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THE PECULIARITIES OF THE FLAX INDUSTRY DEVELOPMENT AND FINANCING

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Домінська О., Східницька Г. Особливості фінансування розвитку льонарства

Виконано важливе науково-практичне завдання щодо визначення проблем виробництва льону в Україні та надання практичних рекомендацій до підвищення його ефективності. З'ясовано, що за останні десятиліття посівні площі льону-довгунцю в Україні зменшилися у 172 рази, а валові збори волокна льону – у 180 разів. За результатами аналізу було виявлено, що на площі в 50 га валовий збір льонопродукції може становити: 440 ц волокна, 1700 ц трести та 220 ц насіння, на площі 250 га – майже у 6 разів більше: 2500 ц волокна, 9650 ц трести та 1250 ц насіння. Виявлено, що на сьогодні до спеціалізованих зон вирощування льону-довгунцю належать такі регіони: Волинський, Житомирський, Київський, Львівський, Сумський та Чернігівський. Це можна пояснити тим, що вони мають оптимальні природно-кліматичні умови для вирощування культури – дрібногрудкові суглинки, лісові, підзолисті ґрунти, а також необхідну кількість активних температур і опадів та необхідний рівень забезпеченості трудовими ресурсами.

Відмітимо суттєве скорочення посівних площ у світі під льоном-довгунцем, які за 1990–2014 рр. зменшилися на 76%. Якщо у 1990 р. на СРСР припадало 73% усіх площ посіву, на країни Європи (Франція, Бельгія, Нідерланди) – менше 10%, Єгипет, Аргентина, Чилі, Китай – близько 4%, то нині ситуація суттєво змінилася: найбільше посівних площ під льоном-довгунцем зосереджено у Франції – 25%, друге й третє місце посідають Білорусь та Росія – 24 та 20% відповідно, значними є площі в Китаї – 13%. В Україні під культурою всього 1% усіх світових посівних площ.

Особливістю виробництва льонопродукції у Франції і Бельгії є те, що на державному рівні в цих країнах була створена Асоціація виробників льоноволокна. Однією з форм інтеграції є оренда переробними підприємствами паїв землі. У таких льоносієйних країнах, як Чехія та Бельгія, різновидом організації взаємовідносин є надання фермерам допомоги для збирання, переробки та реалізації льонопродукції. Фермери отримують виручку від реалізації волокна за винятком витрат на доставку.

Для удосконалення економічних взаємовідносин у льонарстві запропоновано використовувати горизонтальну і вертикальну форми інтеграції. На основі горизонтальної інтеграції в льонарстві створюватимуться стартові передумови для придбання й використання дрібними і середніми льоносієйними господарствами сучасних засобів виробництва і технологій з одночасним поглибленням спеціалізації.

Вертикальна інтеграція у льонарстві є краще адаптованою до ринкових відносин, забезпечує створення замкнутого виробничого ланцюга від вирощування льону до реалізації та ефективне функціонування льонопромислового підкомплексу загалом.

Ключові слова: льонопромисловий підкомплекс, виробництво, регіон, джерела фінансування, закордонний досвід, агропромислове формування.

Dominska O., Skhidnytska G. The peculiarities of the flax industry development and financing

The article solves the important scientific and practical task to identify the problems of the production of flax in Ukraine and providing practical recommendations to improve its effectiveness. It was found that over the last decade, the sown area of flax in Ukraine has decreased by 172 times, and the gross harvest of flax fibers – in 180 times. According to the analysis, it was found that the planted area of 50 ha, the gross harvest of flax products 440 C – fiber, C 1700 – trusts and 220 kg – seeds. When over seeding an area of 250 ha, the gross harvest of flax products will increase almost in 6 times – 2500 kg fiber, 9650 C – trusts and 1250 C – seeds. It was revealed that today specialized growing areas of flax include the following regions: Volyn, Zhytomyr, Kyiv, Lviv, Sumy, and Chernihiv. This is because they have optimal climatic conditions for the cultivation of flax – appropriate soils, the required amount of active temperatures and precipitation and the required level of human resources.

