INFLUENCE OF WORLD TRENDS AND PECULIARITIES OF NATIONAL ECONOMY ON DEVELOPMENT OF MEAT INDUSTRY OF UKRAINE

Olga Kovalenko,
doctor of economic sciences,
senior research worker,
head of the department of economic research,
e-mail: okovalenko0960@gmail.com,

Hanna Lysenko, graduate sudent,
junior research worker of the department of economic research,
e-mail: lisenko-anja@ukr.net,

Sergii Verbytskyi,
candidate of technical sciences,
head of the department of informational support,
standardization and metrology.
Institute of Food Resources
National Academy of Agrarian Sciences of Ukraine
Kyiv, Ukraine
e-mail: chaink@ukr.net

Abstract: *This article gives information on the recent developments, current state and prospects of meat and meat products market in Europe and throughout the world. The importance of meat products for the proper nutrition is characterized; the role of the meat and meat-processing industry in providing consumers with valuable meat products is stressed, these being rich with proteins and other nutrients noted. Prospects and opportunities for development of large transnational operators of the meat market and also of local meat processing enterprises these close to sources of raw materials are described. The characteristics of the machinery and raw materials bases of the meat industry of Ukraine as well as personnel potential are given. The detailed description of the dynamics of the development of food, including meat, industry in recent years, as well as current information about the technical and economic state of the meat industry in early months of 2017 are adduced.*

The conclusion is made that the conjuncture of the world and European market of meat and meat products is developing in such a way that there exists effective demand for these types of goods, and that the said demand will grow in the medium term with, the prerequisites for the growth of meat consumption in the domestic market of Ukraine being also evident. To realize the existing potential of the meat industry in Ukraine, it is necessary to increase the number of pigs and cattle, to reduce the energy intensity and material consumption of meat production, to provide it with modern technological equipment, and to ensure the welfare of our citizens, the latter being a prerequisite for the solvent demand inland.

Keywords: *food industry, meat processing industry, meat, meat products, fixed assets, production facilities, labor potential, exports, imports.*

JEL Classification: F14, L10, M21, O14, O40
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Products of the slaughter animals and agricultural poultry processing belong to the number of principal sources of protein in the human nutrition. Proteins are necessary nutritive substances for the human organism. Their presence promotes vital activity of its tissues, forming new cells and enzymes. Proteins are also a source of energy for the human organism. Differing by amino acid nomenclature and quality, these are a part of contents of different products of vegetable and animal origin. The overall capacity of potential sources of proteins throughout the world depends upon the present natural resources together with the production technologies available, while the demand – upon the population parameters and the protein content of the food consumed [1].

According to UN assessment, the world population is to reach 9.6 billion by 2050. Sequentially the 60% rise in demand for foods and enhancing of their content are is expected, and the said content shall be properly balanced. Inclining of pro capita revenues will stipulate the rise in demand for the products of animal origin, vegetable oils, sugar etc. World meat production is expected to reach 455 million MT by 2050. The parameter adduced may only be reached when the annual growth of production rate is no less than 1.3% [2].

Meat industry as a constituent of food industry carries out its economic functions of slaughtering cattle, pigs, other slaughter animals and poultry. Slaughterhouses are primary production facilities of meat industry these producing raw meat to ensure the demand of consumers and to provide meat processing enterprises with raw materials. Non-food raw materials and wastes are used for processing at the industrial enterprises of other specialization. Calculation of amounts of raw materials, food and non-food by-products by production of 1 MT of different meats is adduced in Table 1. Numerous personnel are employed at meat enterprises to fulfill technological operations the grade of their specialization being significantly high [3; 4].

