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# CURRENT STATE, MAIN PROBLEMS AND DIRECTIONS OF INNOVATIVE DEVELOPMENT OF FAT-AND-OIL INDUSTRY RESOURCE BASE IN UKRAINE

*The article considers the present state of fat-and-oil industry resource base and outlines the main problems of its development in Ukraine. Due to the analysis of the current state development in fat-and-oil industry resource base, it has been established that sunflower seeds, rapeseed and soybeans are the main oilseed, which have the most industrial significance for the fat-and-oil industry of Ukraine. The major oilseed production in Ukraine is characterized by positive dynamics; the largest proportion of sunflower in the crop area structure and gross oilseeds crop; a gradual transition from extensive production to an intensive, indicating that there is an increase in the yield of oilseeds. It is revealed that the general supply of oil seed in the Ukrainian domestic market is formed by the expense of own production. The main direction of sunflower distribution is a domestic consumption, rapeseed and soybeans - the export component. The key problems in the development of fat-and-oil industry resource base in Ukraine are: a significant yield lack of oilseeds in comparison with their biological potential, achievements in the field of breeding and world-wide level; annual increase in the cost of oilseeds production; low assurance level of agricultural producers by the main types of agricultural machinery and its high degree of wear extent; lack of financial and credit resources; unsatisfactory state in infrastructure development of storage, transportation and sale of oilseeds; increase of import dependence on the rapeseed and sunflower seeds market; the domination of foreign breeding innovations over domestic developments.*

Keywords: fat-and-oil industry, resource base, sunflower, rapeseed, soybean, sown area, gross collection, yield, profitability.

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**Problem statement in general form.** Ukrainian fat-and-oil industry has a strategic importance for ensuring the economic, food and energy security of the state and is one of the most important players in vegetable oils world market, taking leading positions in terms of sunflower oil exports. The increased world demand for vegetable oil in the food and industrial sectors has contributed to the export-oriented processing capacity growth of the fat-and-oil industry, which has increased in 6.2 times during 2000-2015 and reached 16012 thousand tons of oilseeds per year, but it's availability in recent years does not exceed 63-66% [1]. Consequently, the active fat-and-oil industry development requires the search for ways to increase the level of oilseeds supply to the growing needs of the processing industry. In this regard, the current state assessment and determination of the main problems in the raw material base development among the fat-and-oil industry is of particular relevance in Ukraine.

**Analysis of recent research and publications.** The problems and prospects for the development of the oilseeds market, enlargement in their production efficiency and strengthening of competitiveness on the domestic and foreign markets are devoted to the works of such famous scientists as: Il'chuk M.M. [2], Pylypchenko A.V. [3], Tymchenko V.N. [3], Tkachuk V.I. [4], Chekhov I.V. [5], Chekhov S.A. [5], Shubravska O.V. [6] and others. However, a number of issues related to the raw material base development in Ukraine and the increase in the level of oilseeds provision to the growing needs withtin the processing capacity of the industry have not yet been adequately reflected in scientific research.

**The purpose of the article** is to analyze the current state of the fat-and-oil industry raw material base and to identify the main problems of its development in Ukraine.

**The main material.** The main raw material for the production of vegetable oil and various types of fat-and-oil products on its basis (margarine, industrial fats, mayonnaise, mayonnaise sauces, soaps,

etc.) are oilseeds. Among the oilseeds grown in Ukraine, sunflower, rapeseed and soybeans are the most important for the fat-and-oil industry.

Assessing the production dynamics of major oilseeds in Ukraine during 2000-2015, it can be noted that the crop area under these crops has increased 2.5 times from 3256.3 thousand hectares in 2000 to 8074.3 thousand hectares in 2015, including: under sunflower – 1,7 times, rapeseed – 3,2 times and soybeans –33,3 times. At the same time, in recent years there has been a tendency to expand the sown area under soya at the expense of reducing crop areas under sunflower and rapeseed. So in 2015, compared with 2014, the crop area under soya grew by 19.5%, while under sunflower and rapeseed fell by 2.9% and 22.6% respectively. At the same time, the gross collection of oilseeds during this period grew 4.6 times from 3664 thousand tons in 2000 to 16961.5 thousand tons in 2015, including: sunflower – 3.2 times, rapeseed – 13.2 times and soybeans – in 61.4 times (Table 1).

