



FOREIGN EXPERIENCE IN THE DEVELOPMENT OF THE LEMON INDUSTRY AND THE MAIN DIRECTIONS OF THEIR USE

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ABSTRACT

This article examines the experience of foreign countries in the development of lemon growing and the main directions of their use, and analyzes the process of growing lemons. The activity of lemon growing enterprises in foreign countries is analyzed, opinions, comments and conclusions are summarized, summarizing foreign experience in lemon growing.

KEYWORDS. *Lemon growing, production, foreign experience, citrus-production countries, arable land*

INTRODUCTION

Sufficient experience has been accumulated all over the world in the development of the citrus plant, especially the lemon growing network, the work carried out in this or that country on the development of lemon growing is important in the comprehensive study of the experience of state support of this sector and the development of recommendations for its use in accordance with the conditions of our country.

In general, citrus plants are very diverse in the world, among which orange, mandarin, lemon, grapefruit are the most common. The main geography of citrus plants originates in Northern India and Northern Burma.

If we look at the history, citrus plants were brought to Uzbekistan in the second half of the XX century and began to be grown in greenhouses and ditches, as they are not resistant to frost. In 1966, at the Research Institute of Horticulture, Viticulture and Enology named after Academician M. Mirzaev (former R.R. Schreider), varieties of citrus plants such as lemon, orange, mandarin, grapefruit and pampelmus were planted and their growth and yield were studied. Since 2015, the Meyer variety of lemon, Gamlin of orange, Clementine of mandarin have been included in the State Register and recommended for cultivation in greenhouses and ditches in all regions of the country.

The homeland of the lemon is Southeast Asia. The lemon plant is widespread in China, Japan, India, Pakistan, Israel, Egypt, Spain, Italy, Greece, France, the southern United States, Mexico, Brazil, Africa and other countries.

In total, more than 17 million 384 thousand tons of lemons are grown annually in more than 100 countries around the world. The largest lemon-growing country is India. About 3 million tons of lemons are grown here annually. In second place is Mexico (about 2.5 million tons), followed by the People's Republic of China (2.3 million tons), followed by Argentina and Brazil (more than 1 million tons). In all other countries, lemon production is less than 1 million tons. In Uzbekistan, the annual production of lemons is 6,000 tons¹.

It should be noted that Uzbekistan ranks 86th out of more than 100 countries in the world in terms of lemon cultivation.

In terms of arable land, India ranks first (258,000 ha), followed by Mexico (163,466 ha), China (106,844 ha), Argentina (52,394 ha), Brazil (47,279 ha) and the United States (22,055 ha). In terms of per capita lemon production, Argentina is the leader (37.72 kg), followed by Mexico (19.48 kg) and Spain (18.4 kg). If we analyze the productivity indicators, in these countries it fluctuates from 11,542 kg per hectare (India) to 37,270 kg (USA) (Table 1).

¹ World lemon production by country.
<https://www.atlasbig.com/ru>.



Table 1
Production indicators of Uzbekistan and major lemon-growing countries

Country name	Crop area, ha	Productivity, kg / ha	Annual production, tons	Per capita, kg
India	258 000	11 542,6	2 978 000	2,228
Mexico	163 466	14 864,5	2 429 839	19,48
China	106 844	21 806,2	2 329 863	1,672
Argentina	52 394	32 033,1	1 678 337	37,72
Brazil	47 279	26 700,1	1 262 353	6,025
Spain	43 292	19 813,3	857 754	18,383
Turkey	30 033	28 322,2	850 600	10,526
USA	22 055	37 270,5	822 000	2,228
Uzbekistan	1200	7 563,6	60000	0,028

In Uzbekistan, the figure is 7,563.6 kg. It should be noted that in most countries, the cultivation of lemons in the open field and the availability of favorable soil and climatic conditions for them is an important factor in achieving high performance in the cultivation of lemons.

