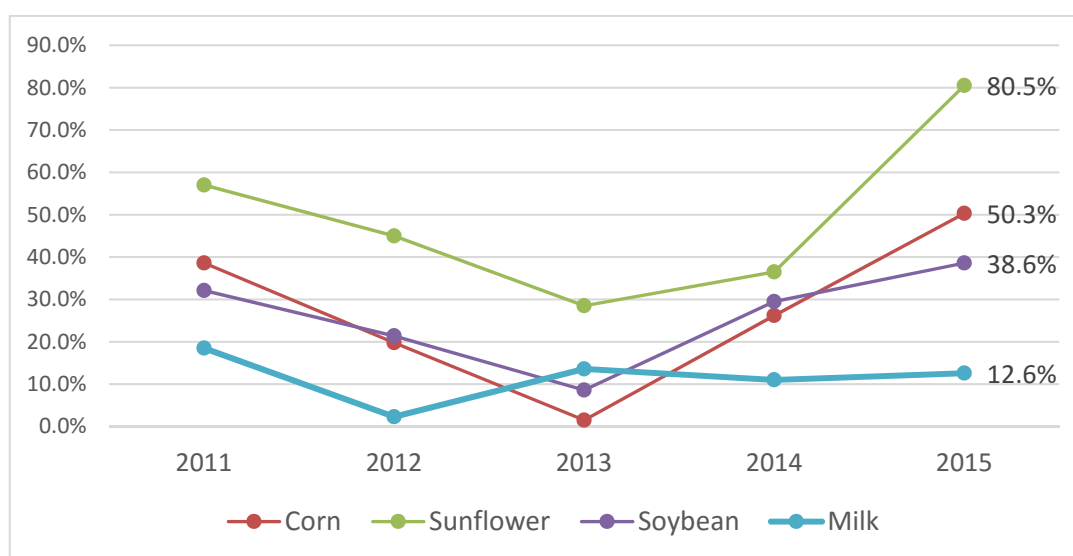
Ukrainian domestic milk market is represented by three main players: agricultural producers of milk, state and processing enterprises.

#### Agricultural producers

More than 2/3 of the milk in Ukraine is produced by PH, and only the third part by the agricultural enterprises. The first keep cows mainly for their own needs, but also provide milk to milk processing entities to get more or less stable income. However, the crisis situation in the country leading to an increase in the cost of keeping cows and drop of the procurement prices for raw milk, which has forced them to refuse from keeping cows. During the last 10 years the number of cows in PH decreased by 33% or 794 thousand heads. In addition, the existing problems of PH in the milk sector are caused by the low quality of raw milk, which affects its purchasing price.

However, the agricultural enterprises are also not interested in the production of milk, because most industrial farms are characterized as mixed-type farms, where in addition to the keeping of dairy herds there is also a plant production for maintaining profitability.

**Table 10.4 The profitability of milk and cereal/oilseed for 5 years**



Source: State statistics service of Ukraine

During the last 5 years the profitability of milk production was staying approximately at the level of about 12%. However, we can notice that the profitability of grain and oilseeds cultivation exceeds the profitability of milk production. Thus, the profitability of sunflower is about 80,5%, corn 50,3%. At the same time, the fall of the procurement prices for milk or rising costs of keeping the herd force AE to switch their production to crops (corn, sunflower, or soybean). There are no economic incentives to increase production of milk, because of it the number of cattle continues to decrease.

Another factor affecting the dairy industry is the land market. Currently, land acts as a social factor. PH have their own share of land and use it for grazing in order to minimize the costs of keeping the dairy cows. Instead, after the opening of the land market in Ukraine and further development of the industry on an existing scenario, for the residents it would be more profitable to sell their share of land to the AE, rather than keep the share for grazing, which in most cases is unprofitable. In nearest future it may lead to further decrease in the number of dairy cows.

## Chain comparison of the dairy sector in Ukraine and Netherlands

It is also worth noting that keeping dairy livestock requires significant investments and takes much more time for paybacks. At present, the extensive use of relatively cheap farmlands allocated for crop production is more profitable than engaging the same lands in livestock production.

### State

By 2017 the only state support for farmers producing milk and milk products was the subsidy in form of return of VAT from the sale of dairy products. This subsidy was formed by the return of VAT from the sale of dairy products, while the funds were accumulated in a special account of each company. From 1 January 2017 special regime was completely abolished and dairy producers were switched to a common system of taxation.

Such changes in the legislation made milk business more complicated, encouraging producers to go out of business. At the legislative level, the state is trying to regulate the milk market and support farmers. However, if we consider government support over the past 3 years - little was actually changed.

Over the past 3 years four drafts of laws were rejected by the state. There are currently 5 processing and 4 adopted in first reading bills but none of them has yet entered into force. The basis of these laws is implementation of price controls and regulation of minimum purchasing prices for raw milk, also dairy products quality regulation, labeling milk containing products and regulation of food safety and quality of dairy products.

We can say that the support of dairy producers from the state is minimal. Milk prices are not regulated, direct subsidies are absent, no support in attracting preferential loans to upgrade technical equipment or herds. In the state budget for 2017 it is planned to allocate 170 mln UAH for the development of the livestock industry in general. This amount is insignificant. For example, in 2015 only industrial milk producers spent about 9.2 bln UAH on production of dairy products. The lack of subsidies in an unfavorable market conditions and the lack of clear support of milk producers from state contributes to the further decline of the dairy industry. Taking into account the activities of the state in recent years and the current political situation in the country, state participation in the regulation of the dairy industry in the near future would not change.