It is necessary to note a significant reduction in acreage under flax-fiber, which during 1990-2014 years decreased by 76%. If, in 1990 USSR countries accounted the 73% of all acreage, the countries of Europe (France, Belgium, Netherlands) – less than 10%, Egypt, Argentina, Chile, China about 4%, and now the situation has changed significantly – most of the acreage under flax-flax is concentrated in France – 25%, second and third in Belarus and Russia – 24% and 20% respectively, and the 13% – in China. Ukraine occupied only 1% of world acreage of flax.

The main feature of the flax production in France and Belgium is that at the state level in these countries the Association of manufacturers of flax fiber was created. One form of integration is to rent processing enterprises in the distribution of land. In such countries as the Czech Republic and Belgium this kind of the organization of relationship helps farmers in harvesting, processing and sale the flax products. Farmers receive the proceeds from the sale of fiber except for the cost of shipping.

For the improvement of economic relations in flax industrial subcomplex it is proposed to use both horizontal and vertical integration. On the basis of the horizontal integration the conditions for the buying and using the modern technologies by the small farmers will be created. Vertical integration in the flax industrial subcomplex is more efficient and adapted to market relations. The creation of a closed production chain, from cultivation of flax and its processing at all stages to finished products under long-term, cost-effective relations between the spheres, will increase the competitiveness of flax products at all production stages and the efficiency of the flax industrial subcomplex as a whole.

Key words: the flax industrial subcomplex, production, region, sources of financing, foreign experience, agroindustrial formation.

Доминска О., Східницька Г. Особенности финансирования развития льноводства

Выполнено важное научно-практическое задание по определению проблем производства льна в Украине и предоставлению практических рекомендаций по повышению его эффективности. Установлено, что за последние десятилетия посевные площади льна-долгунца в Украине уменьшились в 172 раза, а валовые сборы волокна – в 180 раз. По результатам анализа определено, что на площади 50 га валовой сбор льнопродукции может составлять: 440 ц волокна, 1700 ц тресты и 220 ц семян. При засеве площади 250 га валовой сбор льнопродукции увеличится почти в 6 раз: 2500 ц волокна, 9650 ц тресты и 1250 ц семян. Выявлено, что на сегодняшний день к специализированным зонам выращивания льна-долгунца относятся регионы: Волынский, Житомирский, Киевский, Львовский, Сумской и Черниговский. Это объясняется тем, что они имеют оптимальные природно-климатические условия для выращивания льна-долгунца, а также необходимый уровень обеспеченности трудовыми ресурсами.

Отметим существенное сокращение посевных площадей в мире под льном-долгунцом, которые за 1990–2014 гг. уменьшились на 76%. Если в 1990 г. на СССР приходилось 73% всех площадей посева, на страны Европы (Франция, Бельгия, Нидерланды) – менее 10%, Египет, Аргентина, Чили, Китай – около 4%, то сейчас ситуация значительно изменилась: больше посевных площадей под льном-долгунцом сосредоточено во Франции – 25%, второе и третье места занимают Беларусь и Россия – 24 и 20% соответственно, значительные площади в Китае – 13%. В Украине всего 1% всех мировых посевных площадей под культурой.

Особенностью производства льнопродукции во Франции и Бельгии является то, что на государственном уровне в этих странах была создана Ассоциация производителей льноволокна. Одной из форм интеграции является аренда перерабатывающими предприятиями паев земли. В таких льносеющих странах, как Чехия и Бельгия, разновидностью организации взаимоотношений является предоставление фермерам помощи при сборе, переработке и реализации льнопродукции. Фермеры получают выручку от реализации волокна за исключением расходов на доставку.

Для совершенствования экономических взаимоотношений в льноводстве предложено использовать горизонтальную и вертикальную интеграцию. На основе горизонтальной интеграции в льноводстве создаются стартовые предпосылки для приобретения и использования мелкими и средними льносею-

щими хозяйствами современных средств производства и технологий с одновременным углублением специализации.

Вертикальная интеграция в льноводстве лучше адаптирована к рыночным отношениям, обеспечивает создание замкнутой производственной цепи от выращивания льна до реализации и эффективное функционирование льнопромышленного подкомплекса в целом.

