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BROILER MEAT PRODUCTION IN UKRAINE:

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The status and prospects of further increase of broiler meat production in Ukraine were investigated, depending on the situation at the domestic and international poultry markets. The most potential domestic manufacturers and exporters of this product were identified.

Broilers, meat production, meat import and export, poultry farming, global poultry market

Production of chicken meat in the world, including broiler meat as it is known [9], grows more rapidly than the population. In particular, the population of the Earth from 6.1 billion in 2000 has increased up to 7.2 billion in 2013 (by 18.0%) During this period chicken meat production has increased by 61,0%, namely: from 58.5 million tons (2000) to 94.2 million tons (2013). When recalculating for one average resident of our planet, in 2000 it was produced 9.5 kg of chicken meat, and in 2013 – 13.1 kg, including 12.0 kg of broiler meat. Under UN FAO forecastings, the total volume of poultry meat production in the world in 2022 would reach 129 million tons, 114 million tons of which would be the chicken meat (including 103 million tons of broiler meat) and the rest (15 million tons) – ducks, geese and turkeys [10,11]. The population of our planet in 2022 can exceed 7.6 billion. On this basis, for each inhabitant of the planet in 2022 it would be produced 15.0 kg of chicken meat, including 13.5 kg of broiler meat. Therefore, in 8 years (from 2013 to 2022), the expected production volumes would increase by 21.0 % (or 2.6% average per year), including broiler meat - by 19.2 % (2.4% annualy), and population in

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average by 2.0% per year. Thereby, the production of chicken meat, including broiler meat up to 2022 would grow faster than the population.

In resent years, our country has turned to the exporter of broiler meat from its importer, capable to increase the sales volumes rapidly. Whereas in 2009 Ukraine has sold 18 thousand tons of broiler meat on external market, in 2013 it has sold already 120 thousand tons [9]. According to the forecast of the Association of Poultry Farmers of Ukraine Union [3], in 2014 our country would export almost 170 thousand tons of broiler meat.

The objective of this work was to investigate the status, prospects for further development of the broiler industry in Ukraine and the possibilities of its export capacity increasing.

Research material and methods. In our research work we have used the statistical data of UN FAO, the State Statistic Committee of Ukraine, the Ministry of Agrarian Policy and Food of Ukraine, the Ministry of Agriculture of the United States and other sources of scientific and technical information, including materials of international scientific and practical conferences on poultry farming.

RESEARCH RESULTS. According to the State Statistics Committee of Ukraine [1], the consumer demand indicators for broiler meat are stable in 2014, despite the crisis situation and problems with products supplying to the temporarily occupied territory (Autonomous Republic of Crimea, Donetsk and Luhansk regions partially), where almost 20 % of the population of Ukraine live. Poultry meat itself (mainly broilers) today has became the main meat product for the residents of Ukraine, including from its Eastern part. This tendency is constant despite the substantial growth of the prices for energy, food and other resources growth in 2014 due to the instability of hryvnia, that has a negative impact both on meat production and on the solvency of the population. According to the information, shown in Table 1, among 2230 thousand tons of meat products that were produced in 2012, there are 17.8% (396 thousand tons) of beef, 33.0%

1. Balance of meat products in Ukraine (thousand tons)

Indicator	2012				2013				2014			
	Total	Beef	Pork	Poultry meat	Total	Beef	Pork	Poultry meat	Total	Beef	Pork	Poultry meat
Demand for products	2608	418	984	1159	2742	424	999	1265	2806	430	995	1325
Internal market,	2482	400	963	1078	2560	397	993	1120	2606	410	990	1153
including the consumption	2472	396	960	1075	2550	393	990	1117	2596	406	987	1150
fund.	10	4	3	3	10	4	3	3	10	4	3	3
Other consumption												
	126	18	21	81	182	27	6	145	200	20	5	172
Export												
	2608	418	984	1159	2742	424	999	1265	2806	430	995	1325
Products offer												
	2177	396	711	1041	2398	403	765	1191	2470	400	770	1265
Internal market,	2230	396	736	1066	2398	403	765	1191	2470	400	770	1265
including own production.	53	-	25	25	-	-	-	-	-	-	-	-
Change in stocks												
	431	22	273	118	344	21	234	74	336	30	225	60
Import												
	54.4	8.7	21.0	23.7	56.0	9.0	22.0	25.0	57.0	9.0	22.0	25.0
Consumption, kg per person.												