## Chain comparison of the dairy sector in Ukraine and Netherlands

**Table 10.5 List of Ukrainian bills concerning regulation of dairy market**

Table 10.5 List of Ukrainian bills concerning regulation of dairy market		
Number, date of registration	Name of the bill	Description
2089-1 from 24.02.2015	Draft Law on Amendments to Certain Legislative Acts of Ukraine (regarding state regulation of the purchase price of milk)	<p>The main objective of the bill is to establish state regulation of minimum purchasing prices for raw whole milk commodity second grade. It was proposed to set minimum purchase prices for whole milk in the following sizes:</p> <ul style="list-style-type: none"> <li>- Milk quality extra - 5 UAH for 1 liter of whole milk;</li> <li>- The milk of the highest quality - 4.5 UAH per 1 liter of whole milk;</li> <li>- Milk first grade - 4.25 UAH per 1 liter of whole milk;</li> <li>- Milk quality second - UAH 4 per 1 liter of whole milk.</li> </ul>
3043 from 07.09.2015	Draft Law on Amendments to Certain Legislative Acts of Ukraine (regarding the fight against counterfeiting dairy products)	Proposed the creation of conditions for a clear separation of products on the shelves of trade, which legally bind the company to place separately dairy products from milk contained products.
0901 from 27.11.2014	Draft Law on Amendments to the Law of Ukraine "On milk and milk products" and other acts to strengthen measures against falsification of dairy products	Law to prevent the falsification of dairy products and provide clear and full information to consumers about the products they purchased.
1485 from 16.12.2014	Draft Law on Amendments to the Final Provisions of the Law of Ukraine "On the production and turnover of organic agricultural products and raw materials" regarding labeling requirements for dairy products containing probiotics	The bill is designed to delay the ban use of the word with the prefix "bio" in the labeling of dairy products whose production according to the regulations involves the use of probiotics to prevent possible losses entities when stopping the production of bioproducts.
<b>Bills that are expected to be considered</b>		
Number, date of registration	Name of the bill	Description
1039 from 27.11.2014	Draft Resolution on the procedure of state support individuals that produce milk	It is proposed to establish mandatory state regulation of wholesale prices for whole milk (not undergone any treatment, processing or packaging for the purposes of sale).
3043-1 from 23.09.2015	Draft Law on Amendments to the Law of Ukraine "On milk and milk products" (on milk contained products)	The bill is expected to introduce the concept of "milk contained product", set specific requirements on labeling and sale of these products.
1038 from 27.11.2014	Draft law on amendments to some legislative acts of Ukraine concerning strengthening the responsibility for administrative violations in the field of economic competition, namely: milk, sugar, grain, etc.	The bill aims to prevent further violations of legislation on economic competition..

## Chain comparison of the dairy sector in Ukraine and Netherlands

4126-1 from 04.03.2016	Draft Law on providing information to consumers about food	The draft law establishes legal and organizational framework providing consumers with information about food products to ensure a high level of protection of public health and meet their social and economic interests.
4589 from 04.05.2016	Draft Law on Amendments to Some Laws of Ukraine regarding food safety	It is proposed to create an appropriate legal framework for the effective operation State Service for Food Safety and Consumer Protection of Ukraine in quality control and food safety and remove existing differences in legislation.
<b>Adopted (first reading but not yet in active)</b>		
2089 from 10.02.2015	Draft Law on Amendments to Certain Legislative Acts of Ukraine regarding state regulation of prices for milk procurement and support village	The main objective of the bill is to establish state regulation of minimum purchasing prices for raw whole milk commodity second grade.
0906 from 27.11.2014	Draft Law on Inspections carried out in order to verify compliance with the law on safety and quality of food and feed, animal health and welfare	This draft law is designed to harmonize the legislation of Ukraine on state supervision (control), carried out to check the legislation of Ukraine on the quality and safety of food, feed, health and welfare the EU Regulation 854/2004, 882 / 2004, № 669/2009 and Council Directive № 97/78 / EC. In this bill provides for state control of raw milk and colostrum.
1699 from 12.01.2015	Draft Law on Amendments to the Tax Code of Ukraine to support the agricultural	The main purpose of the bill is to provide opportunities to continue receiving compensation for agricultural producers from selling to processing enterprises their milk and meat.
1580 from 22.12.2014	Draft Law on Amendments to Certain Legislative Acts of Ukraine on simplification of the business environment (deregulation)	Cancelled 1-2 of Article 9 Law of Ukraine "On milk and milk products", that is no longer required in the production of milk, raw milk and milk products the availability of operating permits for facilities (facilities)

Source: The law of Ukraine

### Processors

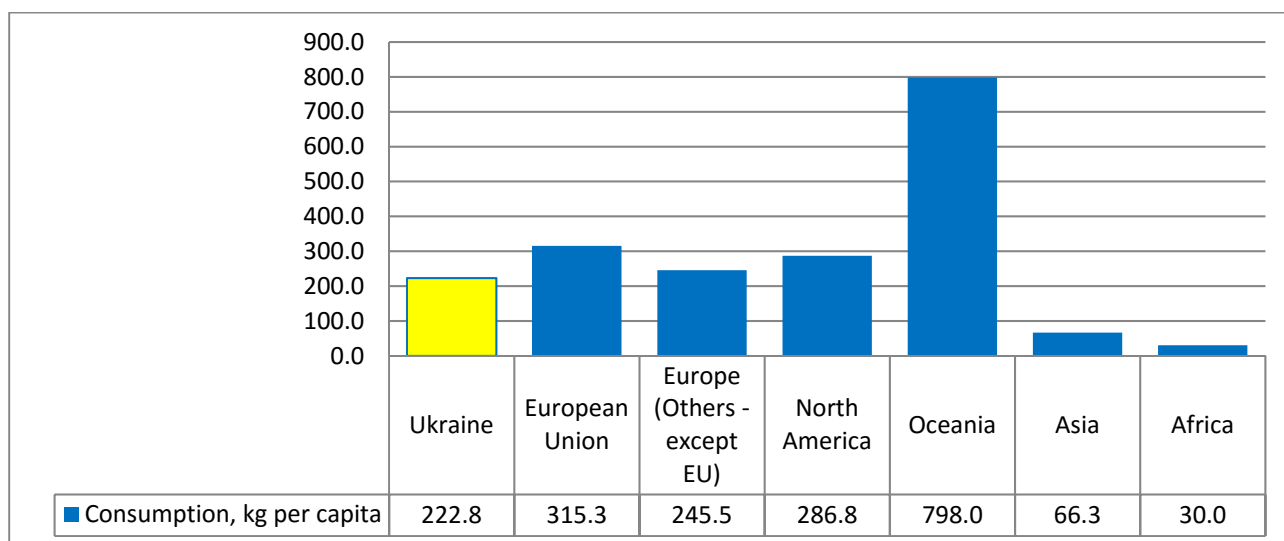
One of the main distribution channels are milk the processing companies that buy today about 40,3% of all raw milk produced in the country. However, in recent years the ratio has changed significantly in the structure of milk processing enterprises among small private farms and enterprises which operate using industrial technology. From about 4,2 million tons of milk, which was gained in 2016 for processing, about 60% was received from farms, while 29% - from PH, and the rest - from other supply channels. In 2010 the ratio was completely different - 39% of milk was supplied by agricultural enterprises and 53% from PH.

