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# DYNAMICS OF LAMB AND SHEEP MILK PRODUCTION IN THE WORLD AND UKRAINE

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***Abstract.*** *Lately in Ukraine, a promising development area of the sheep industry is young lamb, and sheep's milk. The article analyzes and summarizes the FAO data on lamb and sheep milk production dynamics globally and in Ukraine for the period 2008-2018. The research results indicate that the world production of lamb in general for the stated period increased by 14.0 %. Such countries as Chad (2.15 times), Uzbekistan (1.95 times), and Algeria (1.82 times) observed a significant increase in lamb production. In Europe, the leaders in the production of lamb are Great Britain (289 thousand tons), Russia (205.1 thousand tons), and Spain (119.6 thousand tons). During the study period, the production of lamb in Spain decreased by 23.8 %, in New Zealand, France, and Sudan, respectively, by 21.2; 21.5 and 20.4 %. There is a decrease in this indicator in the UK by 12.8 %, Syria – 12.6 %, and India – by 12.2 %. In Ukraine, the production of lamb in 2018 amounted to 7.8 thousand tons, 7.14 % lower than in 2008. The leading countries in sheep milk production are Turkey – 13.6% of the world's milk volume, China – 11.1 %, and Greece – 7.1 %. Turkey (2.15 times) and Mali (1.92 times) had a high increase in milk production for the specified period. Countries such as Iran (1.37 times), France (1.33 times), and Spain (1.24 times) have had a relatively good increase in milk production over the past ten years. Milk production decreased significantly in Sudan, Syria, India, and Italy, by 17.7, respectively; 9.2; 7.67 and 7.05 %. In general, during the study period, sheep's milk production in the world increased by 16.6 %. In 2018, Ukraine produced 18.1 thousand tons of sheep's milk, 24.3 % less than in 2008. In Ukraine, the decrease in lamb and sheep milk production increased due to the decrease in sheep number by 29.6 % (the increase from 2018 to 2008).*

***Keywords:*** *sheep breeding, dynamics, lamb, sheep milk.*

## *Introdution.*

Of late, the world pays much attention to food quality and safety. It is worth mentioning that lamb has 2-3 times less cholesterol than pork and beef. It is a rich source of essential amino acids, calcium, phosphorus, iron, microelements, vitamins of group B. Sheep's milk has remarkable therapeutic properties. In terms of nutrient content, it is much higher than other farm animals. Thus, sheep's milk contains 6-9 % fat, 5-7 % protein and about 0.9 % mineral salts. In general, the dry matter is 18-19 %. Energy value of 1 kg of sheep's milk in the range of 1100-1300 kcal, or – 4-5.5 MJ. From an economic point of view, it is worth linking the prospects for the development of sheep production with the possibility of more vast meat and dairy productivity of sheep. In this aspect, the analysis and summarizing of statistical data for the dynamics of lamb and sheep milk production is of high importance globally and in Ukraine.

## *Analysis of recent research and publications.*

The growing demand for lamb in New Zealand, Australia, and Eurasia is increasingly causing the breeding of meat breeds of sheep (Tsynguyeva, 2015; Komlatskiy, 2016; Khanbabayev, 2019). The production of "organic" young lamb is increasing intensively (Dankvert et al., 2010). As for sheep's milk, it is a valuable food product in many countries of the world. It serves for making various types of cheese and dairy products (Goncharenko et al., 2018). The research found that sheep milk production in countries such as Greece, Spain, Portugal provides at least 15 % of total income, and in some countries, it reaches 30 % (De-Arriba, Sänchez-Andres, 2014). Recently in Ukraine, a promising development area of the sheep industry is young lamb, and sheep's milk (Vdovychenko, Zharuk, 2019).

The study aims to analyze and summarize FAO data on the dynamics of lamb and sheep milk production in the world and Ukraine.

## *Materials and methods.*

The article summarizes and analyzes FAO data on lamb and sheep milk production in the world and in Ukraine for the period 2008-2018. The methods of graphical analysis and percentage comparison of changes in the lamb and sheep milk amount production for the ten-year period are used.

## *Research results.*

In recent years, there has been a tendency to increase lamb production in the world (Fig. 1). Fluctuations in the values of this indicator over the years ranged from 8.6 to 9.8 million tons. In general, world production of lamb for the study period increased by 1.14 times or 14.0 %.

China annually produces 23.4-24.8 % of the world's lamb and ranks first among the producers of this type of meat (Table 1). By production volume of lamb, Australia accounts for 7.51 %, New Zealand – 4.81, Turkey – 3.71 %.