(736 thousand tons) – pork, 47,8% (1066 thousand tons) - poultry meat, and the remaining 1.4% (32.0 thousand tons) - lamb meat, horse meat, etc. In 2013 there were produced 2398 thousand tons of meat products, that is more than in 2012 by 168 thousand tons (7.5%). Among it there were 16.8% of beef, 31.9% of pork and 49.7% - poultry meat. According to the forecast, in 2014 there would be produced more meat products than in 2013 by more than 72 thousand tons (3.0 %). In this case the specific share of beef would be 16.2%, pork - 31.2%, poultry meat - 51.2%. So, if the poultry meat in 2012-2013 was almost a half (47.8-49,7%) produced in country origin of meat products, then in 2014 it is already more than a half (51.2%).

The volumes of meat consumption for a 3-year period (tables 1 and 2) have increased from 54.4 kg to 57.0 kg for 1 average resident per year. This growth would amount 2.6 kg/person or 4.8%. Among 54.4 kg of meat consumed in 2012 by each average resident 48.8 kg (89.7%) is own production, and the remaining 5.6 kg or 10.3% is an import. In 2014 from 57,0 kg of consumed meat 54.4 kg (95.4%) is own production and just 2.6 kg/person is imported. (4.6% of consumed production). For the same 3-year period, as evidenced by the data of Table 2, the poultry meat was imported twice less, particularly from 118 000 thousand tons in 2012 it was reduced to 60 thousand tons in 2014, and it was exported more than twice. In particular, its export supply was increased from 81 thousand tons in 2012 to 172 thousand tons in 2014. If in 2012 the poultry meat was less exported than imported (by 37 thousand tons), in 2014 its export has surpassed the import by 112 thousand tons. For such a short period of time the specified effect was achieved through the accelerated development of poultry farming in the country, in particular - broiler industry and its high competitiveness on external markets. It is interesting, that the actual (2012-2013) and forecast (2014) data about production and consumption of all poultry meat types in Ukraine (Table 1 and 2) comply with the prognoses envisaged by the United States Agriculture and FAO State Department [5,6], shown in Table 3. However, it should be noted that prognosed data of the United States and FAO Department (Table 3) apply only to the broiler meat. As it is known [1], the specific share of chicken meat in Ukraine is

2. Dynamics of production, consumption, import and export of poultry meat in Ukraine

Indicator	Year		
	2012	2013	2014
Population of 01.01, mln. people	45663.6	45553.0	45426.2
Total meat produced, thousand tons,	2230.0	2398.0	2470.0
including poultry meat, thousand tons	1066.0	1191.0	1265.0
specific share of poultry meat,%	47.8	49.7	51.2
Meat produced per 1 resident, kg/person,	48.8	52.6	54.4
including poultry meat, kg/person.	23.3	26.1	27.8
%	47.7	49.6	51.1
Total meat consumption, kg/person.	54.4	56.0	57.0
Imported meat of all kinds of animals in terms per 1 average resident, kg.	5.6	3.4	2.6
Total imported meat, thousand tons,	431.0	344.0	336.0
including poultry meat, thousand tons	118.0	74.0	60.0
specific share of poultry meat in the imported volume,%	27.4	21.5	17.9
Total exported meat, thousand tons,	126.0	182.0	200.0
including poultry meat, thousand tons	81.0	145.0	172.0
specific share of poultry meat in the total export, %	64.3	79.7	86.0
Difference between export and import of poultry meat, thousand tons, +/-	-37.0	71.0	112.0

approximately 90% of the total produced poultry meat (chicken, turkeys, geese, ducks, quail, ostrich, etc.). In turn, the specific share of broiler meat is 87.4-90.3 % of the produced chicken meat [9]. With regard to these amendments, broiler meat production in Ukraine in 2012, probably was 863 thousand tons, 2013 – 965 thousand tons and in 2014 it would amount 1025 thousand tons. Therefore, the corrected volu-