Table 1. Amount of raw materials, food and non-food by-products by production of 1 MT of different meats [4]

Product description	Specification	Chicken meat, kg	Pork, kg	Sheep meat, kg	Beef, kg
Farm-gate product	Live weight	1712	1618	2255	2375
Intermediate product	Hot standard carcass weight	1216	1229	1060	1307
Wholesale product	Cold carcass weight	1179	1177	1017	1267
Wholesale/retail product	Retail cuts	967	906	895	887
	Edible offal	33	94	105	113
Retail portions (retail cuts + edible offal)		1000	1000	1000	1000
Hides		0	0	169	214
Pet food		17	84	34	30
Rendering material	Unprocessed meat, bone, offal	593	372	800	989
Rendering products	Protein meal products	154	53	152	257
	Tallow	73	109	156	154
	Blood meal	5	5	14	14

Along 20th century food availability in Europe was different. From the beginning of 1960-s to 1990-s the amount of meat on the market was increasing – especially of pork and poultry meat [5]. In 1990-s the availability of meat for consumers decreased throughout the European Union excl. Norway, Portugal and Ireland [6]. The reason for the said decreasing was not the change of consumers' tastes and preferences only but also very serious problems with food safety of meats: spongiform encephalopathy of cattle, pollutions with dioxin etc. [7].

Despite the mainly positive economic results of the meat industry of EU member states, major problems are characteristic for a number of enterprises – first of all, unsatisfactory profitability level. Allover information about activities of the said enterprises is necessary this making it possible to fulfill economic and financial analysis for diagnosing their principal results and possible modeling their reorganization in time period, industry sector or territorial location context. For the purpose a number of measures as: routine analysis of account documents, math statistics methods and precedential comparison with the similar enterprises solving and having solved the problems of the sort are expedient [8; 9].

To assess economic activity of an enterprise over time the method of making out boot parameters is used, the said parameters being: tangible cost, salary expenses and fixed assets maintenance costs, total scores – sales result and stocking cost [10]. The indices of industrial prices according to EUROSTAT [11] data are used for the purpose.

Both in-land and transboundary trends for consolidation and merging of meat producing enterprises show themselves in the fact that the said enterprises are more integrated today – horizontally and vertically. The strategy meant implies minimization of short time fluctuation and risks. The definitions specified are valid for the most significant meat producing companies of the world: JBS S.A., Tyson Foods, WH Group (former Shuanghui International Holdings which acquired Smithfield Foods), Cargill Meat Solutions, Marfrig Global Foods, Brasil Foods (BRF), Danish Crown, Itoham Foods, Gruppo Cremonini, Teys Australia (joint venture with Cargill), Hormel Foods, SuKarne, Nippon Meat Packers, ANZCO Foods (common property of Nippon Suisan Kaisha and Itoham in New Zealand), Minerva Foods, Sigma Alimentos, OSI Group and Maple Leaf Foods. Both production facilities and sales of the enterprises listed embrace several states each [12].

The necessity for global consolidation of meat and poultry processing industry to sustain competiveness can be prognosticated. In the course of the said process transboundary mergers and acquisitions are expected to have preferences to avoid antitrust restrictions and constraints according to national legislations of a number of states. The trend is not certain to stipulate the growth of the husbandry production – taking the fact into account that family farms prevail now. The latter seems to be quite satisfactory for those consumers who dislike the globalized industrial manufacturing and also for local producers of meat and meat products together with other local markets operators. The localization of meat producing is expectative to cause local prices growth for such products, but, taking into account the share of the local facilities, average prices for meat and meat products will not significantly increase [13].

Developments of local processing facilities of agricultural materials incl. raw meats are promoted by locavores[1] movement these preferring to consume local foods – namely those produced, approximately, not farer than 150 km from the locations where they are consumed. And it deals not only with local patriotism but also with the possibility to avoid transporting live animals to slaughterhouses, distant as far as tens and hundreds kilometers from farms, and with providing local residents with job positions [14]. The issue of localization of producing and processing raw meats together with providing them to local and regional markets is not only and no so much in the lack of production facilities. The solution for the issue consists in creating the system of mutual trust and benefits based relationship of livestock breeders and meat processors, and also in the sufficient volumes of the effective demand for meat products among the local consumers [15].