During the analyzed period, such countries as Chad (2.15 times), Uzbekistan (1.95 times), and Algeria (1.82 times) showed a significant increase in lamb production. New Zealand showed the largest decline in lamb production – by 21.2 % and in Sudan – by 20.4 %. In 2018, Ukraine produced 7.8 thousand tons of lamb, which is 7.14 % less than in 2008.

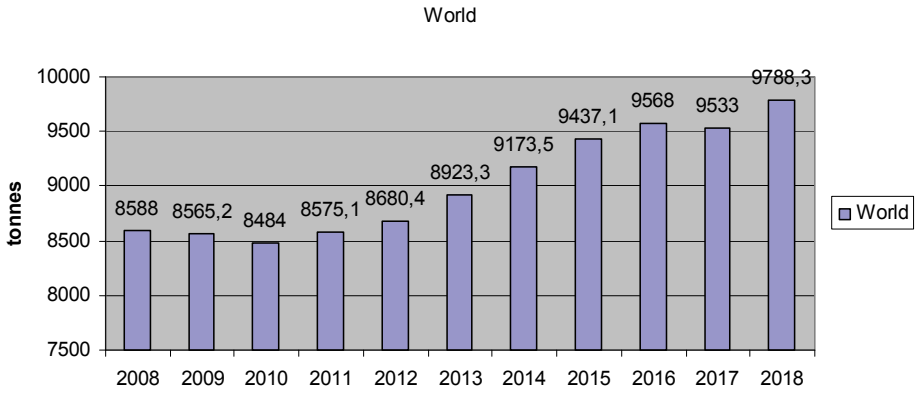


**Fig. 1. Dynamics of lamb production in the world (Faostat, 2018)**

In Europe, the leaders in lamb production are Great Britain (289 thousand tons), Russia (205.1 thousand tons), and Spain (119.6 thousand tons); their share is 24.9; 17.7 and 10.3 % of the total lamb in the region (Fig. 2).

It is worth noting that there is an increase in lamb production in Romania and Russia by 54.1 and 30.6 %, respectively, while in Spain, France, and England, there is a significant decrease – by 23.8, 21.5, and 12.8 %, respectively.

Lamb production has increased significantly in the last 10 years (Fig. 3) in Uzbekistan (1.95 times), Tajikistan

**1. Gross production of lamb, thousand tons (Faostat, 2018)**

| Countries | Years | | | | | | 2018/2008 % |
|---|---|---|---|---|---|---|---|
| | 2008 | 2014 | 2015 | 2016 | 2017 | 2018 | |
| China | 2005,5 | 2180,9 | 2243,6 | 2347,3 | 2402,4 | 2422,9 | +20,8 |
| Australia | 659,5 | 720,6 | 721,1 | 712,5 | 669,6 | 735,0 | +11,5 |
| New Zealand | 597,4 | 487,1 | 487,1 | 480,6 | 451,3 | 470,8 | -21,2 |
| Turkey | 287,0 | 317,4 | 336,0 | 338,0 | 333,0 | 362,6 | +26,4 |
| Algeria | 178,5 | 302,6 | 311,4 | 321,9 | 325,1 | 325,0 | +82,1 |
| Iran | 252,7 | 276,0 | 335,1 | 287,0 | 291,2 | 320,7 | +26,9 |
| UK | 331,6 | 298,0 | 302,0 | 291,0 | 299,0 | 289,0 | -12,8 |
| Sudan | 331,8 | 251,0 | 253,0 | 261,0 | 263,0 | 264,0 | -20,4 |
| India | 261,6 | 235,2 | 231,8 | 236,8 | 232,5 | 229,8 | -12,2 |
| Russian (RF) | 156,2 | 186,4 | 186,8 | 194,5 | 201,2 | 205,1 | +31,3 |
| Morocco | 121,0 | 120,4 | 156,9 | 160,9 | 163,3 | 178,8 | +47,8 |
| Pakistan | 153,0 | 164,0 | 166,0 | 168,0 | 170,0 | 172,0 | +12,4 |
| Uzbekistan | 88,0 | 177,0 | 191,2 | 234,6 | 177,8 | 171,4 | +94,8 |
| Chad | 76,5 | 120,9 | 130,5 | 140,9 | 152,2 | 164,0 | +114,4 |
| Syria | 184,5 | 161,3 | 161,3 | 161,3 | 161,3 | 161,3 | -12,6 |
| Ukraine | 8,4 | 8,9 | 8,4 | 8,5 | 7,5 | 7,8 | -7,14 |

