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Priorities of strategic development of horticulture in Ukraine

Summary. Horticulture of Ukraine is an important branch of agricultural production, which provides the country with food, industry – raw materials, population – workplaces. The level of development of this branch of agricultural production is essential for ensuring food security of the country, increasing its export potential. However, assessing the state of horticulture of Ukraine points to negative trends in the development of the industry. The environment of high competition, the change of strategic partners in the market, the lack of state support require a revision of the existing industry strategy. That is why the main purpose of writing the article is consideration of the basic strategic priorities of horticultural development in Ukraine.

Key words: Ukraine, horticulture, fruits, berries, strategic development

Introduction

Horticulture represents 18% of the total value of agricultural production in the EU and uses only 3% of the EU's cultivated land. Due to favourable soil and climatic conditions for growing fruit crops, Ukraine could take an important place among European producers of horticultural products. However, in recent years, the country has noted negative trends in the development of the horticultural industry.

Besides, in recent years, there is a change of geographic structure in export of fruit and vegetable products of Ukraine, connected with economic and political factors. So, during 2013–2016, according to official statistics of Ukraine, there was an increase in exports to the EU countries (EUR +6 million) against the background reduction in supplies to Russia (EUR –17 million). For period from January to July 2018 export to Russia of fresh apples, pears amounted to USD 0.3 thousand. In comparison to Europe – export amounted USD 2,576.9 thousand. Export of fruits to the Russian Federation did not need certification, and Ukrainian farmers had a small interest in certification. However, now there is an urgent need to certificate their production according to GLOBAL G.A.P.

Instable political, economic situation in the country, changes in ownership and management in agriculture of Ukraine, imperfect legislation, the change of strategic partners in the fruit and berry market is not conducive to the development of the domes-

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tic horticultural industry. In order to ensure the competitiveness and sustainability of Ukrainian horticulture in the long term, it is important to consider the main strategic priorities of the industry development.

Literature review

The study of the problem of effective management of horticulture in Ukraine is dedicated to the works of domestic scientists, among which are: O.V. Bohdaniuk, O.Y. Ermakov, T.E. Kondratenko, P.V. Kondratenka, V.A. Ruliev, V.A. Ulanchuk, O.D. Chizh, O.M. Shestopal and other scholars.

P.V. Kondratenko, T.E. Kondratenko, L.O. Barabash associate further development of horticulture in Ukraine with farms. In farms, high results are achieved largely due to combining the functions of the owner, employee and manager in one person that is powerful motivating factor for improving production efficiency¹.

On the necessity of cooperation in horticulture, as a guaranty of further development of the industry, emphasizes V.A. Ruliev. In his point of view, owners of land and property in horticulture and melioration are more profitable to be a member of one multifunctional cooperative, given that plantations are located on irrigated lands. Multifunctional cooperatives have more opportunities for non-profit-making, and for their members, less risk in the market conditions².

The problems of modern development of horticulture in Ukraine are devoted to the works of O.L. Burliyay, A.P. Burliyay, A.O. Harenko. The authors prove that the main direction of radical changes in the economic situation in the horticulture is improving the use of available resources of farms and bioclimatic potential of the regions due to the introduction of intensive resource-saving technologies for growing fruit crops; to expand the network of enterprises specialized in the production of fruits and vegetables berries, improving the placement of gardens, improving the structure of the breed and varietal composition of plantations; expansion of processing and storage of products in places of its cultivation; working out of measures for increase of efficiency of perspective forms of management³.

Achievements of these scientists show that their researches are mainly aimed at studying general issues. However, for successful operation in modern economic conditions, horticultural managers must respond quickly to changes in the environment and make management decisions to ensure sustainable development and competitiveness of the industry, and the country needs a clear strategic development plan for the indus-

¹P.V. Kondratenko, T.Ye. Kondratenko, L.O. Barabash: Stan i perspektyvy rozvytku fermerstva Ukrayiny [Status and prospects of the development of Ukrainian agriculture], *Sadivnytstvo* 2015, No. 69, pp. 5–13.