Currently, processors are the market players who are most interested in its development. First of all, many processors have invested in their own business and are interested in return on investment. Secondly, they have only milk- processing business that they can only deepen and diversify. Processors can not switch their production to crop of oil production as AE can do. Thirdly, due to the trade restrictions from Russia the processors have lost their traditional export markets and are driving force to expand the geography to new markets.

Processors are interested to milk production not just grows, but at least remain at current level. Production in PH decreases, the number of cows in all categories also decreases. Those players who have remained in the market have to increase the productivity of cows in order to keep balance to produce dairy products. Considering the dynamics of the reduction of the number of cows and milk production, accordance with a similar scenario of the industry, production capacity in the next 4 years will remain at 10-10,2 million tons. This output will be sufficient to provide milk processors in volume 4 -4.2 million tons per year. However, to maintain this balance considering reducing the number of cows in all farms the productivity of cows must be increased to min 6,4 tons per cow, while taking into account the share of enterprises in production of milk they have to increase productivity to 7,2 tons per head per year. In modern conditions this increasing performance is possible only by updating dairy cattle in favor of more productive foreign breeds and improving technological equipment.

The domestic market is the most promising in terms of increasing the volume of production and sales of milk and dairy products and the dairy industry as a whole. Analysis of internal market show that Ukrainians do not consume enough milk.

According to State Statistics in 2014 the average annual consumption of milk and dairy products in Ukraine amounted to 223 kg per person, in 2015 - 210 kg, and in 2016 at 210.5 kg per person. This is despite the fact that the Ukrainian Ministry of Health recommended consumption rate of milk by 380 kg per person.

**Table 10.6 Consumption of milk by regions in 2014**

Source: *Source: State statistics service of Ukraine, Dairy Economic Consulting firm, CLAL*

Comparing the average milk consumption in Ukraine with the rest of the world we can observe the rise of consumption by 5,4% in 2015 compared to 2000. In spite of the considerable increase of dairy products consumption, this level is still much lower than the rational biological norm and it is much lower than the milk consumption in the EU countries. In 2014 the consumption was 222,8 kg/person per year, while in Europe the average consumption was 315,3 kg/person per year. The Ukrainian Ministry of health states that the optimal consumption is 380 kg/year. Therefore, according to The Ministry, Ukrainians should consume about 16,3 million tons of milk per year (as of population in 2015) when the real amount of consumption reached 9 million tons, so Ukrainians consume 7,3 million less tons of milk and dairy products. If Ukrainians consume milk as an EU country (315,3 kg per person) the volume of consumption will totaled 13,5 million tons. Actually, Ukraine can increase the consumption of milk and dairy products by 4,5 million tons per year. Economically the purchasing power allows to increase the consumption of dairy products, the problem is – there is not enough milk.

As purchasing power grows and Ukraine has more beneficial conditions for dairy product exports, the country has substantial potentials to raise production and sales of dairy products at the domestic market.

In this situation, the main drivers of the development of the dairy industry in Ukraine are processors. In fact, the producers of milk reduce the number of cattle each year and switch to more cost-effective cultivation of grain and oil crops. Government support of the industry is minimum. Instead, processing companies already have invested a lot of capital in production plants, they are grouped and understand that dairy market should develop to their investments can be returned. Processors are really the only one who interested in increasing milk production, improving its quality characteristics. The Ukrainian dairy market is already presented by the big international players like Danone, Lactalis and Bel Group.

The Ukrainian dairy is characterized by the following factors:

1. Decrease of dairy livestock still has not been reversed, which is observed in all types of agricultural farms and in individual households.

2. Milk processing sector is currently presented both by a large number of national companies and multinationals (particularly, French and Russian companies), which starts playing a more important role on the dairy product market. The top world dairy companies have also demonstrated an increased interest in the dairy sector in Ukraine. From this perspective, we may expect a certain increase of the share of international companies in the national dairy sector.

3. Demand for high-quality raw materials from the milk processing sector, which is caused by the need to expand export markets, has been constantly on the rise. This provides incentives for milk processing companies to invest into the development of local raw materials zones and to raise the productivity and efficiency of dairy farms.

4. Increase in population's incomes may cause the rise of milk consumption.

#### **Weaknesses and possibilities of the Ukrainian dairy**

- *The prevalence of households in the total raw milk supply*

PH produce the largest share of milk, but this milk is a low quality (mostly second grade according to Ukrainian standards). In connection with increasing prices PH are not interested in keeping cows and reduce the livestock.