*Table 1* – **Production indicators of major oilseeds in Ukraine,**
(compiled by the author on the basis of [7])

| Index | Years | | | | | Deviation, % | |
|---|---|---|---|---|---|---|---|
| | 2000 | 2010 | 2013 | 2014 | 2015 | 2015/ 2014 | 2015/ 2000 |
| 1 Sown area of oilseeds, thousands hectares, including | 3256,3 | 6744,9 | 7554,8 | 8082,4 | 8074,3 | -0,1 | 148,0 |
| - sunflower | 2942,9 | 4572,5 | 5051,3 | 5256,5 | 5104,6 | -2,9 | 73,5 |
| - rapeseed | 214,3 | 907,4 | 1017,4 | 881,6 | 682,4 | -22,6 | 218,4 |
| - soybean | 64,8 | 1076 | 1369,9 | 1805,8 | 2158,1 | 19,5 | 3230,4 |
| 2 Average yield of oilseeds, centner/hectares, including | 11,9 | 15,2 | 21,6 | 20,4 | 21,0 | 2,9 | 76,5 |
| - sunflower | 12,2 | 15,0 | 21,7 | 19,4 | 21,6 | 11,3 | 77,0 |
| - rapeseed | 8,4 | 17,0 | 23,6 | 25,4 | 25,9 | 2,0 | 208,3 |
| - soybean | 10,6 | 16,2 | 20,5 | 21,6 | 18,4 | -14,8 | 73,6 |
| 3 Gross collection of oilseeds, thousands tons, including | 3664,0 | 10033,0 | 16232,2 | 16334,2 | 16961,5 | 3,8 | 362,9 |
| - sunflower | 3457,0 | 6772,0 | 11050,5 | 10133,8 | 11181,1 | 10,3 | 223,4 |
| - rapeseed | 132,0 | 1470,0 | 2351,7 | 2198,0 | 1737,6 | -20,9 | 1216,4 |
| - soybean | 64,0 | 1680,0 | 2774,3 | 3881,9 | 3930,6 | 1,3 | 6041,6 |

But second consecutive year there is a decrease in cropping area and gross rapeseed harvest due to price trends in the world market for petroleum products, which makes biofuel production less attractive from an economic point of view.

The reasons for the rapid growth of sown areas and volumes of oilseed production are the increased demand for oilseeds, which, on the one hand, is due to the annual increasing demand for raw materials for processing capacities of the fat-and-oil industry, and on the other hand, the annual increase in the population of the planet, which causes growth in demand for food products; an increase in the use of oilseeds for industrial purposes (production of biodiesel); a high level of domestic and world prices for oilseed crops and their processing products, which provides highly profitable production and stimulates the subjects of agrarian market management to allocate a significant share of crops to these cultures [4].

In the process of the cropping pattern structure analysis in 2000-2015, was detected a gradual decrease in the proportion of sunflower in a group of oilseeds by 27.2% from 90.4% in 2000 to 63.2% in 2015 in favor of others – rapeseed and soybeans The specific weight of rapeseed in the crop area structure under oilseeds in 2000-2015 has increased by 1.9% and amounted to 8.5% in 2015, and soybeans - by 24.5% and amounted to 26.7% in 2015.

However, whereas such changes in the structure of sown areas, the main oilseed crop and the main

raw material of the fat-and-oil industry in Ukraine remains to sunflower, which is due to a number of factors.

First, sunflower, due to its biological properties is better than other oil crops, adapted to cultivate in the natural and climatic conditions of our country. The most favorable soil-climatic zones for its cultivation are central regions of the forest-steppe (Vinnytsia, Cherkasy, Poltava, Kharkiv Regions), the northern steppe (Kirovograd, Dnipropetrovsk, Donetsk, Zaporizhia, Lugansk Regions), northern districts of Odessa, Mykolaiv, Kherson regions, which are characterized by fertile soils due to the level of useful substance (common and typical chernozems, bleached and dark gray ones) and favorable weather conditions [2].

In addition, sunflower seed oil has high nutritional and physiological value, is used by the largest consumer demand and serves as a basis for the production of margarine and mayonnaise products, while the by-product of sunflower processing – sunflower cake is used as feed in cattle breeding.

Secondly, the expansion of sown areas under sunflower is due to its higher profitability compared with other oilseeds, cereals and leguminous plants. In 2015, the profitability of sunflower production amounted to 80.5%, soybeans - 38.6%, rapeseed - 44.3%, grain and leguminous crops - 43.1% [8, 9].

Third, despite the fact that the production capacity of the fat-and-oil industry can recycle the entire volume of rapeseed grown in Ukraine, its main part continues to be exported to the EU. The reason for such a situation is that the production of alternative fuels has not yet been properly developed in Ukraine.