Meat industry is traditionally one of the most highly developed sectors of food and processing industry in Ukraine. Basing both upon the traditional diet of the Ukrainians and upon the structure of the national agroindustrial complex within the frames of economic, geographical and historical context, the production of meat and meat products has been and still is of the utmost priority for the establishing food security of the Ukrainian state. Nevertheless, difficulties, the economic activity of the meat processing enterprises are connected with, cannot be omitted. The said difficulties are: scarce of high quality raw materials, lack of a well balanced system of material and technical supply, permanent growth of energy resources costs, higher competitive challenges from importers, lack of strategic management commonly known as an effective and progressive mean to control enterprises. Deficiency of effective means to resolve the problems of functioning and development of meat industry causes decrease in production volumes with simultaneous sufficient increase of prime cost [16]. Thus, to make sophisticated solutions for the economic rehabilitation of the meat industry permanent monitoring and objective analysis of its industrial and resource potential are necessary.

The issue of studying the actual state and development potential of food incl. meat industry is a subject of research of a number of the Ukrainian scientists: M.P. Sychevskyi, Y.M. Gadzalo, V.Y. Mesel-Veseliak, B.Y. Panasiuk, Y.A. Lupenko, P.T. Sabluk, A.E. Yuzefovich, D.F. Krysanov, A.H. Shpykuliak, L.V. Deyneko etc. In their works they gave full consideration to the issues of decreasing production volumes of meat and meat products, suggested the ways the food industry incl. meat processing and poultry processing industries encounters now [17; 18].

To define the ways to raise efficiency of the functioning of meat industry its potential shall be analyzed in comparison with other sectors of food industry as well as food industry in tote.

First of all, characterizing of technological equipment and other fixed assets of meat industry is necessary. For the period from 2013 to 2016 depreciation (wear) index grew for all the economic activities incl. production of foods, beverages and tobacco goods. For the said sector the wear-out rate of fixed assets reached 42.5% in 2015, exceeding the rate of 2013 the latter amounting to 47.0%.

Despite the numerousness of machine-building enterprises of Ukraine these being characterized by huge production rates and sectorial diversity, the number of the enterprises manufacturing

[1] Locavores – consumers preferring foods originating from the areas not very remote from the places the said consumers dwell. This is a new trend popular both in North America and in Europe.

machines for food industry is not considerable so that the demand for meat processing equipment is not fully satisfied. The great majority of such items are imported to Ukraine, the small-scale enterprises using mainly reconditioned equipment originating from EU member states. In recent years a trend has become dominating for the primary development of big engineering enterprises their specialization embracing complex construction of new facilities and also reconstruction of existing facilities, and the majority of the machines and equipment being installed are of foreign origin – and very often not new but reconditioned ones [19]. Nevertheless, a number of items can successfully be produced by the Ukrainian machine-building enterprises, namely the reliable equipment for slaughter and primary processing of animals and poultry, some items of the equipment used for manufacturing meat products etc. Perhaps, the fact shall be recognized that the Ukrainian meat processing equipment is inferior to the best foreign patterns concerning their specific amount of metal, reliability, automation level etc. The analysis of the demand of meat industry enterprises for the specialized technological equipment and the possibility of the Ukrainian machine-building to manufacture the said equipment makes it possible to conclude that the prospect of the Ukrainian machine-building for meat industry is in manufacturing a certain medium-technology items e.g. meat grinders (meat wolves). Enhancing of design and manufacturing quality of the said equipment is necessary to reserve this niche on the domestic market of machines and equipment and to stipulate the possibility to export such products to other markets. But as for now, bowl and flow cutters, vacuum sausage cases fillers, automatic brine injectors and other sophisticated machines are expedient to be imported – till the Ukrainian machine-building enterprises will reach the competitive level of quality and technical perfection of the machines specified [20].

In 2016 production facilities of foods, beverages and tobacco goods were loaded to 62.9%, while in 2015 the load was some lower reaching 61.7%. Those enterprises which manufactured foods only used their facilities by 63.8% in 2016, this exceeding the load in 2015 by 1.5%. The load of productive facilities in some sectors of food industry is specified at Figure 1.