- *The low quality of raw milk.*

Along with the low milk quality, the national milk quality standards differ from Western ones, which increase production costs and limit possibilities for national dairies for exporting their products. This is one of the reasons why export possibilities for dairies remain restricted.

- *Feed production for dairy cows on Ukrainian farms generally has a very extensive nature increasing feed costs.*
- *Lack of investments in dairy farming.*
- *Logistics and infrastructure (milk collection, storing and distribution) are also underdeveloped and rather expensive.*
- *The absence of manure processing systems at the majority of enterprises, and first of all, at smaller ones.*
- *Since 2000 milk and milk products consumption per capita has been growing.*

#### *What can Dutch companies do to improve the situation?*

Taking into account the aforementioned, there is an urgent need to attract not only additional investments, but also a technological and managerial know-how at various stages: from the farm to the processing plant and to the end consumer. This will be a way not only to reduce production costs for milk producers and processors, but also to improve the entire dairy industry of Ukraine.

There are several ways to develop Ukrainian dairy industry with the help of the Dutch experience. Firstly, with the help of **processors**, as the most prospective actors of Ukrainian dairy, through the cooperation in realization of different support projects for improving technological and managerial aspects of dairy industry. Some of them already exist in Ukraine.

For example – UCAB with help of the major international players of Ukrainian dairy market – Lactalis Group Ukraine, Danone and Bel Group Shostka – realizes a project UCAB AgriSchool. This project is aimed to solve the problem of personnel shortage in modern agricultural production through professionals' skills improvement in key areas of agribusiness. UCAB created a modular system that covers the entire production,



management and marketing cycle in the production of agricultural products. One of the fields of AgriSchool is “Dairy Cattle Management”. Theoretical course is tightly connected with practical use of knowledge received during modules. Representatives of the leading Ukrainian and world universities, representatives of agribusiness and representatives of the advanced resource companies are also the Lecturers of AgriSchool.

Another way to cooperate is to work together with the field-specific partner like “Association of Milk Producers of Ukraine”. The purpose of this Association is the creation, preservation, restoration and sustainable use of genetic breeding values higher resources to improve existing genetic quality of animals, increase economic efficiency and competitiveness of the dairy farming industry. Association only coordinates economic activities of participants without interference in their production and commercial activities and decision-making.

In addition, one of the perspectives for improvement is realization of independent supporting projects like “Dutch Dairy Training Center” with the help of DIFCO International BV. Institutionally, the project focuses on the Food Safety, Animal Health and Animal Breeding. Many issues hamper Ukrainian dairy export possibilities and have to be tackled in a systematic way with involvement of the complete dairy chain). In addition, DIFCO International BV is specialized in the development and management of agricultural projects in emerging market in the following fields

- Milk production
- Meat production (beef, veal, poultry and pig)
- Crop production

The second but not less important way to improve the situation in the dairy sector is supporting **industrial producers** of milk. Their share in the total production of milk is about 26%. While, according to the state statistics, the average profitability of milk production fluctuates within 12-18%, at the same time the average profitability of crop production, such as sunflower – 47,6%. However, among industrial enterprises there are those, profitability of production which considerably exceeds the average in Ukraine and can compete with the crop production. So, according to the EDF research, there are such enterprises in Ukraine whose profitability in average for the last 4 years, considering the average annual milk prices, is about 30%. In this case, the average profitability of wheat during this period was about 20%, corn – 24,5% and soybeans – 28%. In 2015 the profitability of milk production on the one of the mentioned enterprises (in the EDF research) amounted to 130%, at the same time the average profitability of sunflower was 81%. It means, milk production could be profitable in certain enterprises and even more profitable than crop production. It worth to select those best enterprises and to cooperate with them, introducing Dutch experience by developing technology and improving management on the farm or by using more productive breeds etc. Such players can become an important locomotive for the development of the dairy industry. Taking into account that the number of cows at industrial enterprises for the last 5 years dropped by -16% and at the same time milk production rose by +7% - we can observe the intensification of production by industrial producers which means that some players have already increased their profitability. Further support of the best industrial enterprises that are ready to modernize their production and implement new technologies is the key to success of Ukrainian dairy industry.

Last but not least – **private households cooperation**. Currently, cooperation in the Ukrainian dairy sector develops slowly. However, the successful experience of the dairy cooperatives in the Netherlands shows that profitable agribusiness with cooperatives is possible. But nowadays in Ukraine there are no effective models of milk and dairy products realization through agricultural cooperatives. Establishment of a dairy cooperative is not only a possibility to realize a higher-quality milk for higher prices, but also the opportunity to reduce the costs of milk production and increase margins by processing milk. On the basis of cooperatives private



### Chain comparison of the dairy sector in Ukraine and Netherlands

households will be able to jointly procure equipment and improve performance of their cows through the services and equipment provided by cooperative. According to this, the Netherlands, as the country with the most advanced dairy cooperatives system in Europe, which has a long history of its development, can help the Ukrainian dairy cooperation, the main role in this plays experience in cooperative management. For example, the biggest in Europe, milk co-op Friesland Campina is equipped with powerful material and technical base for collection, storage and processing of milk, has a full cycle of production and sales and realize products to a significant number of consumers. It is a strong player on international market.

Milk production can be profitable and competitive agribusiness, but the process is lengthy and requires investments. First of all, the reconstruction of farms and qualitative improvement of the species composition of the dairy herd, as well as modernization and upgrade of milking systems and equipment optimization for animal feed.

