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RATING AND ECONOMIC ASSESSMENT OF LATE APPLES

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Annotation. *A number of important indicators of common winter apple varieties have been analyzed. The rating of the studied varieties is calculated. The most valuable varieties according to the studied economic indicators are: Horodyshe, Aurora Crimean, Crimean, Scythian Gold, Todes, Cimmeria and Askold. It was found that the profitability of apple production in 2021 was 3-7%, and some apple farms were unprofitable.*

Key words: *apples, fruits, rating assessment, profitability.*

Introduction.

The problem of competition in the apple market of the world and Ukraine is quite acute now. In the near future (till 2030) Ukraine takes the 15-th place among the world apple producers. The leader in the world production of apples is China – more than 62% (42,4 million tons). The fruit and berries market is expected to increase the total supply to 4397 thousand tons by 2030. At present, the top ten exporters control over 84% of the exports of fresh apples. Among them are China, USA, Italy, Chile, France, New Zealand, South Africa, Poland, the Netherlands and Belgium (figure.1)[1, 2, 5].

The global apple market, by volume makes more than 8,7 billion tons, and by value - 7,9 billion US dollars. The share of Ukraine is only 0,08% – Ukraine is not even among the 40 largest exporters of the world, having favorable conditions for their production. Ukraine has considerable export potential, because currently Ukrainian fruits have demand in Belarus, Iraq, Turkey, Moldova, the UAE, Sweden, Georgia and Austria. Currently, there is a growing geographical base, and the markets

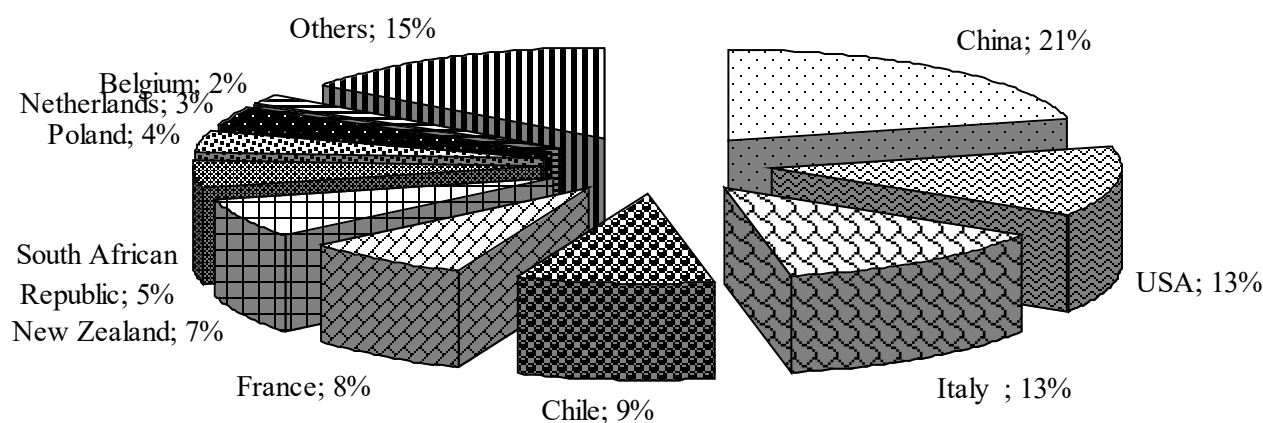


Figure 1. List of the main exporters of fresh apples

of Europe and Asia are expanding every year. The price of our apples varies from 260 to 650/t. For the last three years, the global market has tended to decline, and world production has continued to grow – the world trade in apples has stagnated [1,4].

The prevalence of apple varieties in Ukraine is determined by the ability of the variety to form a large and stable commodity harvest. The consumer buying fruits only evaluates them externally and taste, but this is not enough. Not always the appearance of apples and their excellent taste qualities can become an incentive to spread the variety. Important indicators of quality of apples are commodity, chemical composition and ability to keep high consumer and commodity characteristics in the process of storage. Grade should be high-growth, resistant to major diseases and physiological disorders during storage. Only a complex of characteristics of Gosgidscchanske and commodity experts convince producers to increase the area of this class [2,5,6,7,9].

The purpose of this work is to carry out analytical studies on the potential competitiveness of the common apples of late reach, to identify the most valuable and to recommend production.

Research materials and methods.

The research was conducted at NULES of Ukraine at the department of technologies of storage, processing and standardization of products of planting after named B.V. Lesika. Characteristics of Ukrainian selection varieties are obtained from accessible open sources and long-term IH NAAS data. Processing of received data was carried out by rank with assignment of conditional points and their sumings [3,6,8].

Results and their discussion.

The task of our research was to compare and identify the valuable characteristics of apples late autumn and late reach. Producers of agricultural products are primarily interested in obtaining the highest productivity from plants, application or all modern elements of technologies (fertilizer, protection, growth of regulating substances, effective half-bilazbilalobka). Yield depends on the complex of factors, so we have taken for analysis the average range value. The highest indicator has Renet Syrenko



and winter lemon varieties. For industrial production it is important to get a forecast harvest, therefore additionally conducted an estimation of deviation on yield, the less deviation, the more conditional points got grade. According to this indicator, the best results were shown by the varieties of Gorodishchenske, Eder, Minkar, Scythian Gold and Todes.