The experience of most citrus-producing countries shows that the cultivation of lemons is organized mainly on the basis of cooperative relations. In particular, 85% of lemon products in the European Union, 80% in Japan and 30% in the United States are grown by farms cooperating with processing enterprises. Lemon products produced by farms are mainly sold through cooperatives. The main activity of cooperatives is the storage and processing of agricultural products. They are also involved in activities such as the provision of production resources, lending.

U.S. agriculture occupies one of the leading positions in specializing in the cultivation of a variety of fruits. Along with orchards, lemon growing is also concentrated not in the suburban provinces, but in states where the natural and climatic conditions for gardening are very favorable. These are California and Florida.

In the United States, special attention is also paid to the establishment of various service cooperatives for farms. An example of this is the experience of the Heartland Cooperative. This cooperative is aimed at providing women with mineral fertilizers, chemicals and seedlings. The cooperative buys mineral fertilizers and chemicals directly from chemical plants in European countries on the basis of orders. At the same time, the cooperative also provides the delivery of mineral fertilizers in pure or mixed form to the farmer's field and chemical treatment of plants at the request of farmers. In addition to providing such services, the cooperative is also engaged in the purchase of products grown by the farmer. The cooperative checks the quality of the product and buys it at prices below the Commodity Exchange prices. At the same

time, the cooperative also provides soft loans to farmers who are its customers for the purchase of mineral fertilizers or other types of resources.

The U.S. Department of Agriculture has developed a mechanism to help farmers obtain loans and guaranteed loans. In addition to providing free information services, this institution provides state guarantees to creditors in the amount of 90% of the loan capital in order to increase the interest of various organizations in providing financial resources to farmers. In the U.S., programs have been developed to support agricultural entrepreneurship and provide financial resources at every state and even at the level of a particular organization.

In particular, credit cards are the main source of funding for lemon and other fruit growers in the United States. Today, 29 percent of farmers who specialize in growing lemons and other fruits use such funds.

In China, the system of support for horticulture (in which the specialization of various orchards plays a key role) has its own characteristics. China stands out among other countries in terms of the highest subsidies for agriculture, especially horticulture.

China has a great deal of experience in building greenhouses in desert areas and growing lemons there. There is the Gobi Desert region in Gansu Province of North-South China, and since 2009, a program to build mass greenhouses on desert lands has been launched here.

Growing lemons in greenhouses in the Gobi Desert has a number of advantages, firstly, the availability of sufficient sunlight, the tension in the temperature of the day and night helps to accumulate nutrients in the soil.

Hot and dry weather, on the other hand, prevents most pests and diseases from developing. The first 50 greenhouses built covered a total of 800 hectares of land.

Greenhouses are equipped with high-tech equipment and facilities. In addition to controlling

mineral fertilizer and water consumption, it also plays an important role in keeping humidity and temperature at a constant level.

All this is connected to the phone in the form of a mobile application. For example, through the mobile application "Greenhouse Manager" it will be possible to control such indicators as temperature, humidity, water consumption in the greenhouse. In particular, the introduction of drip irrigation technology in greenhouses will save 50-60% of water.

In addition, as a fertilizer is widely used substrate, rotten leaves, straw residues and waste from cattle and sheep. Each hectare of greenhouse land corresponds to about 600 cubic meters of recycled waste. The greenhouse construction program in the Gobi Desert is generating an average of 70,000 yuan (\$ 10,500) per year for farmers.

These greenhouses are mainly built by the state and leased to farmers and entrepreneurs. They are also offered low-interest, long-term loans. The rent is withheld after the end of the year.

If we turn to the world practice, one of the best ways for farms and horticultural farms to solve a number of their problems is to work together in different cooperatives.

The cooperative form of management in the Russian economy is nothing new. The first cooperative structures were formed during the Russian Empire, and they have been successful in their activities. When the Soviet regime came to power, these cooperatives were transformed into consumer cooperatives. One of the main conditions for the survival of cooperatives is the existence of trust and justice among the members of this cooperative.