3. Forecasted and actual data on production and consumption of poultry meat in Ukraine in 2012-2014, including broilers, thousand tons

Indicators	2012		2013		2014	
	Forecast*	Fact. **	Forec.*	Fact. **	Forec.*	Forec.**
Production	900	1066	1000	1191	1010	1265
Consumption	822	1075	830	1117	850	1150
Import	63	118	20	74	30	60
Export	141	81	190	145	190	172
Offer	963		1020		1040	

NOTES:
* United States Agriculture Department and FAO forecast [5,6] on broiler meat production;
** The actual and forecast (2014) data on the production and consumption of all poultry meat types according to the State Statistics Committee of Ukraine data [1];

mes of broiler meat production in Ukraine generally do not differ from those prognosed by the State US Agriculture Department and FAO.

It is considered [1] that at the beginning of 2015 the total production of poultry meat in Ukraine would increase approximately by 8% due to the financial investments into this sector of the economy, implemented at the beginning of the current (2014) year, and putting new facilities into operation. Most of the extra production increment would be exported. But broiler meat production level decreasing is also quite probable in 2015 because of the economic crisis caused by the aggression of Russia [6]. If this negative prognosis would not become true, the consumption of broiler meat would grow moderately, as in previous years. Because of broiler meat price attractiveness and citizens' solvency reduction the process of red meat (beef, lamb, pork, etc.) replacing by white meat would continue.

Table 4 shows the volumes of poultry sold for slaughtering during 2011-2013 among the regions of Ukraine [3]. As it can be seen from the specified data, the specific percentage of broiler meat (live weight) of the total poultry mass sold for slaughtering during the 2011-2013 period has varied within 94,6-95,1%, that is slightly different from the above mentioned standards [1,9], which are used for similar calculations of

4. Volumes of poultry sold for slaughtering by the farms of Ukraine in 2011-2013, (live weight, thousand tons)

Regions and other administrative units in Ukraine	All kinds of poultry				Broilers			
	2011	2012	2013	2013 against 2012, %	2011	2012	2013	2013 against 2012, %
Ukraine, including:	**1050.3**	**1128.0**	1261.4	111.8	**995.9**	**1066.8**	**1199.1**	**112.4**
Crimea (ARC)	95.8	98.1	79.1	80.6	94.4	96.4	78.5	81.4
Vinnitsa region	13.4	43.1	170.1	394.7	12.3	42.1	167.9	398.8
Volyn region	47.4	53.1	63.7	120.0	47.4	53.0	63.7	120.2
Dnepropetrovsk reg.	192.2	195.9	195.1	99.6	189.8	193.4	193.2	99.9
Donetsk region	30.5	33.0	23.7	71.8	22.2	26.3	17.7	67.3
Zhytomyr region	0.3	0.4	0.4	100.0	-	-	-	-
Zakarpattia region	-	-	-	-	-	-	-	
Zaporizhia region	6.8	7.0	8.5	121.4	4.9	5.6	7.5	133.9
Ivano-Frankovsk r.	12.1	13.9	13.7	98.6	7.2	8.0	8.2	102.5
Kyiv region	156.8	171.7	186.2	108.4	147.0	159.0	172.7	108.6
Kirovograd region	0.6	0.5	0.5	100.0	-	-	-	-
Lugansk region	24.5	24.8	26.6	107.3	22.7	23.0	25.0	108.7
Lviv region	48.7	54.7	61.9	113.2	48.6	54.6	61.7	113.0
Nikolaev region	2.4	2.0	1.8	90.0	-	-	-	-
Odessa region	0.5	0.1	0.1	100.0	-	-	-	-
Poltava region	1.2	5.6	3.0	53.6	-	4.1	1.8	43.9
Rivne region	15.1	15.9	17.4	109.4	15.0	15.9	17.4	109.4
Sumy region	1.0	2.3	2.7	117.4	0.7	1.6	2.2	137.5
Ternopil region	2.2	2.8	4.0	142.9	1.7	2.2	3.1	140.9
Kharkiv region	20.9	22.3	30.6	137.2	17.2	18.1	25.5	140.9
Kherson region	1.5	1.4	2.8	200.0	-	0.1	0.2	200.0
Khmelnytsky region	9.0	10.1	12.2	120.8	8.6	8.6	10.3	119.8
Cherkasy region	354.5	351.2	339.2	96.6	350.9	347.6	335.5	96.5
Chernivtsi region	9.7	14.0	11.3	80.7	2.2	3.2	0.3	9.4
Chernihiv region	3.2	4.1	6.8	165.9	3.1	4.0	6.7	167.5