The increase of oilseeds share in the general structure of crops for 2000-2015 by 18% causes an imbalance in the optimal crops correlation in crop rotation in different natural and agricultural regions and reduces their yield. Thus, according to the Resolution of the Cabinet of Ministers of Ukraine "On Approval of the Norms for Optimum Crop Ratio in Crop rotations in Various Natural-Agricultural Regions" dated 11.02.2010 No. 164, the share of sunflower seeds for the North-Steppe Natural-Agricultural Region should not exceed 10% in the general structure of crop area, and for the Southern steppe – | 12-15 %. According to the Institute of Grain Farming data during a specific weight of sunflower in the crops structure 15 %, its yield is 25 centner/hectares and at 30% – reduced to 17 centner/hectares. In addition, a significant number of sunflower crops return to the previous place of cultivation in 1-3 years (if recommended 7-8 years), and sometimes annual crops of it in one place without the use of special measures, is an evidence of the agriculture system violation and its basics are scientifically grounded crop rotation, which leads to negative consequences: depletion of soils, accumulation of infectious agents, increase of danger of growth of bullying and loss of seed crops.

One of the most important performance indicators among ratio of oilseeds is the yield, which is during 2000-2015 increased by 1,8 times from 11,9 centners per hectare to 21 centners per hectare, including: sunflower – 1,8 times to 21 , 6 centners per hectare, rapeseed – from 3.1 times to 25.9 centners per hectare, soybeans – 1.7 times to 18.4 centners per hectare (Table 1).

By assessing the oilseeds yields in 2015 at agricultural enterprises in terms of the harvested area size, it can be said that the highest yield of sunflower was 23.1 centners / hectares, rapeseed 28.2 centner / hectares and soybeans 19.7 centner / hectares, was obtained in agricultural enterprises with the collected area of sunflower size more than 3000 hectares, and the rapeseed and soya – more than 500 hectares, which numbered 72,257 and 907 units, respectively. The output of sunflower, rapeseed and soybeans in these companies was 8.2 %, 44.1 % and 59.4 %, respectively, from the total gross crop yield. The lowest yield of sunflower 14.6 c / ha, rapeseed 20.1 c / ha and soya 13.6 c / ha was obtained in agricultural enterprises with the size of the collected area up to 50 hectares, which in 2015 there were 10463, 1159 and 5269 units Respectively [7]. That is, the technology of cultivating oilseeds in these farms is almost absent.

At the same time, yields are not sufficient in relation to the biological potential of oilseeds and achievements in the selection field [5]. Thus, the potential yield of modern sunflower hybrids reaches 45-51 c / ha, rapeseed – 55-72 c / ha, soybean varieties – 40-50 c / ha. Consequently, the average yield of oilseeds in practical use is lower than the potential for 26-37% (Table 2).

*Table 2* – **Potential yield of oilseeds** (compiled by the author on the basis of [5,10,11])

| Index | Actual yield, c/ha | | | | Potential yield, c/ha | | Deviation of actual yield in 2015 from potential one | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | absolute, c/ha | | relative, % | |
| | 2010 | 2013 | 2014 | 2015 | min | max | min | max | min | max |
| Oilseeds, including: | 15,2 | 21,6 | 20,4 | 21,0 | 47,0 | 58,0 | -26,0 | -37,0 | -55,3 | -63,8 |
| - sunflower | 15,0 | 21,7 | 19,4 | 21,6 | 45,0 | 51,0 | -23,4 | -29,4 | -52,0 | -57,6 |
| - rapeseed | 17,0 | 23,6 | 25,4 | 25,9 | 55,0 | 72,0 | -29,1 | -46,1 | -52,9 | -64,0 |
| - soybean | 16,2 | 20,5 | 21,6 | 18,4 | 40,0 | 50,0 | -21,6 | -31,6 | -54,0 | -63,2 |

The yield of oilseeds in Ukraine also lags behind its world-wide level. For comparison: in 2015 sunflower yield in China was 26 c / ha; Rapeseed - in EU countries – 34.1 c / ha, Chile – 40 c / ha; Soybeans – in the EU countries – 26.6 c / ha, Canada – 29 c / ha, Argentina 29.1 c / ha, Brazil 29.2 c / ha, and the United States 32.3 c / ha.

The analysis of the production and sales of oilseed crops in Ukraine for 2010-2015 made it possible to establish that a high level of marketability of oilseeds is due to the high demand for these products on the market (Table 3).