## Chain comparison of the dairy sector in Ukraine and Netherlands

### Attachment

#### *Top producers of dairy products in Ukraine, in 2015<sup>24</sup>*

##### No. 1 “Terra Food”

Revenue: 3,435 billion UAH

Owner: Stanislav Voitovych

The company consists of 19 enterprises that produce whole-milk products, cheese, vegeto-animal mixes and butter under the trademarks “Ferma”, “Bila liniya”, “Tulchynka”, “Premiale”, “Zolotyy rezerv”, “Vapnyarka”. “Terra Food” is the market leader in Ukraine in production of packaged butter and vegeto-animal mixes. This year, “Terra Food” continues to develop high-margin segments of whole-milk products, melted cheese and packaged cheese. In the first half-year of 2016, the company has accounted for a sixth of all melted cheese and cheese-based products produced in the country. This spring, “Terra Food” expanded its range of yoghurts by adding products with muesli and cereals under the trademarks “Bila Linia” and “Ferma”. “Terra Food” exports its products into more than 40 countries, including the Middle Eastern countries, North Africa, the Balkans, as well as China, the US and even North Korea.

##### No. 2 “Molochnyy Alliance”

Revenue: 3,300 billion UAH

Owners: Fedir Shpig, Oleksandr Derkach

Six of the company’s enterprises are engaged in collecting and processing of milk, as well as of production of cheese, whole-milk and sour-milk products. “Molochnyy Alliance” is the leader in the milk sales volume in Ukraine. It accounts for 22% of the market. The company is also No. 1 in production and export of dried-milk whey. The company’s products are distributed under the brand-names “Yagotinske”, “Yagotynske dlya ditey”, “Pyryatyn”, “Slavia”, “Zlatokray” and “Zdorovo”. The company regularly extends its products line-up. In May, at the Pyryatynsky cheese factory “Molochnyy Alliance” has launched an operation of dry milk production, which will mainly be exported; whereas in June the Bashtansky cheese factory has introduced a soft handmade cheese “Provvollone”. The company’s products are exported into 35 countries, including Arabian and Islamic countries. In 2015 one of its brands “Slavia” has been certified for export of milk products into China.

##### No. 3 “Danone Ukraine”

Revenue: 2,100 billion UAH

Owner: Danone SA

“Danone Ukraine” is a division of the French food production group Danone. In our country the company processes 150 000 t. milk per year. It specializes in production of yoghurts, cheese curds and baby food under brands “Activia”, “Actual”, “Actimel”, “Danissimo”, “Masha i Medved”, “Prostokvashyno”, “Rastishka”, “Smeshariki”, “Tyoma”, “Zhyvinka”, “Veselyy Pastushok”. Production facilities of “Danone”Ukraine” are

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<sup>24</sup> LandLord research, 2016

### Chain comparison of the dairy sector in Ukraine and Netherlands

located in Cherson and Kremenchuk. In the last year, the company has invested 200 mln. UAH into production of dairy products for babies. By installing new production lines at the “Kremez” factory it has launched the baby food brand “Tyoma”, which previously was imported from Russia. Now, “Danone Ukraine” can produce about 700 t. of baby dairy products in Kremenchuk. According to Ruslan Vdovenko, the CEO of “Kremez”, the group will increase its production of baby cheese curds and yoghurts up to 4000 t. until the end of the year. Now, this products account for 5% of Danone’s total production in Ukraine.

#### No.4 “Almira”

Revenue: 1,986 billion UAH

Owner: Oleh Balyuk

This vertically integrated dairy holding consists of seven companies located in the Poltava region, which have a combined processing capacity of over 620 000 t. milk per year. They produce dry milk products, butter, cheese, spreads, canned dairy goods under the trademarks “Gadyasyr”, “Lyubas”, “Omka”, “Nashe moloko”, “Molochni dary”. “Almira” is one of the largest producers of cheese and cheese-based products in Ukraine. It controls 23% of this market. Moreover, the company is the leader in production of butter and spreads with a market share of 16%. It also owns one third of the canned dairy products’ market. “Almira” is one of the largest domestic food exporters. It ships abroad one third of condensed milk it produces, 43% of cheese, one fifth of butter and spreads. Its products are exported into more than 50 countries, including the CIS, countries in Africa, Middle East, the US, Mexico, Japan.

#### No. 5 The “Komo” Group

Revenue: 1,780 billion UAH

Owner: Fromer Holding Limited

The group consists of eight companies that produce whole milk products and cheese under the trademark “Komo”. The group’s flagship is the “Dubnomoloko” factory, which produces about 14 000 t. of hard cheese per year, which accounts for almost 10% of the Ukrainian market. In 2016, the company has launched the “Pepenero” hard cheese brand and updated its cheese curds products line-up. Over the last year, the company has renewed its cheese curds production facility, as well as implemented several projects for increasing its energy efficiency. In total, in the renewing of “Dubnomoloko” until the end of 2016 the group will invest 3 mln. EUR. After the Russian embargo on the Ukrainian dairy products, the “Komo” Group actively develops its export capacities, in particular, focusing on the markets of China and Kazakhstan. In June of this year the “Dubnomoloko” has shipped to China first 350 t. of dry whey. Also in 2016, the company plans to export 3 500 t. of cheese, which is almost 1.8 times more than a year before.

#### No. 6 “Zhytomyrskyy maslozavod” – the “Rud” company

Revenue: 1,637 billion UAH

Owners: Petro Rud, Oksana Vivsyk

## Chain comparison of the dairy sector in Ukraine and Netherlands

Zhytomyrsky maslozavod is the market leader of ice cream production in Ukraine. In the last year, its share of this market has reached 32.4%. The company processes 300 t. of milk per day. The facility has the Tetra Pak production line installed, which produces 600 000 ice cream portions per day. Ice cream accounts for 68% of company's total production volume. In 2015, the plant has produced 23 600 t. of this dainty. Almost ice cream is sold on the domestic market – only one tenth is being exported. In the last the company has earned 175 mln. UAH on foreign markets. "Rud" exports its ice cream to Israel, Moldova, Georgia and the US. In 2015 the company was certified eligible for exporting to the EU. Besides of ice cream, the plant also produces butter, skimmed milk powder, sour cream, kefir, yoghurts and frozen vegetable and berry mixes. In May 2015 Zhytomyrsky maslozavod sued the Crimean company "Elit-Crym" for illegally using the trademark "Rud".