meat output in slaughter weight.

According to the data shown in Table 4, in 2013 Ukraine has produced 1261.4 thousand tons of poultry meat in live weight, or by 11.8% more than in the previous year. As for the broiler meat, it was produced in 2013 more by 12.4% than in 2012. Most of it was produced by the enterprises of Cherkasy (335.5 thousand tons), Dnipropetrovsk (193.2 thousand tons), Kyiv (172.7 thousand tons), Vinnytsia (167.9 thousand tons), Volyn (63.7 thousand tons), Lviv (61.7 thousand tons) regions and and by the Autonomous Republic of Crimea (78.5 thousand tons). Total specific percentage of these seven leading regions in total broiler meat amount produced in 2013 is 89.7%. Each of these regions specific percentage and the rest shown together is shown in Figure 1.

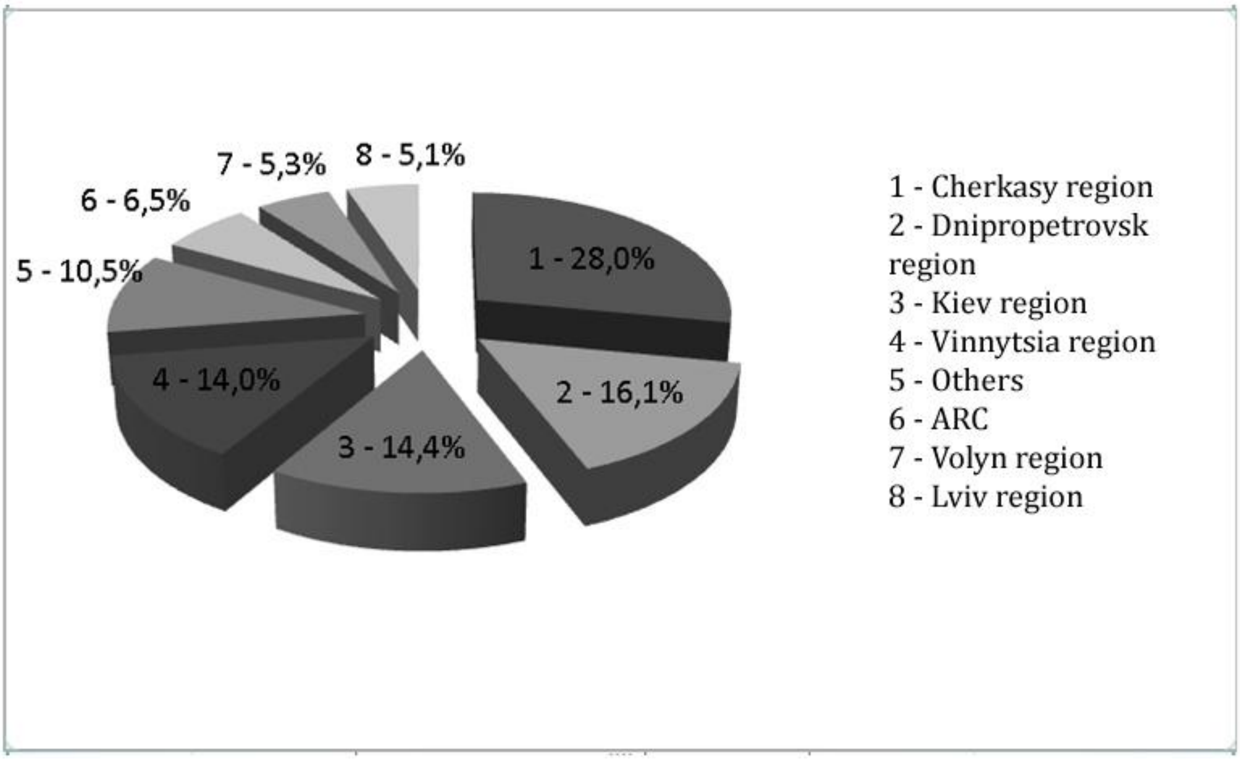

Fig. 1. Broiler meat production leading regions in 2013

Under the generally positive tendency for the further growth of broiler meat production volumes in our country there also are such factors that may inhibit this process. In particular, the