*Table 3* – **The production efficiency and realization of oilseeds in Ukraine**
(compiled by the author on the basis of [8])

| Index | Years | | | | Growth rate, % | |
|---|---|---|---|---|---|---|
| | 2010 | 2013 | 2014 | 2015 | 2015/ 2014 | 2015/ 2010 |
| **Sunflower** | | | | | | |
| Output, thousands tons | 6772,0 | 11050,5 | 10133,8 | 11181,1 | 110,3 | 165,1 |
| Volume of sales, thousands tons | 4957,4 | 6956,8 | 7737,5 | 8756,1 | 113,2 | 176,6 |
| Marketable value, % | 73,2 | 63,0 | 76,4 | 78,3 | 102,6 | 107,0 |
| Working expenses 1 centner of product, hrn | 157,41 | 193,38 | 243,7 | 362,1 | 148,6 | 230,0 |
| Per 1 centner of products sold, hrn.: - Sale price (without VAT) | 302,8 | 298,21 | 384,7 | 758,92 | 197,3 | 250,6 |
| - Full cost | 183,88 | 232,05 | 281,9 | 420,51 | 149,2 | 228,7 |
| - Profit | 118,9 | 66,16 | 102,78 | 338,41 | 329,3 | 284,6 |
| Level of profitability, % | 64,7 | 28,5 | 36,5 | 80,5 | 220,5 | 124,4 |
| **Rapeseed** | | | | | | |
| Output, thousands tons | 1470,0 | 2351,7 | 2198,0 | 1737,6 | 79,1 | 118,2 |
| Volume of sales, thousands tons | 1181,9 | 2021,6 | 1922,3 | 1483,3 | 77,2 | 125,5 |
| Marketable value, % | 80,4 | 86,0 | 87,5 | 85,4 | 97,6 | 106,2 |
| Working expenses 1 centner of product, hrn | 193,61 | 239,40 | 259,8 | 413,1 | 159,0 | 213,4 |
| Per 1 centner of products sold, hrn.: - Sale price (without VAT) | 260,49 | 307,70 | 418,8 | 740,50 | 176,8 | 284,3 |
| - Full cost | 223,80 | 283,26 | 324,2 | 513,16 | 158,3 | 229,3 |
| - Profit | 61,56 | 24,44 | 94,62 | 227,33 | 240,3 | 369,3 |
| Level of profitability, % | 26,6 | 8,6 | 29,2 | 44,3 | 151,7 | 166,5 |
| **Soybean** | | | | | | |
| Output, thousand tons | 1680,0 | 2774,3 | 3881,9 | 3930,6 | 101,3 | 234,0 |
| Volume of sales, thousands tons | 1026,6 | 1993,2 | 2436,6 | 3052,3 | 125,3 | 297,3 |
| Marketable value, % | 61,1 | 71,8 | 62,8 | 77,7 | 123,7 | 127,1 |
| Working expenses 1 centner of product, hrn | 188,68 | 249,29 | 286,3 | 502,7 | 175,6 | 266,4 |
| Per 1 centner of products sold, hrn.: - Sale price (without VAT) | 260,49 | 343,22 | 466,5 | 741,65 | 159,0 | 284,7 |
| - Full cost | 223,80 | 296,40 | 346,8 | 534,99 | 154,3 | 239,0 |
| - Profit | 36,69 | 46,81 | 119,67 | 206,66 | 172,7 | 563,3 |
| Level of profitability, % | 16,4 | 15,8 | 34,5 | 38,6 | 111,9 | 235,4 |

In 2010-2015, production costs of 1 centner of sunflower seeds increased by 2.3 times, rapeseed – by 2.1 times, soybeans – by 2.7 times. In 2015, compared with 2014, the production costs of 1 centner of sunflower seeds increased by 48.6 %, rapeseed – by 59 %, soybeans – by 75.6 %, which is due to rising costs of seed costs, mineral fertilizers, fuel and lubricants. So in 2015, compared with 2014, only mineral fertilizer and plant protection costs for sunflower seeds increased by 2 times, rapeseed – by 1.4 times and soya – by 1.9 times. In the structure of expenditures on oilseeds production, the largest share is spent on seed material, mineral fertilizers, fuel and lubricants, the share of which in 2015 in the production of sunflower reached 62.1 %, rapeseed – 58.8 %, soybeans – 52, 3 % [8].