Ключевые слова: *льнопромышленный подкомплекс, производство, регион, источники финансирования, иностранный опыт, агропромышленное формирование.*

Statement of the problem. Nowadays, with the deepening of interest in the production of flax fibre in the world and in Ukraine in the agricultural and processing sectors of the flax industrial complex identifies negative trends. Flax has become a losing culture. This is a precondition for the reduction of its production. The reasons for this situation include: a national economic crisis, the collapse of the economic, industrial and technological relations between separate links of the flax industrial subcomplex, the price disparity, lack of financial resources for introduction of new technologies and modernization of processing facilities, high energy and labor costs for the cultivation of flax, insufficient conditions for attracting investment, low management level of enterprises, the loss of traditional markets. The national value of the problem of ensuring the flax production efficiency solution caused the actuality of the article.

Analysis of recent researches and publications. The scientific works of the famous researchers P. Holoborodko, T. Esipchuk, I. Karpets, O. Lokot, P. Sabluk, O. Spychak and others, however the ways of the flax industrial subcomplex revival in the traditional for the flax production regions in Ukraine are not studied enough. This situation caused the necessity of our research. The objectives of the article are to identify the features of the flax production in Ukraine and regions, to find the main reasons for the decline of flax industry and to search the methods of effective financing.

However, today in economic literature, there are no approaches to determine the characteristics of financing the flax industrial subcomplex under the modern conditions.

The purpose and objectives of the study. The purpose of this article is to identify problems in the production of flax in Ukraine and providing practical recommendations to improve its effectiveness under the modern conditions. To achieve the goal of the article the following tasks are formulated and solved: to perform

analysis of the production of flax in Ukraine; to explore foreign experience in the production of flax; to perform the forecasting of funding sources flax in Ukraine.

Presentation of the main results. Over the last decade in the making of Ukraine and the transformation of the domestic economy, the sown area of flax decreased 90,53 times (table 1), a gross yield of flax fibers – 7,71 time. The yield of flax in the period of 1990–2014, also tended to decrease. Although in 2014, there was maximum yield of flax is 8,2 t/ha.

According to the results of research, conducted by scientists of the Institute of agrarian economy of UAAS, it was found that the acreage under flax, which provides the most cost-effective maintenance of production and rational application of special technical means (integrated utilization of specialized equipment is 0,84–0,97) equal to 100–250 ha [2].

In this case, small areas of cultivation of flax encounter some difficulties: introduction of progressive technologies of production and observance of agrotechnical requirements for its cultivation.

The management practice suggests that farms with such sowing area use the equipment inefficiently. In addition, the increased overhead can reduce yield and return on investment. That is, effective rates are significantly lower than a concentration of the acreage of flax in the range of 100–250 ha [4].

According to the works [5; 8; 9] the specialized growing areas of flax include the following regions: Volyn, Zhytomyr, Kyiv, Lviv, Sumy, and Chernihiv. This is because they have optimal climatic conditions for the cultivation of flax – appropriate soils, the required number of active temperatures (1200–1600°C) and precipitation (600–700 mm) and the required level of labour resources [5; 8; 9].

From practice experience, in 2014, the flax fiber produced enterprise 9 regions of Ukraine (table 2).

Table 1

The production of flax-fiber in Ukraine in 1990–2014*

Year	The area under crops, thousand ha	Flax fibre yield, t/ha	Gross output fiber, kt
1990	172	6,4	108
1995	98	5,0	48
2000	23	4,2	8
2005	25	5,4	12,7
2006	14	5,1	5,3
2007	13	3,3	3,8
2008	7	5,1	3,0
2009	2	6,5	1,2
2010	1	4,0	0,4
2011	1	2,0	0,6
2012	less1	2,2	0,6
2013	less1	2,1	0,5
2014	1,9	8,2	14,0
2014 as % to 1990	0,01	1,28	0,13
1990 as % to 2014	90,53	0,78	7,71

**Source: developed by the author of this article on the basis [5; 8].*

Table 2

**Costs for the production of flax-fiber by region in 2014
(based on 1 kg of the main products, UAN)***

№	Region	Seeds of flax-fiber
	Ukraine	276,7
1	Volyn	497,4
2	Zhytomyr	567,2
3	Kiev	131,7
4	Lugansk	259,8
5	Lviv	420,5
6	Sumi	440,3
7	Kharkiv	199,6
8	Khmelnyskyi	144,6
9	Chernihiv	289,8

**Source: developed by the author of this article on the basis of [5; 8; 9].*

Also, it is worth to note that in addition to the above zones, in Ukraine a small area of planting of flax also posted in Lugansk, Kharkiv, Khmelnytsky regions and Kyiv city. These regions also have the most favorable climatic conditions for cultivation of flax (high moisture content in the land, high rainfall), the presence

of processing enterprises, the relevant traditions of the rural population, the cultivation of flax.