For example, in the Nizhny Novgorod region of Russia there are currently more than 40

cooperatives in various fields, about 10 of which are engaged in fruit growing and greenhouse farming. These cooperatives include both landowners who grow 50-100 kg of fruit a year, as well as large farms that produce large quantities of fruit, covering all types of large and small producers in the region. A number of targeted loans have been introduced to further develop the activities of these cooperatives and their member farms

The Russian government has launched a program of low-interest loans, ie 5% for 2 to 5 years, to support entities in this stratum and to develop the fruit industry and greenhouses. Such loans are issued for the following purposes:

- purchase the necessary materials for the construction and reconstruction of the greenhouse;
- for the purchase of seedlings, seeds;
- purchase of chemicals, mineral fertilizers;
- equipment and facilities that allow the introduction of resource-saving technologies (drip irrigation, humidity, water consumption control equipment, etc.);
- for other seasonal events and working capital, etc.

Although lending is one of the most important pillars of Russian agricultural development, banks are reluctant to lend to the agricultural sector. Therefore, the state undertakes to guarantee the repayment of the loan and to cover part of the loan interest rates.

Thus, the allocation of subsidies by the state in lending to agricultural producers is becoming increasingly important. Thus, the role of the state in lending to the agricultural sector is growing (Figure 1).

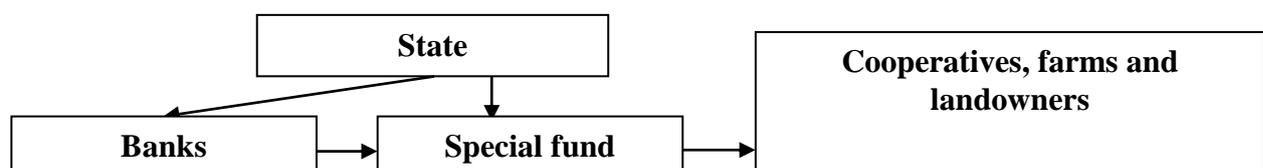


Figure 1. The mechanism of preferential lending by the state to agricultural producers in the Russian Federation.

In recent years, lemon production in the EU countries has decreased by 1.4% or 1.5 million tons. Consumption and imports also fell 2 percent. In Germany, about 4,221 independent service cooperatives have been established, which operate on the principles of F.V. Raiffeisen. Every farmer specializing in horticulture can be a member of one or more cooperatives based on the principles of cooperation. The Raiffeisen organization is an

organization that plays an important role in the German economy and in the employment of the rural population. Today, about 140,000 specialists work in the cooperatives of this organization. The country spends \$ 3.7 billion annually. More than 1.3 billion liters of fruit and grape juices and nectars have been produced. The processing plants are equipped with local equipment that fully meets modern



requirements, and these technologies are designed to process a variety of fruits (seeds, grains and berries).

Based on the study of the German experience, we believe that the development of fruit and grape production and processing in the country should focus on the following. In particular, the establishment of control over the quality of the product in the period of delivery of the product to the consumer; specialization of equipment of processing enterprises for processing of modern and all kinds of fruit and grape products; development of marketing programs and fruit and grape growing on the basis of this program; supporting the development of cooperative relations in horticulture, etc.

In Argentina, various methods of agricultural support have been introduced, including the allocation of soft loans, insurance, government control over the prices of agricultural products and resources, and more. In Argentina, almost 70 percent of agricultural land remains in the private sector and only 10 percent in state ownership. Argentina is the fifth largest producer of lemons in the world, with an area of 52,394 hectares per year. It grows 600,000 tons of lemons. In terms of per capita production, it ranks first.

Support for agriculture in Argentina is mainly in the following areas, including:

- financing of research work on new varieties of agricultural crops;
- financial support to structures to improve the knowledge and skills of farmers in horticulture, citrus growing and other areas;
- wide introduction of preferential lending and insurance mechanisms;
- land conservation and reimbursement of land costs to landowners;
- forgiveness of various debts of farmers and households;
- financial support of farms and households and cooperatives, etc.