In 2015, compared with 2014, the full cost of selling 1 centner of sunflower seeds has increased by 1.97 times, rapeseed – 1.58 times, soybeans – by 1.54 times. It should be noted that the growth rate of oilseeds sales prices exceeds the growth rate of production costs, which ensures profitability and profitability of its production. Thus, in 2015, compared to 2014, the sunflower seeds profitability grew by 2.2 times, rapeseed – by 1.5 times, soybeans – by 1.1 times.

A significant impact on the oilseeds production efficiency is the agricultural producers' level with the main types of agricultural machinery, which according to the information of the National Research Center "Institute of Agrarian Economics" is currently 50 %, and the degree of its updating. The situation is particularly threatening with tractor machinery, which is an integral part of most oilseed production processes. As of 2016, about 75% of tractors were outside the depreciation and cost-effective lifetime. That is, its overwhelming part has worked its lifetime and needs to be replaced [12].

Another factors of low technical and technological equipment for the oilseeds production, the use of mineral and organic fertilizers, plant protection products is the lack of financial resources in the vast majority of Ukrainian agricultural producers, high cost and difficulty in obtaining loans. According to the National Bank of Ukraine, the weighted average annual interest rates for which agro-business loans were raised in 2016 amounted to 20.7-24.3 % in national currency and 9.4-12.3 % in foreign currency. For comparison, the average annual interest rate on loans in the United States is 3.25 %, France 3,43 %, Germany 3,94 %, Canada 3 % [13].

The largest share in the structure of loans attracted by agribusiness in 2016 was for short-term loans (up to 1 year) – 45 % and medium-term (from 1 to 5 years) – 42 %, and the smallest - for long-term loans (more than 5 years) – 13 % That is, agricultural producers often borrow funds to cover working capital needs during fieldwork and harvesting (fertilizers, plant protection products, fuel and lubricants, seed materials, etc.), and medium and long-term - for the acquisition and renewal of major means (agricultural machinery).

It should be noted that besides the value growth of the bank loans, requirements for borrowers and mortgaged property became more stringent. Commercial banks favored those borrowers who had a positive credit history, liquid mortgages, and access to the domestic and foreign markets, and processed large areas of agricultural land, that is, large agricultural enterprises and agricultural holdings. In view of this, most small and medium-sized agricultural producers have limited access to credit resources. In turn, the decrease in the supply of credit products due to liquidity problems in the Ukrainian banking system also affected the deterioration of the credit provision in enterprises operating at the agrarian sector of the economy.

A constraining force in the oilseeds production growth is the unsatisfactory state of storage, transportation and sale infrastructure development. Considerable distance from the places of oil seeds harvesting, processing and sale dramatically increases the logistics costs associated with its transportation, and the limited capacity of elevators, warehouses, weighing and drying facilities processing enterprises in the oil and fat industry increases the risk of crops loss and reduces the oil raw materials quality.

The solution of technical, technological, financial problems should be supplemented by the

introduction of oilseeds innovative progressive varieties, which must increase the yield and oilseeds quality characteristics.

At the same time, the status quo in the field of domestic selection and oilseeds production is also characterized by some problems and negative tendencies. The main problem is that varieties and hybrids of oilseeds which are offered by Ukrainian breeding science do not find proper application in the agrarian sector of the economy. According to Shubravskaya O.S., despite the strong scientific potential and annual budget investments in the amount of over UAH 350 million, the implementation of scientific results obtained by the units of the Ukrainian National Academy of Agrarian Sciences in the agrarian sector is unsatisfactory [6]. In particular, the final loss problem of the market for genetic resources (seed) is a source of concern, where more than 2/3 of the rapeseed and sunflower varieties are of foreign origin. From the 218 varieties of winter rapeseed, which were included in the State Register of Plant Varieties, suitable for distribution in Ukraine in 2015, 83 % came from varieties of foreign selection. It should be noted that foreign breeders primarily focus on the possibilities of powerful agro holdings, which have a significant land bank, high-tech equipment and have sufficient financial resources to grow oilseeds on modern agrotechnologies. The lack of logistical and financial security in most Ukrainian small and medium-sized agricultural producers does not allow regulatory effectiveness to be obtained from imported breeding materials.