²V.A. Ruliev: Udoskonalennya zemel'no-maynovykh vidnosyn u sadivnytstvi i na meliorovanykhzemlyakh [Improvement of land-property relations in horticulture and land reclamation], *Kul'tura Narodov Prychernomor'ya* 2003, No. 39, pp. 37–40.

³O.L. Burliyay, A.P. Burliyay, A.O. Kharenko: Suchasnyy stan rozvytku sadivnytstva v Ukrayini [Modern state of orchard development in Ukraine], *Bulletin of Uman National University of Horticulture* 2013, No. 82, pp. 249–259.

try. The objective need for further deepening of scientific and theoretical research and applied developments in solving the problems of theory, methodology and organization of the process of strategic development of horticulture led to the choice of the topic of research, its relevance and practical orientation.

Data and methods

In the process of research were used general scientific, abstract-logical and specific scientific methods and techniques. In particular: dialectical method of knowledge, analysis and synthesis, induction and deduction, systematic approach (for the study of theoretical, methodological and informational basis of horticultural development); comparison, expert assessments, grouping, indexes method, trend analysis (for the evaluation of the current state of Ukrainian horticulture and the prospects for its development).

The information base of the study are statistical data of the State Statistics Service of Ukraine, information and analytical directories and computer databases of the Ministry of Agrarian Policy and Food of Ukraine, Ukrainian State Concern “Ukrsadprom”, personal observations of the author, literary sources on economic theory, statistics, industry economics, accounting, analysis, management, technology of horticultural industry and more. Time period: from 2010 to 2017. Main purpose of the article is consideration of the basic strategic priorities of horticultural development in Ukraine.

Results

Modern production of fruit and berry products in Ukraine is concentrated mainly in households. Where there is a tendency to increase the volume of gross production, productivity of fruit and berry crops, planting areas (Table 1).

Table 1. Production of fruits and berries by types of agricultural holdings in Ukraine in 2010–2017

Types of agricultural holdings	2010 production (thous. t)	Share in 2010 (%)	2014 production (thous. t)	2015 production (thous. t)	2016 production (thous. t)	2017 production (thous. t)	Share in 2017 (%)	2017 in % to 2000
All agricultural holdings	1 746.5	100.0	1 999.1	2 152.8	2 007.3	2 048.0	100.0	140.9
Agricultural enterprises	286.8	16.4	332	411.7	370.5	333.8	16.3	126.4
Households	1 459.7	83.6	1 667.1	1 741.1	1 636.8	1 714.2	83.7	144.2

Source: own author’s research, based on data of State Statistics Service of Ukraine.

But if we evaluate the situation in Ukrainian horticulture in all categories of farms, for the recent years, there is a gradual decrease in the area under fruit and berry planta-

tions in the fruiting age, in the period from 2011 to 2017: annually by 5.13 thousand ha in all categories of farms⁴.

According to the results of the grouping of the regions of Ukraine for the yield of fruit and berry crops in 2017, significant fluctuations in the yield of horticultural produce by regions with respect to average yields in Ukraine (93.27 c/ha) should be noted. The coefficient of variation is 98%, which indicates the heterogeneity of the population and a significant level of variation in the yield of fruit and berry crops by regions (Table 2). The highest yield in 2017 was recorded in Khmelnytsky region, the lowest in Chernihiv region.

Table 2. Grouping of Ukraine's regions for yields of fruits and berries in 2017

Groups of regions for the yield of fruits and berries (c/ha)	Ukrainian regions	Average yield in group (c/ha)	Average profitability in the group (%)
46.1–65.6	Chernihiv, Sumy, Lugansk, Kirovograd, Ivano-Frankivsk	55.86	9.48
65.7–85.1	Mykolaiv, Kherson, Zaporozhye, Volyn, Kyiv, Lviv	75.38	–3.76
85.2–104.7	Cherkasy, Zacarpathian, Odessa	94.90	26.07
104.8–124.2	Dnipropetrovsk, Zhytomyr, Rivne, Chernivtsi, Vinnitsa, Kharkiv	114.42	8.76
124.3–143.7	Ternopil, Poltava, Donetsk, Khmelnytsky	133.94	5.38
Total	24	x	x

Source: own author's research, based on data of State Statistics Service of Ukraine.