The consumer when assessing the fruits, first of all pay attention to the size. For some reason, the tendency has developed that Ukrainian consumers prefer large fruits. For example, in Europe, more popular fruits of medium size. The largest in size of fruits were varieties: Askold, Eder, winter mold, Kimmeria, Crimean, Pearl of Kiev and Todes. The homogeneity of fruits by size is an important characteristic of variety, which influences the cost of party formation during the half-mouth fruit. The more equalized in size are varieties: Gorodishchensk, Kimmeria, Crimean and Scythian Gold.

The most important indicator for the consumer is the taste of the fruit. Although the tastes of consumers are quite different, there are obvious favorites among apples. Harmonious taste is closely connected with the ability of plant apple to form a number of biologically active substances in a certain proportion. The fruits of sorts were more delicious: Aurora Krymska, Askold, Gorodishchenske, Crimean and Radogasta. It is important for consumers to have confidence in the products they buy and also in the stability of taste, because buying good and good-looking products can be disappointed in its consumer characteristics. Most of the varieties studied are characterized by good stability of the taste of fruits, only fruits of Garant, winter lemon, Perlina Kiev, Renet Simirenko and Uman winter characterized by low stability of taste.

Table 1 - Characteristics of late apples

Variety	Yield, t/ha	Mass of fruit, g	Taste, grade	Resistance to disease	Tenderness
Aurora Krymska	29-41	150-180	8.6-8.8	very good	very good
Askold	19-26	165-210	8.2-8.4	average	very good
Garant	24-31	155-185	7.5-8.0	very good	good
Gorodishchenske	31-34	150-165	8.6-8.8	very good	very good
Eder	29-34	161-225	8.0-8.2	very good	bad
Winter lemon	34-50	141-195	6.8-7.6	very good	good
Winter mold	22-39	165-215	7.4-8.0	very good	very good
Kimmeria	28-38	160-185	7.5-7.7	very good	average
Crimean	35-48	195-215	8.3-8.5	average	average
Minkar	28-33	115-155	8.0-8.2	average	bad
Pearl of Kiev	27-34	165-228	7.5-8.0	good	bad
Radoguest	24-34	141-175	8.2-8.5	bad	average
Renet Simirenko	40-59	135-190	8.0-8.6	very good	very good
Scythian Gold	31-36	155-170	7.8-8.0	good	bad
Todes	26-31	165-210	8.0-8.2	very good	very good
Umanskoe winter	24-36	135-175	7.2-7.8	very good	very good
Average value	33.65	174.54	8.13	-	-
SSD ₀₅	13.44	143.65	0.19	-	-



In modern conditions, while the variety is growing attention is drawn to signs of resistance to the main diseases and pests as a possibility of reducing the pesticide load and increasing the ecology of fruit production. Most of the studied varieties have very good resistance to diseases, only the variety Radogasta has bad stability.

For late varieties, the shelf-life indicator is of primary importance. Ukraine has been increasing the material and technical base for storage and processing of fruit raw materials from year to year. Large manufacturers save money for the construction of modern complexes for storage of products, which allows to get additional profit. It is advisable to note that all sorts are suitable for long-term storage, only grades Eder, Minkar, Perlina Kiev and Scythian Gold are characterized by bad pressure, therefore they are expedient to remove from storage and realize by the New Year.

2021 was a very difficult year for the horticulture industry. Overproduction put producers in a difficult situation and therefore many goods were sent for processing. Profitability of production of fruits of apple depends on a complex of factors, but in most cases in 2021 it made up 3-7%, for farms which effectively organized logistics with large networks of supermarkets. storage and export. Farms that had the hope of wholesale sales within the country had losses.

Complex ranking of the investigated indicators allowed to reveal the most valuable samples. The first place with considerable margin was taken by the variety Gorodeschensk, the second varieties: Aurora Crimean and Crimean, and the third - Scythian Gold, Todes, Kimmeria and Askold.

Conclusions and suggestions

The highest productivity figure is Renet Syrenko and Winter Lemon. According to this indicator of yield stability, the best results have varieties of Horodochensk, Eder, Minkar, Scythian Gold and Todes. The greatest fruits are formed by varieties: Askold, Eder, winter mold, Kimmeria, Crimean, Pearl of Kiev and Todes. The most delicious fruits are the varieties: Aurora Krymska, Askold, Gorodishchenskoye, Crimean and Radogasta. Complex analysis allowed to reveal the most valuable varieties on the investigated indicators (in the order of decline): Gorodishchenske, Aurora Crimeans, Crimean, Scythian Gold, Todes, Kimmeria and Askold. The fruits of apples are universal raw material for many industries, so in further research we plan to analyze the biochemical composition and suitability of fruits for processing. The obtained data should be taken into account when planning the growth of high-quality and competitive apple products of Ukrainian selection.

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