### No.7 "Lustdorf"

Revenue: 1,511 billion UAH

Owners: Larisa Ostapenko, Oleh Vasilev

"Lustdorf" specializes in production of dry and drinking milk, as well as butter and milk cream under the trademarks "Na zdorovie", "Buryonka", "Selyanske", "Totosha", "Smachno shef", "Vesela Buryonka". There are more than 100 product items in the company's assortment. At the of 2014, has entered the market for fermented milk products, by starting to produce kefir and fermented milk under the trademark "Selyanske".

A few years ago, 95% of the company's products were sold on the domestic market. The rest was exported to Moldova, Georgia, Azerbaijan, and Belarus. Now "Lustdorf" also exports its products to the EU countries, North Africa, Central Asia, and the Middle East. In February, it was announced that the company will enter the Chinese market. Ivan Evdokimov, the export manager of "Lustdorf", said: "We are working in this direction. But apart from the difficulties in obtaining a permit for exports, it is necessary to take into account the completely different structure of the Chinese market."

### No.8 "Milkiland Ukraine"

Revenue: 1,363 billion UAH

Owners: Anatoly and Olha Yurkevych

Milkiland owns six cheese factories and four whole-milk products factories, as well as "Ostankinsky molochny kombinat" in Russia and "Masovecky Ostrowia" cheese plant in Poland. The last two years have been difficult for the company. In 2015 the production volume has decreased by 36%. The main reason is the introduction of restrictions on exports to Russia. Before the company has exported one half of its products to Russia. It produces dairy products, cheese, butter. In 2015, Milkiland began to produce lactose-free and gluten-free dairy products and the trademark "LatteR". To compensate for the loss of the Russian market, Milkiland has begun to export into more than 30 countries. In particular, Ostrowia sells protein concentrates to the EU. The company is trying to gain a foothold on the Polish cheese market. In July of 2016 "Milkiland Ukraine" began to export dry milk to China.

### No. 9 "Wimm-Bill-Dann Ukraine"

Revenue: 1,362 billion UAH

Owners: “Wimm-Bill-Dann food products” (Russia)

The company is active in Ukraine since 2000. Since the end of 2010, it is a part of the international corporation PepsiCo. It specializes in the production of dairy products and baby food under the trademarks “Agusha”, “Slovyanochka”, “Veselyy molochnyk”, “Chudo”, “Imunele”, “Romol”, “Smachnenka”. Last year, the main product of the group was pasteurized milk – it accounted for 24% of total production. “WBD Ukraine” also produces kefir (18.49%), cheese and cheese products (14.06%), sour cream (10.69%), yoghurts (9.88%). The distribution of the company’s products is handled by one of the largest juice producers – the “Sandora” company. “WBD Ukraine” owns two dairies in Kyiv and Kharkiv. The group also used to own a dry milk plant in the Sumy region, but it was sold in 2014. As explained by the company representatives, this was due to the fact that in the production of dairy products it uses less and less dry milk. In 2015, “WBD Ukraine” has earned 72.8 bln. UAH in net profits, which is 9% less than a year before.

No. 10 “Voloshkove pole”

Revenue: 1,304 billion UAH

Owners: Andriy and Oleksandr Tabalov

The company was created on the base of Cherkassy city dairy factory. Now, it includes three enterprises. To ensure the quality of raw materials, the company has installed coolers in all 200 villages from which it collects milk. “Voloshkove Pole” produces traditional dairy products: butter, sour cream, milk, kefir, and yoghurts. Some of the products are exported to almost 20 countries, including the USA, Asia, Africa, the CIS and the Middle East. According to the CEO Andriy Tabalov, the company aims to be among the five biggest dairy producers in Ukraine. “Voloshkove Pole” optimizes the costs of its dairy products by using new types of packaging. “Our products line-up is balanced and well-represented in the domestic and foreign markets”, says Tabalov, “Now we are reforming the commercial team, and I am sure that we will achieve even better results.”

No. 11 “Vinnytsky dairy plant Roshen”

Revenue: 1,196 billion UAH

Owner: Petro Poroshenko

It is the largest dairy enterprise in Europe. It specializes in the production of butter and milk fat, as well as various types of dry skimmed milk (with varying degrees of heat treatment and protein content). Despite the fact that the sales volume of the company has grown 1.8 times over the past year, the profitability index is crippling. The company’s shape is influenced by dairy prices on the world exchanges. Now they are at their lowest in the last decade. The company exports its products to 40 countries, including Asia, North and Central America, Africa, and the CIS. This year, Roshen has been certified to export dairy products to the EU market. In the next two years, the company intends to invest about 25 mln. EUR into expanding its production capacities.

No. 12 “Lactalis Ukraine”

Revenue: 0,942 billion UAH

Owner: Lactalis

“Lactalis Ukraine” is a part of the international dairy concern, created in 1933 by the French family Benier. The concern owns 237 plants in 42 countries; its products are sold in 170 countries. In Ukraine, the company has been active for 20 years. It produces 150 brand names. The most famous brands: “President”, “Galbani”, “Dolce”, “Fanni”, “Lactonia”, “Lactel”. The company’s production facilities are located in Mykolayiv and Pavlograd. These plants are among the licensed exporters of dairy products to the EU. The company was the first to start creating the milk reception points in villages, which are equipped with special coolers and mini-laboratories. Now “Lactalis” owns 400 such points. Lately, “Lactalis Ukraine” has been actively expanding its exports, selling now to Moldova, Georgia and the UAE. In the spring the company has begun to export its dairy products to the Maldives and Saudi Arabia. However these exports are not systemic, the main task is to study the consumer demand there.