largest specific weight (up to 60-70%) in the structure of production costs is the forage. Its appreciation automatically leads to an increase in the cost of broiler meat production. In addition to the forages, wages amount, energy and other resources costs, veterinary drugs and vaccines, technological equipment costs are also increased. Therefore, in the case of production cost increase the price of meat is growing too, because the enterprises are naturally trying to preserve the achieved profitability level. Figure 2 shows the dynamics of broiler meat prices growth during almost 10 months in 2014 [3]. For the specified period, the price has increased up to 9.30 UAH (by 43.4%) and as of October 20, 2014 has amounted on average 31 UAH per 1 kg. But this substantial price increase is because of both broiler meat production costs increase and devaluation of UAH.

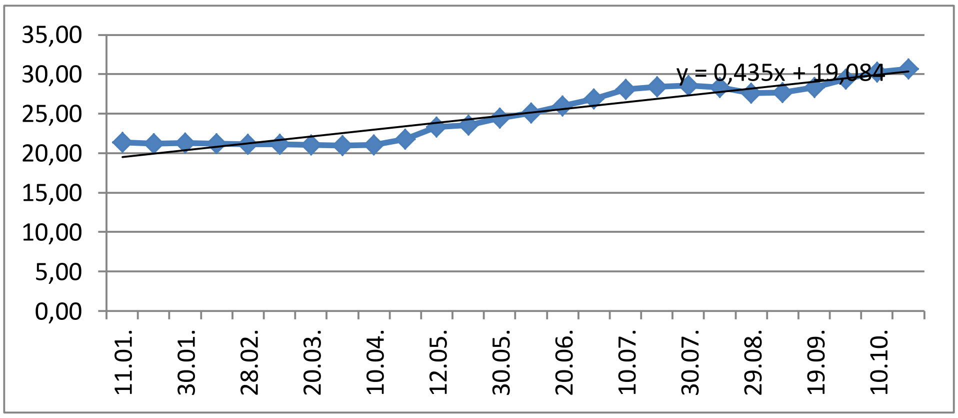

Fig. 2. Dynamics of consumer prices growth for broilers carcases in the average among the country during the period from 11.01.2014 to 20.10.2014 (UAH/kg)