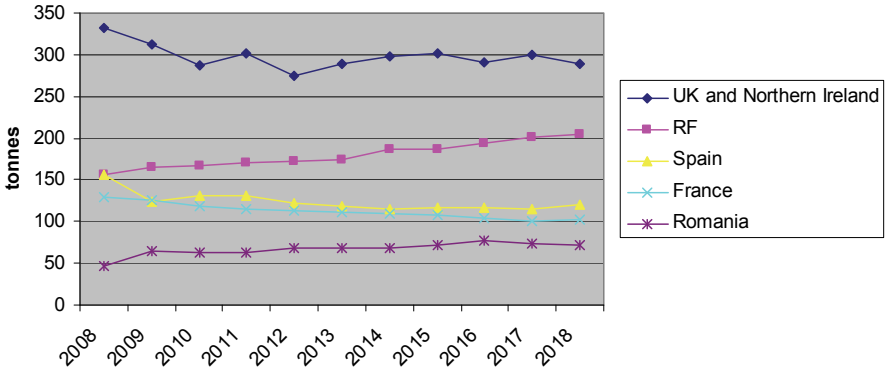


**Fig. 2. Dynamics of lamb production in Europe (Faostat, 2018)**

(1.77 times), Azerbaijan (1.75 times) and Kyrgyzstan (1.59 times). There is a steady tendency to increase the production of lamb in Armenia (1.48 times) and Kazakhstan (1.37 times).

Sheep's milk is an essential source of income in countries where climatic conditions are unfavorable for cattle. The most developed dairy sheep breeding is in Turkey, which annually produces 13.6 % of the world's sheep's milk (Table 2). The second place is occupied by China – 11.1 %, the third belongs to Greece – 7.1 %, the fourth place is occupied by Syria and Romania, which in 2018 produced approximately the same amount of milk – 6.1 and 5.9 %, respectively.

It is worth mentioning that over the past ten years, sheep milk production has increased significantly in Turkey – by 93.6 % and Mali – by 91.5 %. Iran (1.37 times), France (1.33 times), and Spain (1.24 times) have a relatively high increase in milk production. In 2018, there was a decrease in sheep milk production in countries such as Sudan, Syria, India, and Italy, which was respectively 17.7, 9.2, which is 7.67, and 7.05 % less than in 2008. In total, in 2018, the world produced 10,631.1 million tons of sheep's milk, 16.6 % more than in 2008.

In Ukraine, the production of marketable sheep's milk decreased by 24.3 % during the study period. Fluctuations in