The analytical grouping of the regions of Ukraine for the yield of fruit and berry crops has been carried out, indicating the inability to determine a clear relationship between yield and average profitability in the group, since the profitability of the regions of the individual group varies considerably. For example, in the second group there is a significant fluctuation of variation from –7.4% in Mykolaiv region to 299.3% in Volyn, which is not typical for this group, therefore this area was removed in determining the average level of profitability in the group. Consequently, the conducted grouping indicates on other factors influenced the level of profitability, in particular: the level of implementation prices, the cost of production.

The unstable political and economic situation in the country and the high cost of horticultural products has led to the fact that gardening in Ukraine is generally low-profitable. Profitability of fruit production, according to the State Statistics Service of Ukraine, in agricultural enterprises in 2016 amounted to 12%, including: business part-

⁴Harvesting of crops, fruits, berries and grapes in the regions of Ukraine for 2011–2017, Statistical Bulletins, State Statistics Service of Ukraine, Kyiv 2017.

nerships – 11%, private – 22.3%, cooperative – 66%, other non-state – 10.4%, state – 11.7%⁵.

The low level of profitability is explained by the high level of expenses for the production of fruit and berry products and the low level of prices for finished products of horticulture. The production costs of 1 center of fruits in 2016 amounted to UAH 360.5, berries – UAH 1,228.7, grapes – UAH 338.4. For comparison, the production costs per 1 center of wheat in 2016 amounted to UAH 221.4, rye – UAH 209.9, potato – UAH 217.1, vegetables – UAH 265.0.

Profitability and cost of certain types of fruit and berry products have led to a certain change in the structure of horticultural production. Analyzing the change in the species structure of fruit production in the dynamics, it is possible to notice that in the period of 2010–2017, the share of apple in the structure of fruit crops increases (Figs. 1–2).

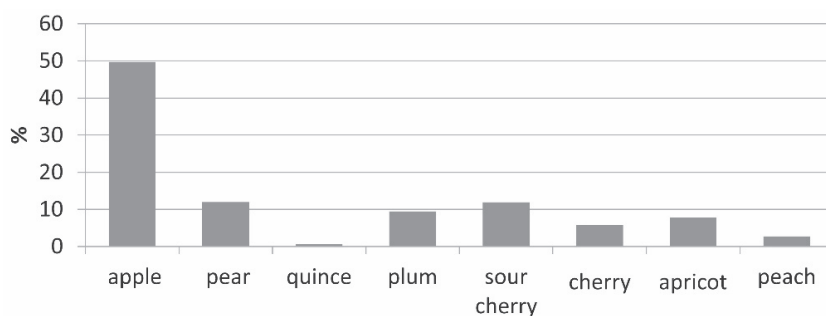


Figure 1. Species structure of fruit production in Ukraine, all categories of farms in 2000

Source: own author’s research, based on data of State Statistics Service of Ukraine.

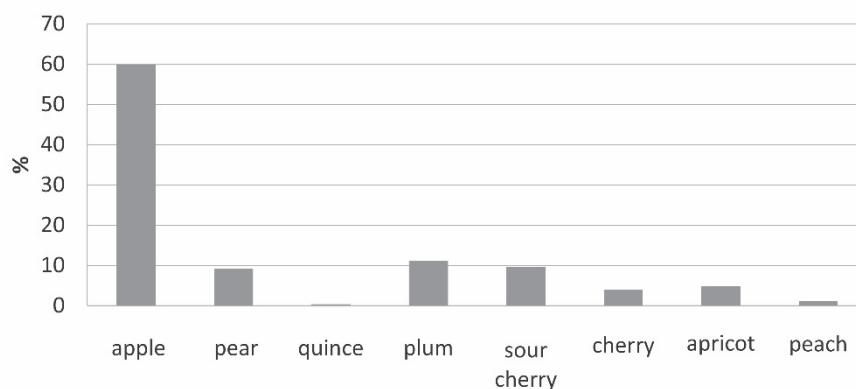


Figure 2. Species structure of fruit production in Ukraine, all categories of farms in 2017

Source: own author’s research, based on data of State Statistics Service of Ukraine.