Not enough attention is paid in the field of domestic oilseeds selection and production and in such an innovative direction as the creation or use of high-oleic sunflower hybrids, which are actively grown in the USA, the European Union and Argentina. So in France, about 60% of the area under sunflowers is occupied by high-oleic hybrids. Instead, in Ukraine, according to "APK-Inform" experts, in the 2015/16 MY only 170,000 hectares were planted with high-oleic sunflower, which was 3.3% in the total sunflower seed area [14]. Made from such varieties of sunflower, high oleic oil has the same properties as olive oil, due to its high content of monounsaturated fats, and belongs to the premium segment. The main advantages of high oleic sunflower oil in comparison with traditional linoleum is the high oleic acid content 82-94 % [15, p. 118] and vitamin E - natural antioxidant (alpha-tocopherol); long shelf life, which is four times more than traditional; neutral taste; possibility to use for the production of biodiesel. One of the factors that will determine the attractiveness of the high-oleic sunflower market in the medium term is the high production profitability and producer bonuses due to increased yields and oilseeds; the EU countries interest, whose production in fact meets the needs of the market in high oleic sunflower oil by 80%; healthy lifestyle popularization in the word developed countries; annually growing demand of the world oil and fat industry in new types of oils [16].

With regard to the use directions of main oilseeds, they have significant differences in the context of its individual species (Table 4).

The general supply of oilseed crops in Ukraine is formed at the expense of its own production, so far as imports are insignificant volumes and are represented mainly by crop material. At the same time, it should be noted that due to an increase in the gross sunflower and soybeans collections, the overall supply of these crops also tends to increase.

There are certain differences in the structure of the oilseeds distribution. The main direction of the sunflower distribution is domestic consumption, which is formed mainly due to its processing inside the country. In 2010 / 11-2015 / 16 MY about 91,8-97,1% sunflower seed processed into oil and export was directed only 5,2-0,7%. The main factors that contributed to increase domestic processing of sunflower 1.5 times in 2010 / 11-2015 / 16 MY were strong demand from export-oriented processing capacity fat-and-oil industry performance and 10 percent export duty on sunflower seeds.

Concerning rapeseed and soybean, the main focus of their distribution in Ukraine is an export component, due to high world prices and zero export duty on oilseeds and return of VAT on exports. Thus, in the 2010/11 MY to the EU for biofuels exported 96.1% of rapeseed, and in 2015 / 16 MY - 81.5%, and recycled domestically were allocated only 3.7% of rapeseed in 2010/11 MY And 18.4% at 2015/16 MY.

*Table 4* – **The balance of demand and supply of the main oilseed crops in Ukraine, thousands tons** (compiled by the author on the basis of [17])

| Index | Marketing years | | | In the structure, % | | |
|---|---|---|---|---|---|---|
| | 2000/ 2001 | 2010/ 2011 | 2015/ 2016 | 2000/ 2001 | 2010/ 2011 | 2015/ 2016 |
| **Sunflower** | | | | | | |
| Initial stock | 87,0 | 481,0 | 122,0 | 2,5 | 5,6 | 1,0 |
| Production | 3457,0 | 8100,0 | 11900,0 | 97,5 | 94,3 | 98,8 |
| Import | 1,0 | 12,0 | 22,0 | 0,0 | 0,1 | 0,2 |
| **Total supply** | **3545,0** | **8593,0** | **12044,0** | **100,0** | **100,0** | **100,0** |
| Export | 1020,0 | 444,0 | 83,0 | 28,8 | 5,2 | 0,7 |
| Internal use, including.: | 2510,0 | 8005,0 | 11860,0 | 70,8 | 93,2 | 98,5 |
| - processed seeds | 2330,0 | 7885,0 | 11700,0 | 65,7 | 91,8 | 97,1 |
| - food expenditure | 30,0 | 50,0 | 50,0 | 0,8 | 0,6 | 0,4 |
| - losses | 150,0 | 70,0 | 110,0 | 4,2 | 0,8 | 0,9 |
| Ending stock | 15,0 | 144,0 | 101,0 | 0,4 | 1,7 | 0,8 |
| **Total supply** | **3545,0** | **8593,0** | **12044,0** | **100,0** | **100,0** | **100,0** |
| **Rapeseed** | | | | | | |
| Initial stock | 9,0 | 2,0 | 18,0 | 6,4 | 0,1 | 1,0 |
| Production | 132,0 | 1470,0 | 1744,0 | 93,6 | 99,7 | 98,9 |
| Import | 0,0 | 2,0 | 2,0 | 0,0 | 0,1 | 0,1 |
| **Total supply** | **141,0** | **1474,0** | **1764,0** | **100,0** | **100,0** | **100,0** |
| Export | 73,0 | 1416,0 | 1437,0 | 51,8 | 96,1 | 81,5 |
| Internal use, including.: | 66,0 | 57,0 | 326,0 | 46,8 | 3,9 | 18,5 |
| - processed seeds | 62,0 | 55,0 | 325,0 | 44,0 | 3,7 | 18,4 |
| - food expenditure | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| - losses | 4,0 | 2,0 | 1,0 | 2,8 | 0,1 | 0,1 |
| Ending stock | 2,0 | 1,0 | 1,0 | 1,4 | 0,1 | 0,1 |
| **Total supply** | **141,0** | **1474,0** | **1764,0** | **100,0** | **100,0** | **100,0** |
| **Soybean** | | | | | | |
| Initial stock | 1,0 | 150,0 | 166,0 | 1,3 | 8,2 | 4,0 |
| Production | 64,0 | 1680,0 | 3932,0 | 85,3 | 91,7 | 95,8 |
| Import | 10,0 | 2,0 | 5,0 | 13,3 | 0,1 | 0,1 |
| **Total supply** | **75,0** | **1832,0** | **4103,0** | **100,0** | **100,0** | **100,0** |
| Export | 12,0 | 989,0 | 2369,0 | 16,0 | 54,0 | 57,7 |
| Internal use, including.: | 62,0 | 740,0 | 1601,0 | 82,7 | 40,4 | 39,0 |
| - processed seeds | 55,0 | 560,0 | 900,0 | 73,3 | 30,6 | 21,9 |
| - food expenditure | 0,0 | 0,0 | 1,0 | 0,0 | 0,0 | 0,0 |
| - losses | 7,0 | 180,0 | 700,0 | 9,3 | 9,8 | 17,1 |
| Ending stock | 1,0 | 103,0 | 133,0 | 1,3 | 5,6 | 3,2 |
| **Total supply** | **75,0** | **1832,0** | **4103,0** | **100,0** | **100,0** | **100,0** |