Major producers of broiler meat in Ukraine are powerful enterprises and complexes. Specific share of 6 companies amounts 83,0% of total produced broiler meat in 2013 (Fig. 3). Totally in 2013 there were produced 916.7 thousand tons of broiler meat or 76.4% of its total volume in live weight, which is shown in Table 4 above. The largest producer of broiler meat is JSC Myronivsky Hliboproduct (MHP). specific share of this company in the domestic market of broiler meat has reached 51.6%. This vertically integrated company, operating in a closed cycle, has produced 473 thousand tons of meat in 2013, i.e. twice more compared with 2012 (215 - thousand tons) and, therefore, has demonstrated the highest growth rate for the entire

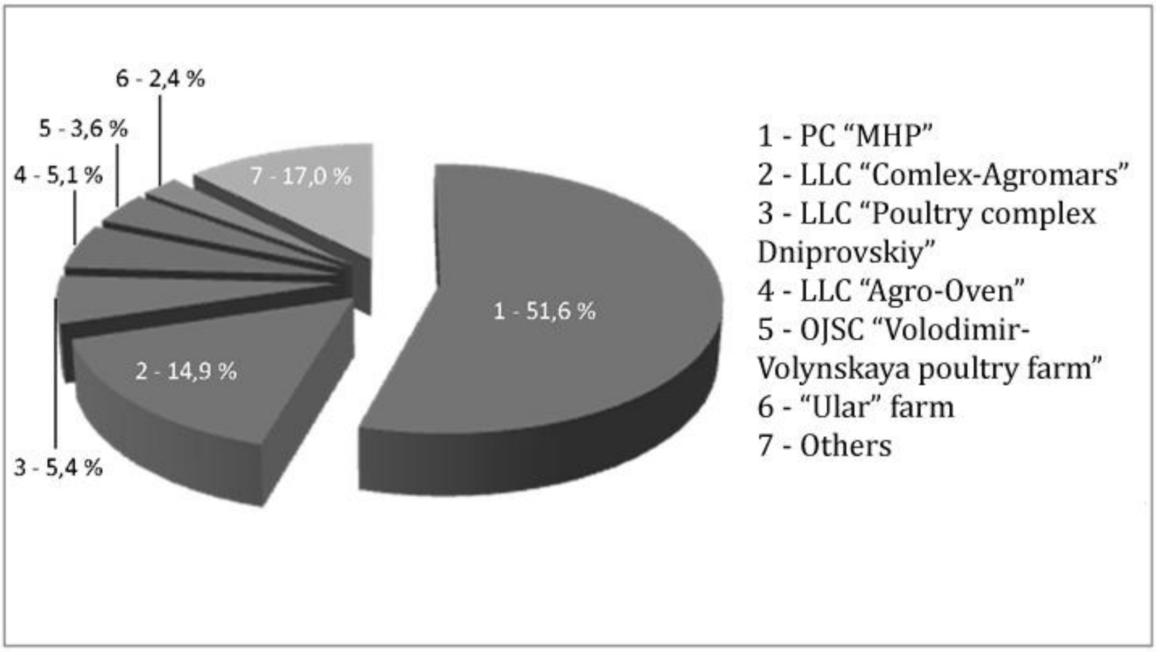

Fig. 3. The most powerful broiler meat producers of Ukraine in 2013.

history of the Ukrainian poultry farming. The advantage of MHP against many other domestic producers lies in export access to the markets of other countries, including the European Union. Due to this, the company has diversified sales channels that reduce risks and may provide some protection against possible internal market difficulties as a result of the current conflict in Crimea and Donbass. In 2014, the company has continued to increase its broiler meat production volumes due to the introduction of new capacities in Vinnitsa region. In particular, as of July 2014 there were launched 10 new production sites and another two facilities would start broiler meat production in full before the end of this year. Thanks to this, the specified product in 2014 would be produced as expected more by 23% than in 2013. According to the forecast [3], MHP would continue to increase the production volumes of broiler meat on 2015, despite the existing industrial and political problems in the country in connection with Russian aggression.