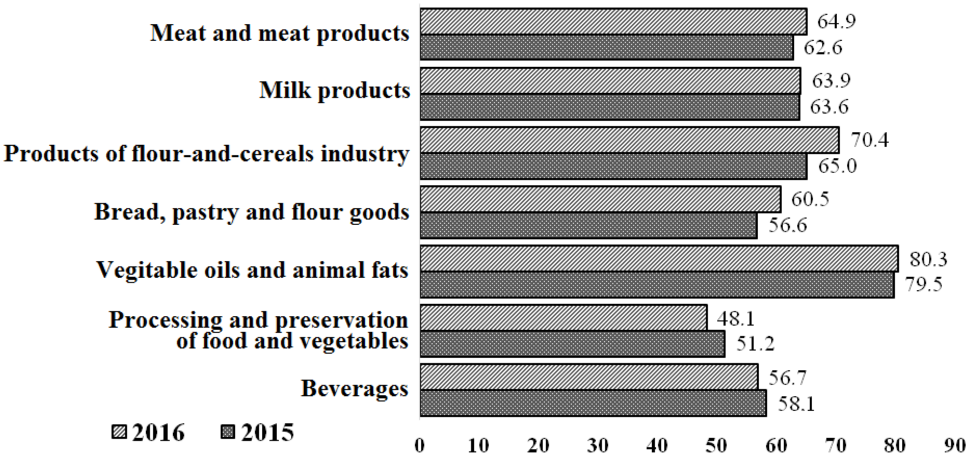

Figure 1. Load of productive facilities in food industry of Ukraine, % [21]

Comparing of the load of industrial facilities parameters of years 2016 and 2015 makes it possible to see that the said parameter grew for the majority of the sectors of food industry. The load of industrial facilities of the enterprises manufacturing vegetable oils and animal fats was 80.3%. The load of the industrial facilities of meat and meat products manufacturing enterprises in 2016 was as high as 64.9%.

From 2010 to 2015 the labor potential of food industry was decreasing the fact being confirmed by the charts of employee population behavior for the period – Figure 2. The employee population of the enterprises slaughtering animals and poultry, fulfilling primary processing of carcasses and manufacturing meat products for the same period declined by 1.6%. However, in 2013 employee population of meat producing and meat processing enterprises was 62.1 '000 pers. (the highest value for the assessed period), thus exceeding the value of 2010 by 24.5%. Employee population in 2015 counting up to 49.1 '000 pers. was by 20.9% lower than the value indicated in 2013. The above considered parameter of employee population directly depends on the number of economically active enterprises. In 2015 this number decreased by 797 or 13% comparing to 2010. In meat sector the number of economically active enterprises decreased by 199 or 20.7% for the same period. In 2015 employee population of food industry was as high as 282.1 '000 pers. and 17% of them were engaged in processing meats and manufacturing meat products. To be compared: in 2010 employee population of food industry was as high as 358.9 '000 pers. and 14% of them were engaged in meat sector, in 2013 the values of both parameters were 347.9 '000 pers. and 20% correspondingly.

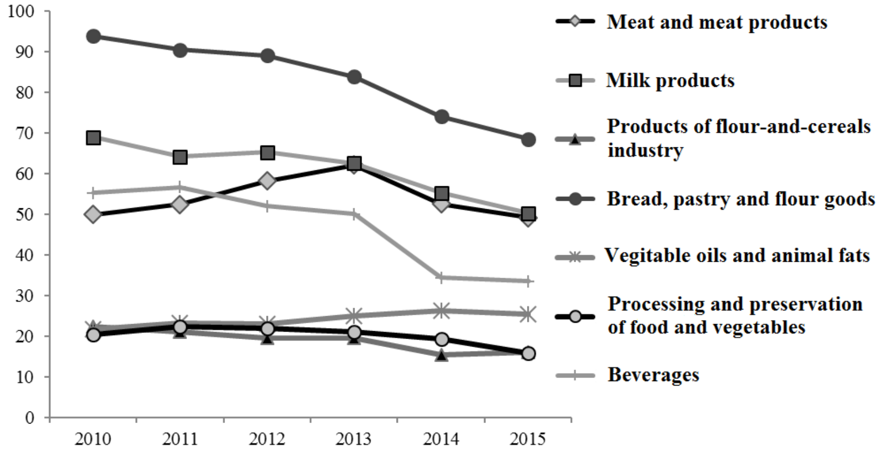

Figure 2. Employee population for the sectors of economic activity in food industry, '000 pers. [21]

Within the period from 2010 till 2015 the wage rate approximately doubled from 1927.8 to 3762.5 UAH per month the latter value being by 19.8% less than average wage rate in the industry of Ukraine and by 11.8% less than average salary rate in this state. For the period assessed wage rate in meat industry also approximately doubled – Figure 3. In 2015 average wage rate in meat industry was 3291.6 UAH.

