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Trends in branch of viticulture of Ukraine and perspectives of its innovative development

Purpose. An analysis of the modern functioning of the wine-growing sector of Ukraine in the interconnection: the state - science - agribusiness and scientific substantiation of the innovative model of its development. **Methods.** Analysis and synthesis. **Results** The main problem issues are defined, directions of their solution and increase of efficiency of branch of viticulture are offered. **Conclusions** The scientifically grounded model of the development of the viticulture industry involves the creation and implementation of a national system for monitoring the authenticity, naturalness and quality of winemaking in the winemaking practice; Restoration of domestic seedlings on certified basis and financing practices for laying new plantations; Implementation of integrated ampelocological research in the creation of vineyards at the expense of public funds; Managing the inventory of vineyards and constantly monitoring their condition.

Key words: branch of viticulture, vineyard cadastre, seedling certification system.

Viticulture of Ukraine is one of the socially oriented branches of the agroindustrial complex, which significantly influences the replenishment of the budget of the wine-growing regions. Over the past 40 years, the area of grapevine planting in Ukraine (excluding the data of the temporarily occupied Crimea) has decreased by 5 times and by the beginning of 2015 it is 48.7 thousand hectares, in particular in agricultural enterprises - 35.7 thousand hectares. Average yields in the last 10 years - 63.4 centners per hectare, while the average yield in countries - the world's leaders in the production of grapes - is over 100 centners per hectare. Gross collections of grapes also tend to decrease [6]. The production of wine products in Ukraine from 2010 to 2014 is characterized by a general tendency to decrease. At the same time, the production of wine is gradually decreasing, and production of champagne and cognac, on the contrary, is increasing. At present, the level of consumption of grapes in Ukraine is at an order of magnitude lower than scientifically based norms (slightly more than 1 kg per person per year at physiologically grounded norm of 8 - 10 kg), the saturation of the market of fresh grapes is on average 13.6%. Consumption of grape wine per person per year is an order of magnitude below European level (average consumption of wine per person in Ukraine - up to 10 liters per year, in wine-growing countries of Europe - up to 50 liters) [8]. The main reasons for the destabilization of the viticulture and winemaking of Ukraine are the laying of vineyards without taking into account the ecological conditions of the territory; Irrational varieties of plantings; Low quality of seedlings; Unsatisfactory agro-technical state of vineyards; The general crisis of Ukraine's economy. However, the quality of the winemaking product depends to a large extent on the producer and control system of wine production, which is practically absent in Ukraine at present [5].

The lack of a system for quality control of wine production in accredited laboratories is the reason that the Ukrainian market is full of fake. Five years ago in Ukraine poured up to 24 million dal. Wine production in a year, now - 14 - 16 million dal. Grape wine and up to 4.3 million dal. Cognac For their production, on average, up to 36 million dal. Wine-materials, or 586 thousand tons of grapes. The difference in raw materials - 250 thousand tons - is compensated by imports of wine materials (50-60%) and cognac spirits (90 - 93%) [7]. Purchasing a large quantity of wine, cognac and auxiliary materials in Moldova, Georgia, Armenia, Azerbaijan, France, Spain, Cyprus and the Balkan countries, we are developing viticulture and winemaking in these

countries, destroying its economy and science and the consumer gets finished products of unknown origin and doubtful quality. Problems that have arisen in the wine-growing sector of Ukraine have led to a significant increase in the volume of import of wine products compared to its exports, which negatively affects the wine-growing industry. Most of those supplies to Ukraine wine production, it is certain that authenticity (authenticity) of wines and spirits are not controlled, and input control is formally - by physical and we himichny- ISO performance, which in modern conditions of production can be easily adjusted And "adapt" to the requirements of specifications and standards, copied from Soviet GOSTs, unacceptable for modern production and control. Instead, all Ukrainian wines and distillates are strictly controlled during export to Europe, and in the case of the least deviations from the requirements of the EU standard are not allowed on the market. The solution to this is the creation of a national quality control system that requires joint efforts of power, science and agribusiness. It should be noted that large agribusiness is not interested in this system, and the authorities often act in his interests. Only science is unbiased participant in this process probably why she creates innovative product research aimed at the development of quality control systems and the rise of domestic wine, which will begin after its creation. The process of creating a national system of quality control viticulture, wine production may begin to develop academic institutions NAAS Inventory vineyards and amending the existing Law of Ukraine "On the grapes and grape wine" [5]. Today, the inventory of vineyards of Ukraine is in the process of creation. Differences in the volume of grapes (40-60 thousand tons) collected in a year and declared by the Ministry of Agrarian Policy of Ukraine, can not be explained. The ratio of red varieties of grapes to white is declared by the State Statistics Committee as 20:80. However, in the trading network, domestic wines are represented in the ratio 45:55 (red to white), and this discrepancy is also not explained and not discussed. The Law of Ukraine "On Grapes and Grape Wine" [8] should have an interstate, not narrow-minded character. It should reflect the provisions on the rights and obligations of the manufacturer, who and by what methods should have effective counterfeit control, and the specific punishments that will be applied to the offender. Imperfect legislative and normative base of domestic wine creates unequal conditions for competition, promotes large producers and leaves on the side of small wineries, which are the driving force of winemaking in Europe. Therefore, in addition to legislative changes, it is necessary to introduce a differentiated license for wholesale wine trade and to simplify the procedure for obtaining a license for the production of wine products by small entrepreneurs. From the former Soviet republics, the republics of Moldova and Georgia are leaders in the technology of winemaking and wine quality control, whose viticulture and winemaking are their national pride. The quality control of wines and their distillates in these countries is legally supported and carried out at the state level in modernly equipped laboratories and wine control centers [9].