The export component in the structure of soybean distribution in 2010 / 11-2015 / 16 MY was 54.0-57.7% and domestic consumption was 40.4-39%. The volume of domestic soybean consumption during this period increased by 2.2 times to 1601 thousand tons in 2015/16 MY due to increased domestic processing. The growth of domestic soybean processing in Ukraine was facilitated by: high demand for soybean and products for its processing both from domestic consumers and export-oriented companies; commissioning of new and modernization of existing soybean processing lines, whose capacity for 2010 / 11-2015 / 16 MY increased by 4.1 times and estimated at 2,442.4 thousands tons.

**Conclusions and directions of further research.** Thus, the current state of fat-and-oil industry development in Ukraine can be characterized by the following trends:

- the main oilseed material that has the most industrial importance for the Ukrainian fat-and-oil industry are sunflower seeds, rapeseed and soybeans;
- the production of the main oilseeds in Ukraine is characterized by positive dynamics, which is

conditioned by high profitability of production, annual growing demand for oil seeds and products of their processing on the domestic and world markets; The gradual transition from extensive production (sown areas expansion) to intensive - increasing yields through the use of high-yield varieties and oilseeds hybrids and modern agrotechnologies. An important trend in recent years is the reduction of crop area and rapeseed production, which is associated with falling world prices in the market of petroleum products;

- in the oilseeds production structure, the largest share of sunflower seeds is due to its higher oil content, biological and nutritional value, the best adaptability to cultivation in the natural and climatic conditions of our country, wide use in food and industrial purposes, higher production profitability in comparison with other oilseeds; subject and technological specialization of the oil-fat sector; national sunflower oil consumption traditions and habits;

- the general oil seed supply in the domestic market is formed at the expense of its own production, since the share of imports is insignificant and is represented mainly by seed material. The main sunflower distribution direction is domestic consumption, which is formed mainly due to its domestic processing, and rapeseed and soybeans – the export component, which is caused by the zero rate of export (export) duty and high world prices;

- the domestic market of oilseeds crop material is characterized by an increase varieties and hybrids of foreign selection.

Among the key problems in the production development of major oilseeds in Ukraine, the following can be distinguished:

- Significant lack of oilseeds productivity in comparison with their biological potential, achievements in the breeding field and world-wide level, the main reasons are violations of scientifically grounded sowing areas optimal size and non-compliance with agrotechnological cultivation methods;

- Annual increase of oilseeds production costs due to rising prices for seeds, mineral fertilizers, plant protection products, fuel and lubricants;

- low level of agricultural producers assurance by the main types of agricultural machinery and its high wear factor;

- financial resources lack in the vast majority of Ukrainian agricultural producers, high cost and difficulty in obtaining loans;

- unsatisfactory state of infrastructure development for oilseeds storage, transportation and sale, which leads to increased logistical costs, increased risk of crops loss and a decrease in the oilseeds quality;

- Increase of import dependence on the rapeseed and sunflower seeds market;

- the dominance of foreign breeding innovations over domestic developments, etc.