It is necessary to note a significant reduction in acreage under flax-fiber, which in 1990–2014 years decreased by 76%. A positive trend in the production of flax fibre is to increase the yield of culture for the analyzed period is almost

2 times. If in 1990 the world average yield of flax (calculated on fibre) was 6,6 t/ha, in 2011 – 12,8 C/ha, although compared to 2008–2010 this indicator is low. Due to the growth of the crop the flax production in the world increased year by year, and only from 2010 began to decrease annually by about 300 thousand tons. This is caused by the reduction in the acreage of flax in the former Soviet Union countries, primarily in Ukraine, Russia and Belarus [7; 10].

So, in 1990 USSR countries accounted the 73% of all acreage, the countries of Europe (mainly France, Belgium, Netherlands) – less than 10%, Egypt, Argentina, Chile, China – about 4% [6]. Now the situation has changed significantly – most of the acreage under flax-flax is concentrated in France – 25%, second and third in Belarus and Russia – 24% and 20% respectively, are significant pilgrimage in China – 13%. In Ukraine occupied only 1% of world acreage.

The leading place in the world production of flax fibre belongs to China. Its share every year is quite high: in 2000, to 44,6%; 2006 – 60,18%, in 2014 – 38%. The countries of the European Union in 2006 has made 19,2% flax, among them the leading place belonged to France – 60% of the volume of flax fibre production EU countries, or 11,5% of global renoviranjа [2; 3]. Now it ranks second after China – 15%. Following the production of the fiber is Belarus (46 thousand tons) and Russia (43 kt), or by 13%. Ukraine lost its position in the world market – in 2006 it has produced 1,5% of flax 15,7% in 1990 and was ranked 7th among the 19 countries producing flax fibre. Now it produces only 800 tons of flax, representing 0,3% of the global production.

The feature of the production of flax products in France and Belgium is that the technology of growing and harvesting flax is associated with ways of processing with close organizational and economic relations between producers and consumers. The farmers are interested in the production of high quality, in raw materials with the lowest cost of its cultivation and processing. At the state level in these countries the Association of manufacturers of flax fiber was created. One form of integration is to rent processing enterprises in the distribution of land. The size of the rental can reach up to 1,000 hectares of land. Accordingly, all work, including obtaining by the industrialists [1].

The study of foreign experience of development of the integration of a vertical relationship in flax industrial subcomplex suggests that such structures are more efficient and adapted to market relations. The creation of a closed production chain, from cultivation of flax and its processing at all stages up to production of finished products subject to long-term, cost-effective relations between the spheres, will increase the competitiveness of flax products at all production stages and the efficiency of flax industrial subcomplex in general [11].

It is necessary to note that in such countries as the Czech Republic and Belgium there is the variety of the relationships of horizontal integration is the provision of assistance to farmers during harvesting, processing and sale of flax products. Farmers receive the proceeds from the sale of fiber except for the cost of shipping. The experience of different countries indicates the need for close integration in the flax industrial subcomplex. In our view, it is appropriate to establish agricultural cooperatives, which could contribute to joining efforts of all elements of the flax industrial subcomplex [2].

In our opinion, for the improvement of economic relations in flax industrial subcomplex it is advisable to use both horizontal and vertical integration. Horizontal integration in flax industrial subcomplex will facilitate industrial clustering flax enterprises. On its basis the conditions for the buying and using the modern technologies by the small farmers will be created [4].

In the table 3 the advantages and disadvantages of flax fiber production on the basis of horizontal and vertical integration with the definition of agro-formations [4].

Modern domestic management practices and analyses the economic and financial literature suggests that financial security of integrated structures of production of flax expedient to form at the expense of own capital, Bank loans, preferential loans, government support [11].

For decades, Ukraine has traditionally been one of the world's largest producer and exporter of the production of flax and linen industry. The state support of the industry contributed to this. By 1991 the agricultural enterprises received government subsidies of up to 40–45% of production costs, and there was a payments system for implementing flax trusts in the relevant calendar dates.