From the experience of Georgia, Moldova, Argentina, France and other countries, monitoring of the quality, authenticity and naturalness of domestic and imported wines and brands in Ukraine by the state should be mandatory. The specificity of the viticulture industry is that the creation of vineyards (perennial plantations) requires considerable time, money and knowledge in various fields of science. The solution of this difficult and responsible task done only structure that is able to combine the efforts of experts in different fields: ecology, agriculture, agrochemists, soil scientists, plant pathologist, engineers, mechanics, economists and others. Therefore, in our opinion, the specifics of the industry leads to the creation of a specialized control service in the research institute - the NSC "IViV them. V.E. Tairov "NAAS, coordinator of research programs NAAS" Grape and Wine "Research 3 main factors - location, variety and technologies that are problematic issues ampeloekolohiyi, selection and clonal selection of grape technologies viticulture and grape seedling and plant protection , Mechanization of viticulture. During research in these areas, GIS, bio- and DNA technology are widely used. The establishment of a national control system for wine production requires scientific support for improving the efficiency of the wine-growing sector. Scientists of the Institute have long been ready for such work, as evidenced by the introduction of their development in production. Methodical bases for creating a vineyard cadastre. Quality control, ensuring output of domestic producers on the world market, it is possible subject to mandatory cadastral vineyards specifying coordinates plots, creating a database of vineyards, taking into account environmental conditions (using GIS) and continuous monitoring of their condition. After all, the production potential of plantings and the quality of products are determined by the location of the vineyard [2, 10]. According to the Institute of European practice developed and patented "Method of Inventory vineyards taking into account environmental languages" (Ukraine Patent 43810, 2009) and "Guidelines Inventory

vineyards Ukraine" (reviewed and approved by the Scientific and Technical Council of the Ministry of Agriculture and Food Ukraine dated December 15, 2011 by the protocol No. 10). According to the methodology of vineyards Cadastre Ukraine created to obtain data on the quantity and quality of vineyards and analysis of areas of environmental conditions (relief area, ground cover, microclimate) and determine their location. Inventory vineyards contain much larger amounts of information than the public register of the vineyards and created in an electronic database and graphical attribute information through specially designed programs. In this way, specialists have the opportunity to operate the actual planting data, their condition and yield, to have accurate information about the possible volumes and quality of the grapes and wine materials received. In 2012 was developed inventory vineyards for 4 districts of Odessa region (Artsyzkoho, Bolgrad, Ovidio- Polish, Tarutino) on an area of 11.7 thousand. Ha (60% of the total area of plantations area) and an electronic database of the Cadastre of vineyards Taking into account environmental conditions. In 2015, work is carried out in 9 wine-growing and wine-growing regions of the Odessa region. System of Certified Grape Seedlings of Ukraine. In all developed countries of the world, which are engaged in horticulture and viticulture at the industrial level, there are clear systems of state control of production of gardening material. Modern education should be based on world-class achievements and be guided by international standards. The European experience shows that the creation of a new type of vineyards to use certified planting material clonal origin, varietal authenticity guarantee has adapted to the specific conditions of the region and not infected with viral diseases.

Such systems of certification of vineyard seedlings are created individually for each vineyard country, taking into account its own assortment and phytosanitary condition of grape plantations, conducting multi-year breeding work, studying the ecological and epidemiological aspects of the spread of viral and other diseases. The main components of certification systems are genetic improvement of grape varieties, sanitary control of viral, bacterial and phytoplasma pathogens in planting material and reproduction, which involves a certain number of stages from the bank (collection) of clones to industrial planting. The scientists of the institute managed to complete a large-scale program on clonal selection (covering all wine-growing regions of Ukraine with a total area of grape plantations of over 2000 hectares with the recommendation of the production of 56 clones of 25 technical, 43 clones of 21 tables and 12 clones 6 - of the cultivars involved). The material obtained in the largest grape nurseries of Ukraine is laid by the category "basic" with an area of 34.21 hectares. The "Certified Grape Production System of Ukraine" also attracted 12 technical, 27 table and 3 seedling grape varieties of its own breeding. For selective genetic research, which became the basis of the system, a complex of bio- and DNA-technologies was created, created by the scientists of the institute. For the first time in the world, the methodical foundations for the detection of intra-variant variability with the use of PDRF analysis were developed and applied in clonal selection of rootstock varieties. A set of in vitro culture methods was created to accelerate the screening of new genotypes of grapes on salt and drought tolerance and non-seeding. The further development of the biotechnological bases of the screening of the source material for the absence of pathogens of viral diseases and bacterial cancer of grapes by means of molecular hybridization and polymerase chain reaction have been obtained. For the accelerated reproduction of new genotypes, the technology of reproduction and the acquisition of non-virulent planting material in culture in vitro using artificial ion-exchange substrates was improved [7].