Taking into account the current state and main problems in the development of the fat-and-oil industry raw material base in Ukraine, its further development requires improvement of organizational and economic, technical and technological, financial and credit, information and innovation support for the oilseeds production, inter-sectoral and intra-industry economic ties improvement, and relations that are capable to ensure an increase in the level of processing capacity loading in the oilseed industry at the required quantity and quality required. In this regard, the direction of further research by the author should be to determine the strategic guidelines for the development of the oil-and-fat industry in Ukraine, in accordance with which will be implemented regulatory, financial and credit, organizational and economic and other state regulatory influence on the development of the industry.

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**Сучасний стан, основні проблеми та напрямки інноваційного розвитку сировинної бази олійно-жирової галузі в Україні**

*У статті розглянуто сучасний стан сировинної бази олійно-жирової галузі та визначено основні проблеми її розвитку в Україні. В результаті аналізу сучасного стану розвитку сировинної бази олійно-жирової галузі встановлено, що основною олійною сировиною, яка має найбільше промислове значення для олійно-жирової галузі України, є насіння соняшнику, ріпаку та сої. Виробництво основних олійних культур в Україні характеризується позитивною динамікою; найбільшою питомою вагою соняшника у структурі посівних площ і валових зборів олійних культур; поступовим переходом від екстенсивного способу виробництва до інтенсивного, свідченням чого є підвищення урожайності олійних культур. З'ясовано, що загальна пропозиція олійного насіння на внутрішньому ринку України формується за рахунок власного виробництва. Основним напрямком розподілу соняшника є внутрішнє споживання, а ріпаку та сої - експортна складова. До ключових проблем розвитку сировинної бази олійно-жирової галузі в Україні віднесено: значний недобір урожайності олійних культур в порівнянні з їх біологічним потенціалом, досягнень у сфері селекції та загальносвітовим рівнем; щорічне підвищення витрат на виробництво олійних культур; низький рівень забезпеченості агровиробників основними видами сільськогосподарської техніки та високий ступінь її зношеності; нестача фінансово-кредитних ресурсів; незадовільний стан розвитку інфраструктури зберігання, транспортування і реалізації олійного насіння; посилення імпортної залежності на ринку посівного матеріалу ріпаку та соняшника; домінування зарубіжних селекційних інновацій над вітчизняними розробками.*

Ключові слова: олійно-жирова галузь, сировинна база, соняшник, ріпак, соя, посівна площа, валовий збір, урожайність, рентабельність.

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**Современное состояние, основные проблемы и направления инновационного развития сырьевой базы масложировой отрасли в Украине**

*В статье рассмотрено современное состояние сырьевой базы масложировой отрасли и выделены основные проблемы ее развития в Украине. В результате анализа современного состояния развития сырьевой базы масложировой отрасли установлено, что основным масличным сырьем, которое имеет наибольшее промышленное значение для масложировой отрасли Украины, являются семена подсолнечника, рапса и сои. Производство основных масличных культур в Украине характеризуется положительной динамикой; наибольшим удельным весом подсолнечника в структуре посевных площадей и валовых сборов масличных культур; постепенным переходом от экстенсивного способа производства к интенсивному, свидетельством чего является повышение урожайности масличных культур. Установлено, что общее предложение масличных семян на внутреннем рынке Украины формируется за счет собственного производства. Основным направлением распределения подсолнечника является внутреннее потребление, а рапса и сои - экспортная составляющая. К ключевым проблемам развития сырьевой базы масложировой отрасли в Украине отнесены: значительный недобор урожайности масличных культур по сравнению с их биологическим потенциалом, достижениями в области селекции и общемировым уровнем; ежегодное повышение затрат на производство масличных культур; низкий уровень обеспеченности агропроизводителей основными видами сельскохозяйственной техники и высокая степень ее изношенности; нехватка финансово-кредитных ресурсов; неудовлетворительное состояние развития инфраструктуры хранения, транспортировки и реализации маслосемян; усиление импортной зависимости на рынке посевного материала рапса и подсолнечника; доминирование зарубежных селекционных инноваций над отечественными разработками.*

Ключевые слова: масложировая отрасль, сырьевая база, подсолнечник, рапс, соя, посевная площадь, валовой сбор, урожайность, рентабельность.

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