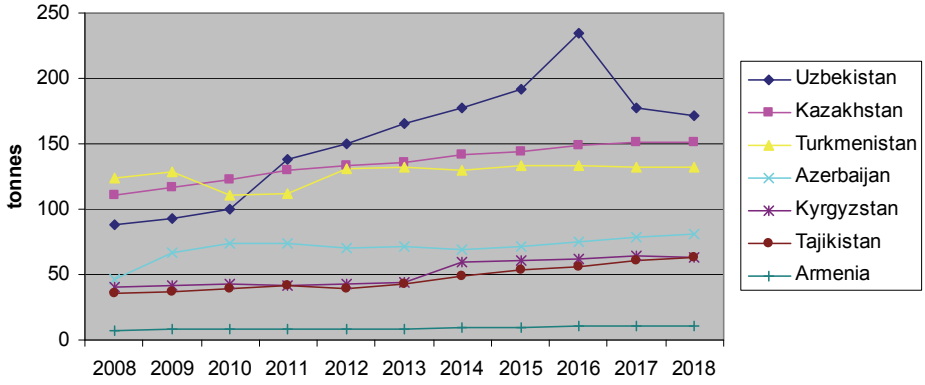


**Fig. 3. Dynamics of lamb production in the CIS (Faostat, 2018)**

**2. Gross production of sheep's milk, tonnes (Faostat, 2018)**

| Countries | Years | | | | | | 2018/2008 % |
|---|---|---|---|---|---|---|---|
| | 2008 | 2014 | 2015 | 2016 | 2017 | 2018 | |
| Turkey | 746,9 | 1113,9 | 1177,2 | 1160,4 | 1344,8 | 1446,3 | +93,6 |
| China | 1096,0 | 1225,4 | 1169,6 | 1192,3 | 1171,3 | 1180,3 | +7,70 |
| Greece | 759,9 | 847,1 | 846,8 | 841,0 | 851,7 | 753,8 | –0,8 |
| Syrian | 712,9 | 685,2 | 651,3 | 657,7 | 648,3 | 647,3 | –9,2 |
| Romania | 656,8 | 673,5 | 670,6 | 631,4 | 625,1 | 626,1 | –4,67 |
| Spain | 441,4 | 592,8 | 560,0 | 566,4 | 544,1 | 544,5 | +23,4 |
| Italy | 564,5 | 372,5 | 397,5 | 424,8 | 410,4 | 524,7 | –7,05 |
| Sudan | 503,0 | 402,0 | 407,0 | 411,0 | 412,0 | 414,0 | –17,7 |
| Mali | 199,0 | 301,7 | 293,0 | 304,2 | 364,3 | 381,1 | +91,5 |
| Somalia | 395,4 | 411,0 | 402,5 | 400,0 | 380,0 | 369,4 | –6,57 |
| France | 244,2 | 259,7 | 271,1 | 316,5 | 320,7 | 323,8 | +32,6 |
| Iran | 232,1 | 271,0 | 380,6 | 330,6 | 449,7 | 316,4 | +36,3 |
| Algeria | 255,0 | 292,6 | 295,1 | 468,5 | 515,8 | 304,2 | +19,3 |
| Afghanistan | 196,0 | 202,6 | 199,8 | 200,4 | 206,8 | 208,5 | +6,4 |
| India | 217,5 | 203,2 | 201,7 | 204,443 | 202,122 | 200,8 | –7,67 |
| World | 9164,6 | 10161,6 | 10277,8 | 10539,6 | 10876,3 | 10631,1 | +16,01 |
| Ukraine | 23,9 | 23,6 | 21,4 | 17,1 | 17,0 | 18,1 | –24,3 |

the values of this indicator over the years ranged from 18.1 to 51.6 thousand tons. However, the highest level of sheep's milk production reached 51.6 thousand tons in 2010, 64.9 % more than in 2018.

Thus, our research revealed a tendency to decrease lamb and sheep's milk production in Ukraine for 2008-2018. The decrease in lamb and sheep's milk production is due to a decrease in the number of sheep in Ukraine during this period. FAO data show that in 2018 the number of sheep in Ukraine amounted to 727,200 thousand heads, 29.6 % less than in 2008.

## *Conclusions and prospects.*

World production of lamb and sheep's milk for the period 2008-2018 increased by 14.0 and 16.6 %, respectively. During the study period in Ukraine, the production of lamb decreased by 7.14 %, sheep's milk – by 24.3 %.

Prospects for further research are the analysis and generalization of data on sheep production dynamics per sheep and per capita.

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***В. М. Туринський, К. С. Богданова, Н. В. Богданова (2020). ДИНАМІКА ВИРОБНИЦТВА БАРАНИНИ Й МОЛОКА ОВЕЦЬ У СВІТІ ТА В УКРАЇНІ.***
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***Анотація.*** *Останнім часом в Україні інтенсивно розвивається вівчарство м'ясного і молочного напрямів. У статті проаналізовано та узагальнено дані ФАО щодо динаміки виробництва баранини й молока овець у світі та в Україні за період 2008-2018 рр. Ре-*

*зультати досліджень свідчать, що світове виробництво баранини загалом за вказаний період збільшилось на 14 %. Значний приріст цього виду м'яса одержано у Чаді (2,15 рази), Узбекистані (1,95 рази) і Алжирі (1,82 рази). У Європі лідерами з виробництва баранини є Велика Британія (289 тис. т), Росія (205,1 тис. т) і Іспанія (119,6 тис. т). Показники виробництва баранини в Іспанії за досліджуваний період зменшились на 23,8 %, у Новій Зеландії, Франції і Судані відповідно на 21,2; 21,5 і 20,4 %. Виявлено зменшення значень цього показника у Великій Британії на 12,8 %, Сирії – 12,6 та Індії – на 12,2 %. В Україні виробництво баранини у 2018 році становило 7,8 тис. т, що на 7,14 % менше у порівнянні з 2008 роком. Провідні країни-виробники овечого молока – це Туреччина, 13,6 % світового обсягу, Китай – 11,1 та Греція – 7,1 %. Високі прирости виробництва молока за вказаний період отримано у Туреччині (2,15 рази) і Малі (1,92 рази). Відносно хороший приріст виробництва молока за останні 10 років одержано в Ірані (1,37 рази), Франції (1,33 рази) та Іспанії (1,24 рази). Значно зменшилось виробництво овечого молока в Судані, Сирії, Індії та Італії, відповідно на 17,7; 9,2; 7,67 та 7,05 %. Загалом світове виробництво молока овець за досліджуваний період збільшилось на 16,6 %. В Україні у 2018 році одержано 18,1 тис. т овечого молока, що на 24,3 % менше у порівнянні з 2008 роком. Зниження виробництва баранини й овечого молока обумовлено зменшенням поголів'я овець в Україні на 29,6 % (різниця з даними 2018 і 2008 років).*

***Ключові слова:*** *вівчарство, динаміка, баранина, овече молоко.*