The second largest broiler meat producer in Ukraine is Agromars Complex LLC (136.6 thousand tons or 14.9% of the total volume in 2013). This vertically integrated company is also operating in a closed cycle. Its production facilities are located in Kyiv region. The strategy of the complex in 2013-2014 lied in increasing the export of broiler meat to the markets of the Customs Union countries and EU. However, as a result of trade wars application by Russian government, the markets of the Customs Union countries have become closed for Ukrainian poultry meat starting from February 2013.

MHP and Agromars Complex together in 2013 have produced 609.6 thousand tons of broiler meat, that was 66.5% of its total volume. Total specific share of another four manufacturers (Fig. 3) has amounted only 16.5%. Among them there were Dniprovskiy Ptahokompleks LLC (49.5 thousand tons of broiler meat (5.4% of the total volume), Agro-Oven LLC (46.8 thousand tons (5.1%) and Volodymyr-Volynska Ptahofabryka JSC (33.0 thousand tons (3.6%), Ular farm enterprise (22.0 thousand tons (2.4 %). specific share of other less powerful producers, working in the majority of the regions of Ukraine (excluding Zhytomyr, Zakarpattia, Kirovograd, Mykolaiv and Odessa regions), amounted together 17.0% (155.8 thousand tons). It is considered that their total share would continue to decrease further because of the increased competition conditions with other more powerful domestic producers, such as MHP and Agromars Complex LLC. That is why they would continue to work mainly with regional markets, where their positions are stronger than positions of integrated competitors. That means that the market positions of the middle-power producers would depend on the economic situation in the country and local market demand [2]. Consequently, the competition between two largest producers of broiler meat (MHP and Agromars Complex) on the one hand, and between them and the rest of the other companies on the other hand in conditions of unstable economic situation, caused by the annexation of the Crimea and aggression in Donbas (Donetsk and Luhansk regions), may cause certain shifts in the domestic poultry market. For example, in 2015 there could be terminated broiler meat production in Crimea, and also in the occupied territories of Donetsk and Lugansk regions. We are talking about 129.4 thousand tons of poultry meat (live weight). Exactly this specific volume of poultry meat was produced in specified regions during 2013 (Table 4), which amounted 10.3% from its total volume in the country. Broiler meat in specified regions was produced 121.2 thousand tons (10.1%, respectively). At the same time in

Vinnytsia region the production volumes of broiler meat in 2013 have increased by 398,8% (against 2012), or from 42.1 to 167,9 thousand tons due to the construction and putting into operation of new facilities, which belong to Mironivsky Hliboproduct JSC. The introduction of new production facilities was continued here also in 2014 [3]. Similar internal regional shifts of broiler meat production would continue in future. Nowadays they are typical not for separate countries only, but for the continents. The reason and the dynamics of turkeys meat production and consumption in the world market shifts were recently clarified by German researchers [8], and broiler meat both by foreign researchers [4, 5, 7], and ours [9]. In Ukraine production shift of approximately 120 thousand tons of broiler meat from Crimea and temporarily occupied territory of Donbass is possible to the zone of forage crops cultivation, particularly in Kirovohrad, Zaporozhye, Poltava, Kherson, and some other regions. This allows companies to save the achieved level of broiler meat export and further to increase significantly its volumes. As it is known [10, 11, 12, 13], each year our country increases the volumes of broiler meat export greatly, including EU countries. So if the volume of its export in 2009 was 18 thousand tons, than in 2010 – 32 thousand tons, in 2011 – 43 thousand tons, in 2012 – 76 thousand tons, in 2013 – 120 thousand tons, and in 2014 (in accordance with forecast data) – 170 thousand tons (Table 5). Therefore, Ukraine has surpassed Canada on volumes of broiler meat export in 2014 (155 thousand tons) and reached the 8th place in the world. None of listed in Table 5 leading countries had such growth in broiler meat export like Ukraine. This growth was 566,7% for six years (from 2009 to 2014), while in the Republic of Belarus it was 376,2%, Turkey – 324,4%, Brazil – 11.1%, United States – 8.4%, and in the world – 23,2%. Therefore, taking into account the reserve lands of Ukraine, suitable for the construction of new facilities for meat chickens growing, excess forage and qualified personnel, favorable situation at the world poultry market, we can expect that in the next 5-7 years our country may take the 4th or 5th place in the ranking of the largest exporters of broiler meat.