Development of breeding and creation of a modern generation of grape varieties. At the present stage special attention is paid to autochthonous varieties that are valued as real resources of the region and give an opportunity to get a unique end product that reflects their individuality. Most domestic varieties and clones for economic and biological characteristics are not inferior to foreign, is quite competitive, and the zymo- and drought tolerance, disease resistance and in taste is often dominated by foreign counterparts. In the Register of plant varieties, suitable for distribution in Ukraine, their share is more than 50% [1]. New genotypes of interspecies origin are the basis for a modern assortment created by the selection program "Stability plus quality". The best varieties and forms received during this program as a result of complex synthetic and interspecific crosses, have genotype settlement 75 - 85% of species *Vitisvinifera*, providing quality performance products, and 15 - 25% of genotypes resistant species *Vitis*, including American origin , Which significantly improves the adaptive performance of new hybrids of the 5th-6th generations [1]. Muscat Odessa, Rubin Tayirov, Zagrey, Aromatny, Sparkka and others receive high-quality fragrant wines from the grapes. The growth of genotypes of a new generation with relative resistance to mushroom diseases at the level of 6

to 7 points on a 9-point scale makes it possible to significantly reduce the pesticide burden on plants. As the years of experience in breeding areas and mikromatochnykh in sufficient bezepifitotnyy year 3 - 5 preventive sprays and 5 - 7 you - if epiphytotic. At the same time, in European wine-growing states, the number of sprays with pesticides on plants of classical varieties reaches 15 or more. The complex inter-species origin, geographic and genetic diversity of the source material made it possible to obtain table varieties and forms of a new generation with a combination of high stable quality products and significant adaptive potential [1]. Today Ukraine has a unique assortment of table varieties and forms of domestic breeding, variety which is not only taste features, shape and color of berries, but the terms of maturation - from very early to very late varieties. It is embodied in the development of highly innovative "conveyor table grapes," which will provide consumers with fresh produce from late July - early August and almost to October. Under growing conditions very early and early varieties and forms in terms of greenhouses and the use of refrigeration for storage during the late varieties of grapes consumption of fresh local produce can be extended from the middle of July to December - January. The results of previous researches are stored in the repository of the NSC "IVI them. V.E. Tailored "and studied from a position of genetics on the modern world level. Today, clones of grapes of Ukrainian selection, together with new selection breeds, a collection of genotypes of grapes and a hybrid fund, are submitted by the institute for obtaining the status of national heritage. They are the basis of the project for the conservation of genetic resources of the European-Asian type of vine *Vitisvinifera* L.

Conclusions

promptly help keep government interference viticulture, first stabilize it and then develop a set of measures for the immediate withdrawal of the crisis, namely:

- Create and implement a national winemaking practice system control authenticity, naturalness and quality vynoproduktsiyi, which should be binding reflected in the law of Ukraine "on the grapes and grape wine" as a provision for inventory vineyards, rights and obligations of the manufacturer, specific measures to offenders to prison until their I Licenses; About supervisory bodies and methods of effective control of quality and detection of counterfeits;
- The Government of Ukraine needs to find opportunities for the creation of a National Center for the Control of the Authenticity, Naturalness and Quality of Wines and Distillates, independent of the departments, which include winemaking enterprises. The main methods of quality control of wines, cognacs and brandy must be generally recognized in the EU analysis methods of authentication (for example, the method of stable isotopes (IYAMB), which is a prerequisite for admission in any country in the EU (currently these procedures are Bulgaria and Turkey);
- urgent need to restore rozsad- struction Ukraine to certified principles, drawing on the experience of European wine growing countries and associated countries of the CIS, should return to the practice of funding laying new plantings in Ukraine as an instrument under yschennya competitiveness of the sector and to increase the area of vineyards and the volume of production viticulture and winemaking in connection with the annexation of the Crimea;
- when creating the vineyards of public funds should be considered especially grapes as eco-Atlantic plas- culture and perform pre agrobiological research, Which are based on complex ampelo-ecological research of the area and scientifically grounded selection of varieties adapted to the conditions of the wine-growing zone of Ukraine. Creating vineyards on this principle will reduce the probability of negative effects of abiotic factors on plants and increase the period of their exploitation;
- should ensure quality control by cadastral vineyards, plantations create a database specifying the coordinates of areas, taking into account environmental conditions (using GIS) and continuous monitoring of their condition.

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