⁵Costs for the production of agricultural products in agricultural enterprises for 2016, Statistical Bulletin, State Statistics Service of Ukraine, Kyiv 2017.

Thus, in 2010, the structure of fruit crop production was as follows: 49% apple, 12% pear, 12% cherry, 9% plum, 8% apricot, 5% cherry, 3% peach, 0% – quince. In 2017 some changes in the structure of fruit production are observed: almost 60% – apple, 11% – plum, 10% – cherry, 9% – pear, 5% – apricot, 4% – cherry, 1% – peach, 0.4 – quince.

Consequently, apple-tree remains the main horticultural culture in Ukraine, and an increase in its share in the overall structure of fruit crop production shows significant advantages in its cultivation.

Sociologists and nutritionists argue that the increase in the well-being of the population increases the consumption of fruits, berries, vegetables by one person. The general trend of consumption of fruit and berry products in Ukraine during 2010–2016 is positive, in average, for the analyzed period, annual consumption of fruits is increased by 2.7 kg per person per year. The highest consumption figures were recorded in 2013 – 56.3 kg per person per year, however, starting in 2013 there is a gradual decline in the consumption of horticultural products⁶. It should be noted that even with the maximum average consumption of horticultural products for the analyzed period, the figures are much lower than the scientifically substantiated rate of fruit consumption per year – 82 kg per person (Fig. 3).

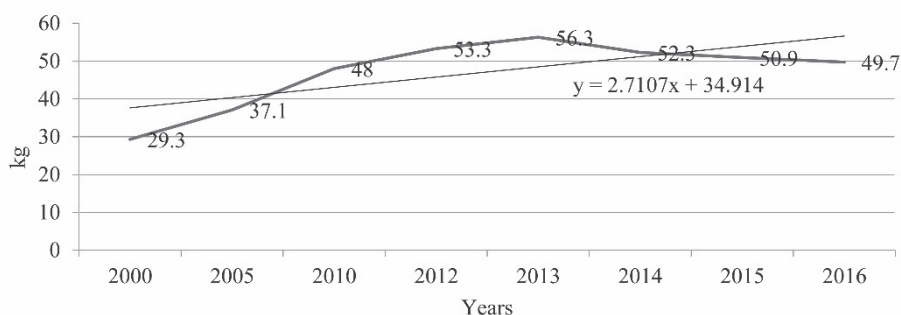


Figure 3. Dynamics of consumption of fruits and berries per person per year in Ukraine in 2000–2016

Source: own author's research, based on data of State Statistics Service of Ukraine.

Studies of the state of the horticultural industry in Ukraine indicate unsatisfactory trends, in particular: reduction of areas under plantations, low profitability, and low consumption of fruit and berry products, disorganization of sales markets, disparity between the prices of production and the cost of horticultural products do not promote the attractiveness of the industry for potential investors, also do not create a favorable competitive environment for the domestic industry. In order to ensure the competitiveness and sustainability of Ukrainian horticulture in the long term, it is important to consider the main strategic priorities of the industry development.

⁶Balance of consumption of basic food products by the population of Ukraine of 2016, Statistical Bulletins, State Statistics Service of Ukraine, Kyiv 2017.

Priorities of strategic horticultural development

The main components of the strategic plan for the development of the industry were mentioned in the Branch program of development of horticulture of Ukraine till 2025, where it was indicated that the strategic goals of horticultural development should be:

- stabilization and further increase in the production of fruits and berries;
- saturation of the domestic food market with competitive products and expansion of their exports in order to enable them to fully meet the needs of the population in these products by physiological standards by 2025; ensuring expanded reproduction of production mainly through self-financing of the industry;
- expansion of production of ecologic products through the transition from industrial-chemical methods of farming to biological;
- intensive management through the improvement of technology and organization of production based on the use of scientific achievements and best practices⁷.