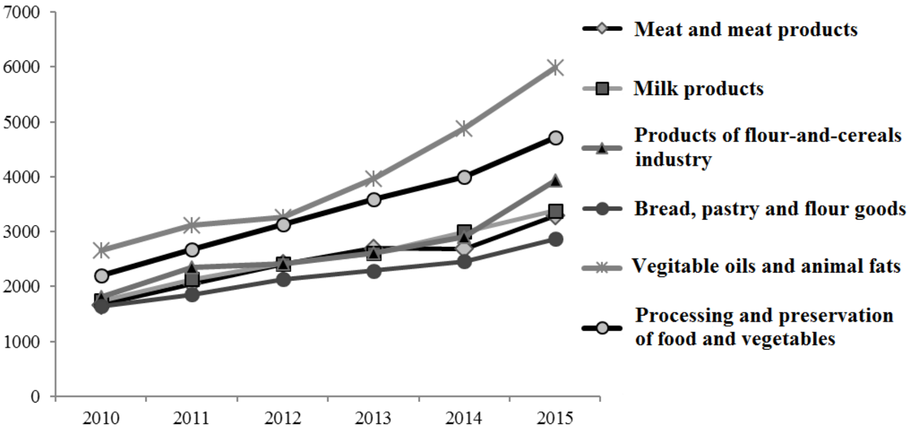

Figure 3. Behavior of average wages for the sectors of economic activity in food industry, UAH [21]

When assessing the raw materials base of meat industry one shall mention that production of all kinds of meats increased by 8% in the period of 2011–2015, by 45% in the period of 2005–2015 and by 40% in the period of 2000–2015. The most significant was the growth in poultry meat production, in the period of 2000–2015 this grew six-fold – from 193.2 to 1143.7 '000 MT annually, when pork production increased by 10% only, and beef/veal production decreased twofold – Figure 4.

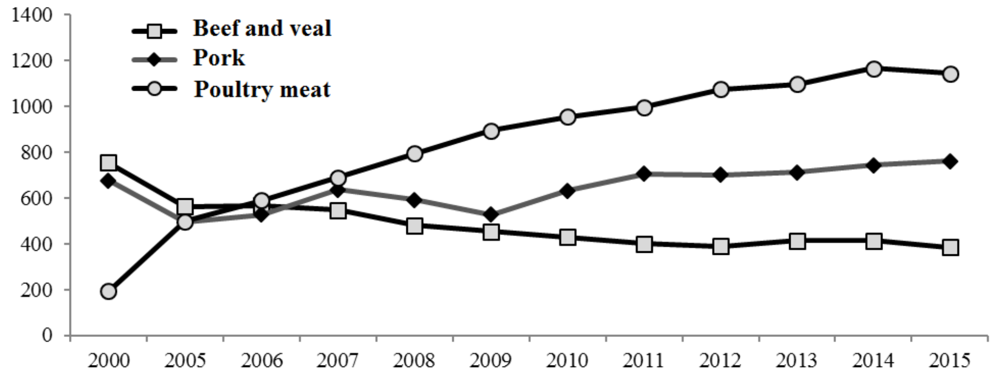

Figure. 4. Meat production in slaughter weight, '000 MT. Values for the years 2014 and 2015 omit the territories temporally being out of control [21]

Allover production rate of meat was 2322.6 '000 MT in 2015, 49.2% of it being poultry meat, 32.7% – pork, 16.5% – bee/veal, 0.6% – sheep and goat meat, 0.4% – horse meat and 0.6% – rabbit meat. The data adduced reflect, in common, the state of population of slaughter animals and poultry. At the beginning of 2017 the lowest cattle population was monitored – 3675 '000, but in February the value of the said parameter increased – up to 3770 '000. On January 1, 2017 pig population was 6689 '000, on February 1, 2017 – 6543.4 '000. In the period from 2001 till 2016 cattle population decreased by 60%, thus accounting for 3750 '000, pig population decreased by 8%, when poultry stock increased by 65%.