#### No. 13 “Ternopil milk plant”

Revenue: 0,868 billion UAH

Owners: Sergei Baranovsky, Vitaly Kovalchuk, Evgeni Lebjak, Victor Narol'skij

The plant produces milk, butter, kefir, sour cream, yogurt and cheese under the brand name “Molokia”. Its facilities allow to process 300 tons of milk per day. In 2015 the plant produced about 53 000 tons of dairy products, out of them 68% - whole milk products. Raw materials company buys directly from farms. In 2014 Ternopil plant first time in Ukraine began to use German Fresh milk technology, which gives the opportunity to pasteurize milk at low temperature (about 75 °C) in 30 seconds. Such thermal processing allows to save vitamins and useful microflora. The company has 13 sales offices in Ukraine. Ternopil milk factory cooperates with Polish company Mlekovita. This spring, the Polish company produced under the trade mark “Molokia” line of hard cheese “Dutch”, “Mazdamer” and “Tyl'zhickij”. In 2015 company increased its profit by 39% to 28,7 million UAH.

#### No. 14 “Pridneprovsky combine”

Revenue: 0,789 billion UAH

Owners: Victor and Andrew Veretennikov, Tatyana Nenarochkina

“Pridneprovsky combine” was founded on the basis of the Dnepropetrovsk factory No. 2. The company includes four dairy enterprises. Everyday they processed more than 250 tons of milk that comes from five farms in Dnipropetrovsk region. Their products combine releases under the brand “Zlagoda” and “Lyubimchik”. For production of dairy products on the ancient recipe, the company undertook the reconstruction and installed thermostatically controlled chamber. With a share of 16%, the combine is in the top-4 of the largest manufacturers of baby food in Ukraine. It produces milk for babies, liquid milk mixture and milk products under the trade mark “Zlagoda”. In addition to the production of fermented milk products and infant nutrition, combine develops its own chain of stores.

#### No. 15 “Ukrproduct group”

Revenue: 0,717 billion UAH

Owners: Sergey Evlanchik, Alexander Slipchuk

Specializes in the production of packaged butter and processed cheese. The company consists of four factories with a total capacity of about 70 000 t of dairy products a year. "Ukrproduct group" manufactures products under the trademarks "Kremlevskoye", "Nash molochnik", "Fermerskoye", "Vash molochnik", "Vershkova dolina", "Narodnyy produkt", "Molendam" i "Nash syrok". The company also manufactures and exports industrial dairy products: milk powder, whey powder, cheese, butter and industrial casein. At the beginning of the year, the company agreed to restructure a loan at 11 million euros from EBRD. As a result, the repayment of the debt was delayed for six years. In the past year due to the devaluation of the UAH companies` revenue decreased by 37%, to 20,16 million pounds.

#### No. 16 "Kupyanskij molochnokonservnyj Kombinat"

Revenue: 0,671 billion UAH

Owners: Alexander and Lyudmila Radchenko

"Kupyanskij molochnokonservnyj Kombinat" manufactures milk and whole milk products under the brands "Molochnaya sloboda", "Zarech'ye", "Nasoloda". Enterprise processes daily 600 tons of milk. Around 90% of raw materials company buys from dairy farms in Kharkiv, Luhansk and Dnipropetrovsk. Its collection points company equipped with tanks-coolers of the Swedish company DeLaval. Main products - canned milk, condensed with sugar. Company produces eight types of these products. All of them are produced according to State Standards without adding of vegetable fats. To diversify the business, enterprise also started producing milk and dairy products with short-term realization — from 72 hours up to 14 days. In the past year, the "Kupyanskij molochnokonservnyj Kombinat" increases net profit by 15 percent, to 212 million UAH.

#### No. 17 "Lasunka"

Revenue: 0,595 billion UAH

Owners: Amalia Aksjutina, Natalia Morenec, Ivan Pischanskij

"Lasunka" — the second largest icecream manufacturer in Ukraine, with a market share of 19%. The company consists of four enterprises, headquartered in the Dniepro. "Lasunka" produces more than 100 types of products. In 2015 it has released 18 391 tons of ice cream, which is 10,4% less, than a year earlier. On the AR-group data, company is the leader in the Ukrainian ice cream exports. Accounting for 57,2% of the total exports of ice cream from Ukraine. In last year, "Lasunka" boosted exports by 78% and sent to the external markets 2 592 t of ice cream (that is 15% of its production volumes) for 113,7 million UAH. Its products are exported to Russia, Moldova and Israel. In the Russian Federation and Moldova company has its offices. Over the past year "Lasunka" released several new products, in particular, ice-cream "Tri bazhannya", "Morozivo yak ranishe", as well as warm ice cream "Malyuk-Am" for the youngest buyers. It does not contain any vegetable fats, dyes and preservatives.

#### No. 18 "Bel Shostka Ukraine"



Revenue : 0,586 billion UAH

Owners: SICOPA

(Societe Industrielle et Commerciale de Participation)

In 2007, one of the world's leading producers of cheeses the French group Bel acquired 71,2% of "Shostka gormolkombinat". The new owners sold all non-profitable assets and focused only on cheese production. "Bel Shostka Ukraine" sells hard and processed cheeses, as well as powdered dairy products under the trademarks "Shostka" and "Vesela korivka". In Ukraine, it owns about 4 percent of the market. The plant makes its products from Ukrainian raw materials but according to the French technology. In 2015, company produced around 10 000 tons of hard and soft cheeses. It also brought to the market new cheese: "Tomato with French herbs», "Toplene Moloko", "Yantar", "Gouda" and "Holland". On finding new products "Bel Shostka Ukraine» spent about 2 million UAH. Around 5% of its production is exported to Moldova.