We share the opinion of scientists about the main priorities of the development of domestic horticulture, but we offer our own vision of the main areas of development. Since horticulture is a high-tech production process, it is important to ensure unity and control at all stages of production.

At the first stage, it is necessary to ensure proper reproduction of plantings using modern, well-healed material. For this purpose, essential state support and control of seedlings in Ukraine are required. Despite the adoption of a number of legislative documents, problems in the field of fruit and berry seedlings still exist and require an urgent solution, among which the specialists of the branch distinguish the following:

- bureaucratic system of introducing varieties into the State Register;
- legalization of varieties of fruit crops that are needed by producers for effective business conduct;
- activities of illegal nurseries, which create additional competition, because they do not pay taxes, the cost of their gardening material is underestimated;
- poor quality of seedlings;
- lack of state support for farms⁸.

Consequently, without solving these issues, it is impossible to ensure the competitiveness of domestic horticultural material, and Ukrainian gardeners will continue to prefer the healed material from Poland.

The second step is to have a well-considered policy on the quantity and species-type structure of fruit and berry plantations, both for the domestic needs of the population and industry, and for increasing the export potential of the industry. In this direction, the introduction of high-yielding and immune-resistant varieties and scientifically substantiated restriction of their number in specific conditions, expansion of laying of gardens on vegetative rootstocks, change in the structure of plantations in order to increase the

⁷Sectoral program of gardening development of Ukraine for the period up to 2025, SPD "Zhitelev SI", 2008, p. 76.

⁸Agronews Ukraine, www.agronews.ua/node/80898 (access: 28.07.2017).

proportion of berry and fruit crops. The varietal structure of fruit and berry plantations should meet the needs of consumers and be, first and foremost, market-oriented.

The growth of the production of horticultural products should be accompanied by the development of processing enterprises. In this step (3) particular attention should be paid to the production of baby food and dietary foods. The domestic market is saturated by the production of processing enterprises of foreign companies that create competition with domestic ones, as they work in compliance with strict requirements for standards of diet and baby food.

The next priority step (4) in the development of the industry should be ecologic production and the introduction of quality standards that would control the quality of horticultural products.

In order to obtain high yields and, accordingly, profitability of the industry, it is necessary to provide the appropriate material and technical base of the industry, the system of storage of fruits and berries, modern gardening techniques and production technologies⁹ – which is the fifth step. In the program of the Budget of Ukraine 2018, partial compensation of expenses for the development of horticulture, mainly for farms, has been approved, since these costs are included in the adopted Concept of Development of Farms and Agricultural Cooperatives for 2018–2020¹⁰.

The list of costs that can be offset by budget funds is contained in paragraph 5 of the Order No. 587¹¹. In particular, these costs:

- to carry out works on planting, caring for them before fruiting (design work, soil preparation and planting, planting care, wallpaper construction, installation of drip irrigation systems) and the purchase of materials necessary for such works;
- purchase of seedlings used for repairing young plantations damaged by adverse weather conditions;
- care of productive hops;
- construction of swimming pools for ensuring uninterrupted water supply of drip irrigation networks;
- overgrazing areas of unproductive perennial plantings;
- construction of refrigerators with regulated gas environment and capacity of 500 t for storage of table varieties of grapes and fruits of own production;

⁹O. Bohdaniuk: Accounting and analytical support for the management of biological gardening assets [manuscript]: author's abstract. dis. cand. econom. Sciences: 08.00.09 – Accounting, analysis and audit (by types of economic activity), National University of Life and Natural Sciences of Ukraine, Kyiv 2011, p. 21.

¹⁰Ministry of Agrarian Policy and Food of Ukraine: Uryad pryynyav prohramu pidtrymky fermerstva na 2018–2020 rr [The government has adopted a farm support program for 2018–2020] 2017, www.minagro.gov.ua/node/24600 (access: 13.09.2017).

¹¹Approval of the Procedure for Using the Funds Envisaged in the State Budget for the Development of Viticulture, Horticulture and Hops, Resolution of the Cabinet of Ministers of Ukraine dated 15 July 2005, No. 577.