Analysis of total export and import values of foods and the products of animal origin incl. meat products in 2016 (Table 2) let us see the declining trend in production of the said products. The values specified neither meet the in-land demand nor correspond to the potentials of the Ukrainian husbandry and meat industry to export their products to solvent foreign markets. Decrease in cattle population and, correspondingly, of beef/veal production caused the deficiency of the most valuable raw material for manufacturing meat products. As for now, market operators dealing with meats and meat products have to import both live animals used as a raw material for meat processing industry and ready meat products.

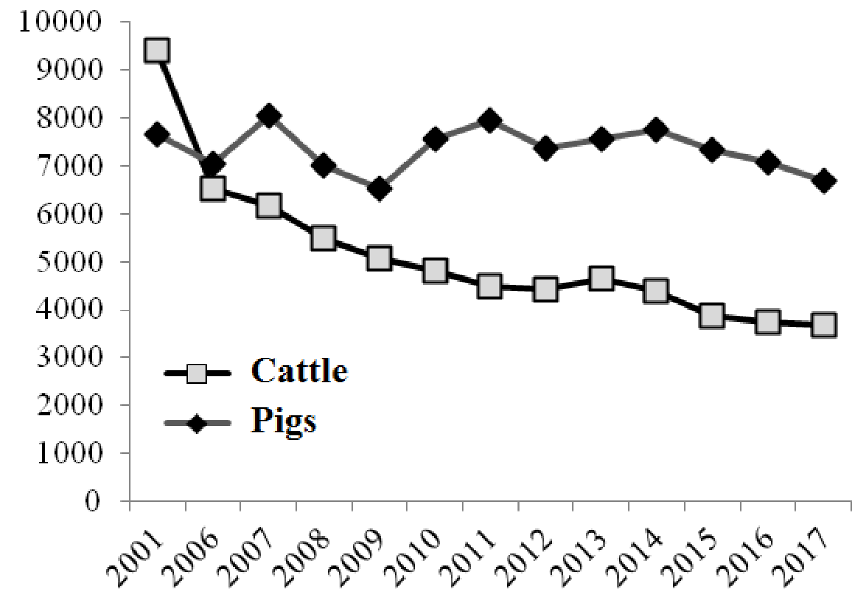

Figure 5. Cattle and pig population, '000, at the beginning of a year specified

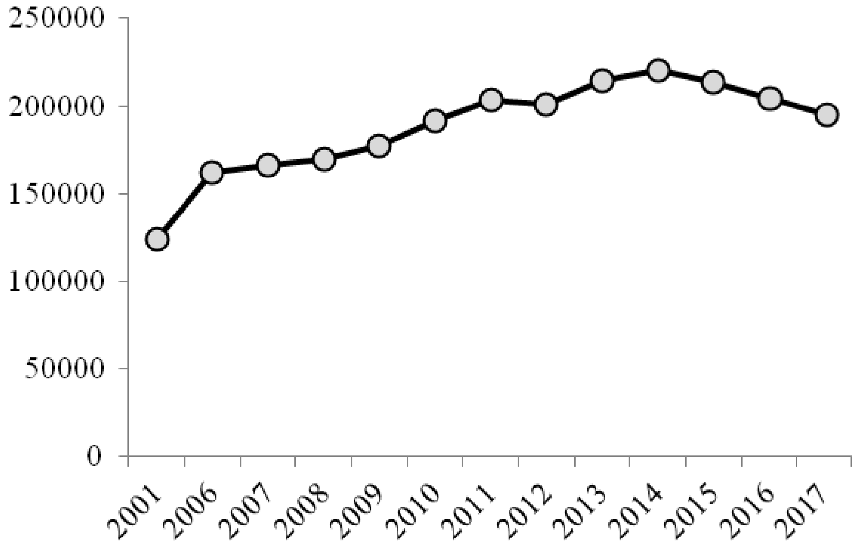

Figure 6. Poultry population, '000, at the beginning of a year specified

Table 2. Export and import of foods, products of animal origin and meat products in 2016 [21]