5. Volumes of broiler meat export and import in 2009-2014.

Country	2009	2010	2011	2012	2013	2014 (fore-casting)	+/-2013 against 2009	Growth, % (2013 against 2009)
Brazil	3222	3272	3443	3508	3580	3625	358	11.1
USA	3093	3067	3161	3300	3354	3425	261	8.4
ES	765	934	1044	1094	1095	1105	330	43.1
Thailand	379	432	467	538	540	580	161	42.5
Turkey	86	110	206	285	365	440	279	324.4
China	291	379	423	411	415	415	124	42.6
Argentina	178	214	224	291	323	355	145	81.5
Ukraine	18	32	43	76	120	170	102	566.7
Canada	147	147	143	140	150	155	3	2.0
Belarus	21	38	74	105	100	115	79	376.2
Chile	87	79	90	93	91	91	4	4.6
Other total	146	173	219	242	260	289	114	78.1
Total	8433	8877	9537	10083	10393	10765	1960	23.2

Conclusions and prospects for further research.

Despite the crisis situation connected with the occupation of some territories (Autonomous Republic of Crimea, Donetsk and Luhansk regions), where nearly 20% of the population of Ukraine live, poultry meat production and consumption (including broiler meat) in 2014 was not reduced in comparison with 2013. In particular, poultry meat consumption was 25.0 kg per resident for one year, when the beef consumption was 9.0 kg and pork – 22,0 kg. The ratio between poultry products export and import changed positively. In 2014 it was exported (according to the forecast at the end of the year) 172 thousand tons of poultry meat (mainly broiler meat), and imported only 60.0 thousand tons, when the pork was exported 5.0 thousand tons, and imported 225.0 thousand tons. In terms of broiler meat export (170-172 thousand tons) Ukraine in 2014 has taken the eighth place, losing only to Brazil, United States, EU, Thailand, Turkey, China and Argentina and beating Canada, Belarus, Chile and other countries of the world. Taking into account further broiler meat production, as well as the saturation of the internal market by this product, we should expect an increase in its export in 2015 respectively.

During 2014 the price for broiler meat on the domestic market has increased by 9.30 UAH (43.4%) and averaged 31 UAH per 1 kg, which is connected with its production costs increasing and UAH devaluation.

Seven leading regions in 2013 have produced 89.7% of broiler meat of its his total amount, including Cherkassy region – 28.1%, Dnipropetrovsk – 16.1%, Kyiv – 14.5%, Vinnytsya – 14.0%, Volyn – 5.3%, Lviv – 5.2%, and ARC – 6.5%, and others (18 regions) together – only 10.3%.

Six largest poultry complexes of Ukraine provide production of 83,0% of total broiler meat volume, including JSC Myronivsky Hliboproduct – 51.6%, LLC Agromars Complex – 14.9%, JSC Dniprovsky Ptahokompleks – 5.4%, LLC Agro-Oven – 5,1%, JSC Volodymyr-Volynska Ptahofabryka – 3,6%, FE Ular – 2.4%. Two of them, in particular JSC Myronivsky Hliboproduct and LLC Agromars Complex are the largest exporters of broiler meat.

In 2015, broiler meat production termination in Crimea and also on the occupied territories of Donetsk and Luhansk regions (together 121.2 thousand tons) can be compensated by the introduction of new production capacities in Vinnytsia region, and later in other areas of forage crop cultivation (Zaporizhia, Kirovograd, Poltava, Kherson, etc.).

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