- construction of seedbeds of laboratory complexes for the production of non-virgin seedlings and chambers of rapid freezing of fruits and berries by producers of such products;
- purchase of mechanisms and equipment (including imported production not manufactured in Ukraine) for technological operations in vine growing, horticulture and hops, as well as new equipment for the drying of fruits.

In case of proper fulfillment by the state of obligations, substantial support may be provided for producers of horticultural products.

The last step (6) is a diagnosis of the sale of fruit and berry products, which indicates that sometimes the greatest benefit from the cultivation of horticultural products has not the producer, but the intermediary. In order to reduce the dependence of the Ukrainian market of fruit and berry products from intermediaries, cooperation of producers in order to create marketing networks for horticultural products is needed. Cooperation will promote not only the effective marketing of horticultural products, but also the use of means of labor, refrigeration equipment, etc. The cooperative movement in Ukraine is growing, especially in the West. Very active farmers in the Lviv region, where not everyone has a place to store, but there are companies whose refrigerator is idle. Agricultural cooperatives get financial grants. In the first place, the project is funded by cooperation, because they really have effective methods for achieving the goal.

Conclusions

Ukraine, due to its soil-climatic conditions that contribute to the development of the horticultural industry, could take an important place among European producers of horticultural products. However, the conducted research testifies to the negative tendencies of the industry development, in recent years, in particular: reduction of areas under plantations, low profitability, and low consumption of fruit and berry products, disorganization of sales markets, disparity between the prices of production and the cost of horticultural products do not promote the attractiveness of the industry for potential investors, also do not create a favorable competitive environment for the domestic industry. In order to ensure the competitiveness and sustainability of Ukrainian horticulture in the long term, it is important to consider the main strategic priorities of the industry development. The authors propose the main priorities for the development of the Ukrainian horticultural industry, implementation of which will contribute to the increase of the industry's efficiency, the revival and stabilization of the horticulture, its competitiveness.

References

- AgroNews Ukraine: Plodovo-yahidne rozsadnytstvo v Ukrayini: problemy ta shlyakhy yikh vyrishennya [Fruit-vegetables horticulture in Ukraine: the problems and ways of their solution] 2017, www.agronews.ua/node/80898 (access: 28.07.2017).
- Approval of the Procedure for Using the Funds Envisaged in the State Budget for the Development of Viticulture, Horticulture and Hops, Resolution of the Cabinet of Ministers of Ukraine dated 15 July 2005, No. 577.

- Bohdaniuk O.V.: Accounting and analytical support for the management of biological gardening assets [manuscript]: author's abstract. dis. cand. econom. sciences: 08.00.09 – Accounting, analysis and audit (by types of economic activity), National University of Life and Natural Sciences of Ukraine, Kyiv 2011.
- Burlyay O.L., Burlyay A.P., Kharenko A.O.: Suchasnyy stan rozvytku sadivnytstva v Ukraini [Modern state of orchard development in Ukraine], Bulletin of Uman National University of Horticulture 2013, No. 82, pp. 249–259.
- Costs for the production of agricultural products in agricultural enterprises for 2016, Statistical Bulletin, State Statistics Service of Ukraine, Kyiv 2017.
- Kondratenko P.V., Kondratenko T.Ye., Barabash L.O.: Stan i perspektyvy rozvytku fermerstva Ukrayiny [Status and prospects of the development of Ukrainian agriculture], Sadivnytstvo 2015, No. 69, pp. 5–13.
- Ministry of Agrarian Policy and Food of Ukraine: Uryad pryynyav prohramu pidtrymky fermerstva na 2018–2020 rr [The government has adopted a farm support program for 2018–2020] 2017, www.minagro.gov.ua/node/24600 (access: 13.09.2017).
- Ruliev V.A.: Udoskonalennya zemel'no-maynovykh vidnosyn u sadivnytstvi i na meliorovanykhzemlyakh [Improvement of land-property relations in horticulture and land reclamation], Kultura Narodov Prychernomorya 2003, No. 39, pp. 37–40.
- Sectoral program of gardening development of Ukraine for the period up to 2025, SPD "Zhitelev SI", Kyiv 2008.