Code and specification of products according to Ukrainian nomenclature of goods of foreign economic activity [22]	Export			Import			Export surplus, '000 USD
	'000 USD	% to 2015	% to total volume	'000 USD	% to 2015	% to total volume	
Products of food industry total	15284296	105	42.0	3889974.1	111.7	9.9	11394322
I. Live animals; products of animal origin	775159.8	94.1	2.1	626323.0	114.3	1.6	148836.8
01 live animals	30910.2	120.6	0.1	57981.0	97.1	0.1	-27070.8
02 meat and edible byproducts	387789.3	102.7	1.1	80851.5	81.4	0.2	306937.8
05 other products of animal origin	8812.9	42.7	0.0	18087.3	99.1	0.0	-9274.4
IV. Ready food products	2450863.4	99.3	6.7	1733059.7	107.8	4.4	717803.7
16 products of meat, fish	14323.8	114.9	0.0	61724.7	145.4	0.2	-47401.0

Let us analyze the actual trends in production and consumption of meat and meat products in the beginning of the current year 2017. In common, production volumes of the products of meat processing in January increased – compared to January 2016. Production of fresh and chilled meats: beef/veal, pork and poultry meat exceeded the 2016 values by 73.6, 5.9 and 29.8% correspondingly, frozen beef/veal and poultry meat – by 58,7 and 18,8% correspondingly. Production of sausage products in January 2017 was 9.8% higher than in January 2016. However, production of frozen pork decreased by 16.3%. The comparison of the volumes of meat products in January 2017 with the corresponding volumes in December 2016 shows average 10 – 20% decrease for all the products excl. frozen pork. The volumes of fresh and chilled beef/veal decreased by 31.8%, frozen beef/veal – by 46%. In January 2017 года, comparing to January 2016, prices for fresh and chilled beef/veal and prices for fresh and chilled poultry meat increased by 13 and 12% correspondingly, prices for other kinds of meat – by 5% approximately. Comparing to December 2016 the most significant grows showed the prices for fresh and chilled beef/veal – by 4.6%, while the price for fresh and chilled pork decreased by 7%.

Meat consumption is expected to show certain grow in 2017. According to information adduced in the balance made up by experts of the Public association «Economics Discussion Club» [23] and characterizing demand and supply of meat and meat products in January 2017, consumption of meat products calculated as meat reached 228 '000 MT, this by 3 '000 MT exceeding the value of January 2016. Consumption of pork increased by 4 '000 MT while consumption of poultry meat and beef/veal decreased. The balance [23] prognosticates growth in pro capita consumption of meats from 51.4 kg in 2016 to 52.5 kg in 2017. The assessment is based on the rise of minimal wage rate, so that grow of consumers' incomes will let them buy more expensive pork instead of cheaper poultry meat. However, decline in demand for the low price meats is not expected. And the most valuable meats, beef and veal belonging to, will remain excessively expensive for average consumers.

Thus the conjuncture of global and European markets of meat and meat products is so, that there is solvent demand for the said kinds of products, this demand tending to increase in the medium term. There are also reasonable premises for the consumption of meat products to grow on in-land market. Meat and meat processing industry of Ukraine has the necessary potentials to raise the production of meat products – this concerning both volumes and assortment. Proper implementing of the said potentials is only possible when a number of rather complicated technical and economic problems are solved and the rise in pig and, especially, cattle population, proper optimization of specific energy consumption and specific amount of metal in meat processing industry, provision of the enterprises with comprehensive specialized technological equipment is achieved. Another important feature necessary for the Ukrainian meat industry to develop is enhancing well being of the compatriots, this stipulating necessary grow of in-land solvent demand for meat products, the proper nutrition being impossible without.

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