No. 19 "L'vovskiy khladokombinat"

Revenue: 0,548 billion UAH

Owner: Bogdan Kopytko

With a market share of 18%, the company is no. 3 on the ice-cream market. Under the trade mark "Limo" it produces more than 150 kinds of this product. A large share of ice cream "Limo" is selling on the domestic market. On the external markets is sent only 6,6 % of total ice cream exports from Ukraine. In 2015 revenues of the plant from exports amounted to 12,1 million UAH. Company sells ice cream to Moldova, Georgia, Azerbaijan and Israel. "L'vovskiy khladokombinat" invests over 1,5 million USD in upgrades. It recently bought, from the European company "Ice Group", two powerful lines that produce up to 12 000 portions of ice cream per hour. The company plans the construction of a new plant with capacity of 16 000 tons of ice cream per year, which will produce annually up to 40 000 t of these products. Factory also manufactures frozen fruits and vegetables. In 2015, it suggested Ukrainian consumers – dumplings. Last year, the company's production volume increased by 26,6%.

No. 20 "Galichina"

Revenue: 0,505 billion UAH

Owners: Brosmont Holdings Limited (Cyprus)

Three Lviv entrepreneurs founded "Galichina" company in the 1998: Andrew Korol, Sergei Gibaem and Yuriy Lozhkinym. Milk, sour cream, kefir, yoghurt, masljanku, cheese, butter and spreads it produces under the brands "Galichina", "Moyi korivki", "Molochna rodina", "Molochar". Plant of the company is located in city Radekhiv in Prykarpattia. Processing capacity of the enterprise — 500 tons of milk per day. "Galichina" takes all raw materials from the Prykarpattia region. It works with both large farms and private households. The company has more than 600 collection points. They all have a professional refrigeration equipment. Modern milk tanker –refrigerators daily deliver milk to the factory. Its products company prefers to sell on the domestic market.

No. 21 "Ichnya condensed milk combine" (IMCC)

Revenue: 0,489 billion UAH

Owners: Valentin Zaporoshchuk, Vladimir Horuzhenko

The company is a part of a group of companies producing tinned dairy products – PRAVIO, owned by businessman Valentina Zaporoshhuka. The Group is also engaged in crop and livestock production. IMCC specializes on the production of  $\phi$  long shelf life and condensed milk under the trademarks "Mama Milla", "Ichnya", "Milada". Specialty of IMCC is the full closed cycle production. In addition to the modern equipment at the plant, it is also equipped with the park of milk collection trucks stations with the opportunity to check the quality of raw materials (milk). The company has a modern laboratory that monitors quality and microbiological indicators of raw materials and the technology of production of canned milk products. In specialized tasting room there are conducted tastings of its own products and competitors' product samples. More than half of the production is exported to 40 countries, including China, Moldova, Egypt, Tunisia, South Africa. It has its own distribution company – "Proviant".

No. 22 "Zvenigorodsky cheese factory"

Revenue: 0,452 billion UAH

Owners: Savencia Fromage & Dairy Europe (France)

In 2001 year, the combine became a part of the major French company Savencia Fromage & Dairy. It produces hard, processed and fermented cheeses, butter, whey powder under the trademark "Zveny Hora". Basic income brings manufacture of hard cheeses — 65% of total production. Over the past year, the company produced 4 621 t of this product up to 306,7 million UAH. Combine plans to develop a line of premium-class cheeses. In July its shareholders decided to increase the statutory capital by 50 million UAH by additional issue of shares. Borrowed funds they will direct to the repayment of debts, purchase and modernization of fixed assets, current funding needs. Over the past year, company increased its profit at 2,8 times, to 9,5 million UAH.

No. 23 group of companies MOLIS

Revenue: 0,411 billion UAH

Owner: Sergey Goldobin

Both plants of MOLIS group are located in the Zaporizhia region. The company produces more than 60 types of dairy products under the trademarks "Molis", "Molique" and " Molochnyy pan ". The main focus is to manufacture cheese. In 2015 it released around 5 000 tons of hard cheeses and 1 500 tons of processed cheese and cheese products. This is 7,5% lower than a year earlier. The Group also produces the sour cream, cottage cheese desserts , butter and spreads. In March 2016, "Molis" decided to raise 65 million UAH by floatation of bonds. These money will be used to increase production volumes. In March this year, one of the largest producers of dairy products, Stanislav Voitovich's company Terra food», has sued the MOLIS. "Terra food" claims that label of butter "Molique" graphically and by color is the same as the label of "Terra food"'s butter "Ferma". As a result, Voitovich's company loses profit.



No. 24 "Litinsky milk processing plant"

Revenue: 0,289 billion UAH

Owner: Peter Tihoniyk

The plant produces whole milk products, butter, hard and processed cheeses, dry milk products under the trademark "Bilozgar. Hard cheese " Bilozgar Extras " is made on company`s own unique technology. Totally in 2015 plant produced 7 500 t of dairy products. On the external market, "Litinsky milk processing plant" exports 10,6% of production up to 30,7 million UAH. Basically, it is milk and whey powder. Company exports to Syria, Turkey, Singapore, Vietnam, Pakistan, Myanmar, Korea, Armenia, Algeria, Moldova, Egypt, Georgia and Kazakhstan. Since January this year, the enterprise has received permission to export to China. In 2016, the plant planned to reconstruct the butter production department, dividing the milk spill and the production of fermented milk products and yoghurts. The sum of investments amounted up to 20 million UAH. Company has own brand-name stores in Vinnytsia, Khmelnytsky, and Litin. In 2015 enterprises` profit decreased by 65%, up to 4,2 million UAH.