Table 3

The advantages and disadvantages of the flax fiber production*

Type	The path of creation	Advantages	Disadvantages
And type agro-industrial formations	Lease of land and partly of property of shares and infusion of capital of domestic or foreign origin with the processing industry in agricultural production	<ul style="list-style-type: none"> - Availability of high-performance equipment; - A combination of processing and production of raw materials in the same object; - Development of large-scale production; - High level of product competitiveness 	<ul style="list-style-type: none"> - The change in the socio-economic situation in rural areas (outflow of labor from inefficient agricultural enterprises in the agro-industrial formations, since the latter have the ability to increase wages)\$ - Agricultural enterprise owners lose land and property, since the latter have the opportunity to receive higher rents from agricultural groups
II type agro-industrial formations	Diversification of agricultural enterprises, their penetration in the field of trade and development of recycling-based agricultural enterprises	<ul style="list-style-type: none"> - Cooperation with research agencies; - The possibility of implementation of innovative activity; - High level of impact of the advanced capital; - Development of breeding and seed production. - Implementation of agricultural production with application of modern technologies of cultivation of flax 	<ul style="list-style-type: none"> - At the initial stage of operation of the processing capacity of the agricultural units are small, which affects the depth of processing logoservice; <p>With increasing size of agricultural units, the problem arises re-erected production. This causes difficulties in process control and manufacturing organization</p>

*Source: developed by author based on [4].

Profitability of flax seeds in the whole Ukraine amounted to 144–150%, trusts – 132–146%. In 1995–1998 there was a rapid decline in the flax industry. If we compare 2008 with 1990, the total yield of flax decreased in 35,5 times and seeds – in 25,8 times. In 2011 the gross area amounted to less than 1% from 1990.

Thus, the most profitable culture that occupied 6–8% in the structure of crop farms and provided the 70% of cash income for most agricultural crop farms became unprofitable.

The solving of flax complex problems may be made only with program-based method with the active government support. In particular, the program of development of agriculture in 2015–2020 years provides to increase the flax production by equipping farmers with necessary equipment and technical means for growing, harvesting and postharvest processing of flax, by providing high-performance seeds, fertilizers and crop protection products, mastering and

replication modern technologies of flax production, by creation and innovative implementation of modern resource-saving technologies, by completing the process in the chains «field – flax plant – industrial enterprise». Overall, the program combines national and corporate interests of producers of flax.

In order to solve the problems of the sector and to provide its revival effectively, it is expected to provide financial support for the regional budget of \$ 2 thousand UAH for the 1 ha of sown flax. According to the economists estimates The Program will allow to receive 11 thousand. tonnes of flax fiber with the average yield of 5,5 c/ha in 2020. Planned costs per 1 ha will amount 3,1 thousand UAH, and the cost of 1 ton of grown products, including donations, will amount 2,5 thousand UAH, the profitability – 23%.

Conclusions. The article solves the important scientific and practical task to identify the problems of the production of flax in Ukraine

and providing practical recommendations to improve its effectiveness under the modern conditions. The main conclusions and recommendations are as follows:

1. Over the last decade in the making of Ukraine and the transformation of the domestic economy, the sown area of flax decreased in 90,53 times (table 1), a gross yield of flax fibers – in 7,71 times. The yield of flax in the period of 1990–2014, also tended to decrease. Although in 2014, there was the maximum yield of flax is 8,2 t/ha.

2. The leading position in the world production of flax belongs to China. Its share is 38%. Second place goes to France – 15%. Following the production of the fiber is Belarus (46 thousand tons) and Russia (43 thousand tonnes). In Ukraine it is produced only 800 tons of flax, representing 0,3% of the global production.

3. In the article it is defined that for improvement of economic relations in the flax industrial subcomplex it is advisable to use both horizontal and vertical integration. Horizontal integration in the flax industrial subcomplex will facilitate the industrial clustering enterprises. On its basis the conditions for the buying and using the modern technologies by the small farmers will be created.

Vertical integration in the flax industrial subcomplex is more efficient and adapted to market relations. The creation of a closed production chain, from cultivation of flax and its processing at all stages to finished products under long-term, cost-effective relations between the spheres, will increase the competitiveness of flax products at all production stages and the efficiency of the flax industrial subcomplex as a whole.

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