Summarizing foreign experience in the cultivation of lemons, we can draw the following conclusions, including:

- In the studied foreign countries, the cultivation, processing and supply of lemons to consumers is organized mainly on the basis of cooperative relations;
- The majority of foreign countries with developed agriculture are formed on the basis of a

system of cooperatives specializing not only in lemon growing, but in the whole horticulture, ie the cultivation of various fruits;

- Widespread practice of the bank to provide low-interest soft loans under the state guarantee to increase access to credit for farms, ie through the state coverage of part of the loan interest rate;

- The possibility of each farmer to become a member of one or more cooperatives on the basis of the principles of Raiffeisen;

- construction of energy-efficient greenhouses by the state and effective use of the practice of leasing it to lemon growers in order to effectively use the lands that have become unsuitable for agriculture or are located in desert areas;

- If farmers introduce resource and energy-saving technologies in the cultivation of lemons, it will be given tax and customs benefits, and so on.

Based on the above, the following recommendations have been developed on the main directions of using the experience of foreign countries in the development of lemon growing (Figure 2).

In general, on the basis of best practices accumulated abroad, it would be expedient to develop and implement measures in the following areas. Including:

- Growing lemon seedlings in the country and the establishment of greenhouses for growing lemons;

- Active involvement of foreign investment, foreign experts and consultants in the process of growing lemons, the introduction of advanced technologies in this area;

- Development of recommendations and methodological assistance on modern methods of growing lemons and their care;

- Introduction of the practice of issuing low-interest soft loans by banks under state guarantees to increase access to credit for farms, ie through the state reimbursement of part of the loan interest rate;

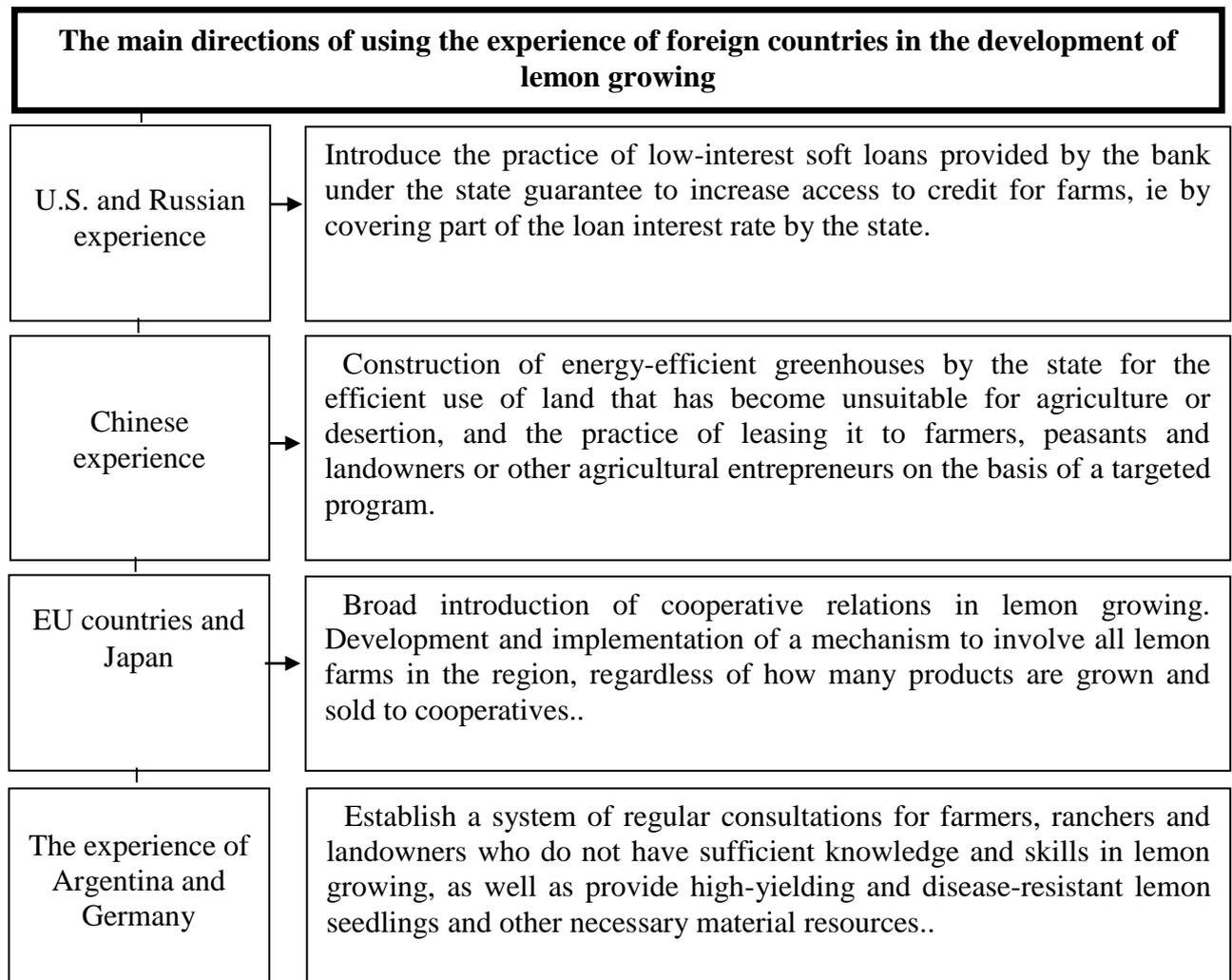


Figure 2. The main directions of using the experience of foreign countries in the development of lemon growing

CONCLUSION

Establish a system of regular consultations for farmers, landowners and landowners who do not have sufficient knowledge and skills in the cultivation of lemons, as well as the provision of high-yielding and disease-resistant lemon seedlings and other necessary material resources, etc.

We believe that the consistent implementation of these measures will serve as an important basis for the future growth of the lemon industry in developed countries and increase the competitiveness of the industry.

REFERENCES

1. Decree of the President of the Republic of Uzbekistan dated February 7, 2017 No PF-4947 "On the Action Strategy for further development of the Republic of Uzbekistan"
2. I.T.Normuratov, N.Z.Fakhrutdinov and others. Recommendations for improving the technology

of growing lemons in a resource-efficient way. TSAU. Tashkent-2017.

3. World lemon production on the page. <https://www.atlasbig.com/ru>.
4. Features and problems of lending to rural households in Russia. Electronic scientific journal "Economy: Economics and Agriculture" 2015. <https://cyberleninka.ru/article/n/osobennosti-i-problemy-kreditovaniya-selskogo-hozyaystva-v-rossii>
5. Уколова Л.В. Корпоративные организации Германии: законодательство, структура деятельность. Белгород: 1998 г.
6. G.A.Karimova. Problems of attracting foreign investment into the national economy // EPRA International journal of Research and development (IJRD) Volume: 5, Issue:7, page 284-287, July 2020, DOI:202007-02-004879
7. Каримова, Г., & Халилова, С. (2020). РОЛЬ ИНВЕСТИЦИЙ В РАЗВИТИИ НАЦИОНАЛЬНОЙ ЭКОНОМИКИ. InterConf.



- Karimova, G. A. (2019) "FINANCIAL MECHANISM OF FOREIGN INVESTMENT ATTRACTION," Central Asian Problems of Modern Science and Education: Vol.4: Iss.2, Article 125. Available at: <https://uzjournals.edu.uz/capmse/vol4/iss2/125>*
9. *Karimova, G. A. (2019). FINANCIAL INSTRUMENTS AS A MECHANISM FOR ATTRACTING FOREIGN INVESTMENT. Theoretical & Applied Science, (10), 60-64. <https://www.elibrary.ru/item.asp?id=41328846>*