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Viticulture in Bulgaria – status, prospects and phytosanitary problems

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Viticulture, regardless of the vicissitudes in the development of agriculture in Bulgaria, has always been a profitable subsector of agriculture. This long-standing importance is due mainly to the specific nature and particularities of grape production and processing, related to the history, religion, traditions, legislation, geographical location and soil-climatic conditions of the country and the region, as well as to the dietary and medicinal properties of grapes and wine.

One of the major recurring annual problems in viticulture is the protection of the crop from diseases and pests. Over the past 15–20 years the phytosanitary situation in vine agrocenoses has become more complicated. The

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well-known “old diseases” in practice have been spreading continuously and causing yield losses: downy mildew (*Plasmopara viticola*), powdery mildew (*Uncinula necator*), grey mould (*Botrytis cinerea*). In recent years, new, highly harmful pathogens have also appeared, causing excoriose (*Phomopsis viticola*) and eutypa dieback (*Eutypa armeniacae*).

The health status of vine plantations, now and in the future, necessitates the implementation of complex measures – organizational and agrotechnical, such as:

Site selection. Usually, when selecting plots for new plantations, the biological and ecological requirements of the vine in relation to environmental conditions are not observed. New vineyards are established on the sites of old plantations and on new plots without examining the soil health status for nematodes, which are vectors of viral diseases, and for the presence of infection (especially in grubbed-up vineyard fields and forest stands) of bacterial canker.

In the production of vine planting material, sawdust from forest species, which is not sterilized, is used for stratification. In recent years, a new phytopathogenic flora from the class ***Oomycetes*** has spread in forest stands – this group also includes the causal agents of Phytophthora diseases in plants. On grafted vine cuttings showing symptoms of dieback (wet rot) /substrate with specific symptoms for these pathogens, when isolated on nutrient media, structures characteristic of this group of pathogens were detected.

In our country the fungus Rhizoctonia solani has also been identified, which is likewise found in infected sawdust and, during stratification of grafted vine cuttings, causes symptoms.

Phytoplasmas have also been introduced with the planting material, causal agents of stolbur, which are transmitted by leafhoppers and through grafting.

In the literature, the bacterium ***Xylella fastidiosa*** is reported as a particularly harmful pathogen in grapevine. There is a risk of its introduction into our country with planting material (according to Prof. Malenin, it is already present here).

Protection of the grape crop against diseases relies mainly, and to a large extent overestimates, the possibilities of the chemical method. Until the middle of the last century, control was carried out mainly with copper- and sulphur-containing fungicides. After 1950, synthetic fungicides (zineb-, maneb-, captan-based and with other active substances) were widely introduced into practice. They displaced copper-containing products, which have a narrow spectrum of activity, a shorter residual effect, are easily washed off, but are not toxic to plants. It turned

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out that the widely used zineb-based products stimulate the development of powdery mildew, which in a short time spread not only in the Black Sea and Danube regions, but throughout the entire country.

After 1970, chemotherapeutic (curative) fungicides also appeared on the market, which have a broad spectrum of activity, but with prolonged and improper use, pathogens rapidly develop resistance to them.

Alternative approaches to disease control are not being developed and applied. Important elements of the grapevine cultivation technology are not carried out or are underestimated. Scientific studies in our country and abroad show positive results when green operations are implemented. For example, in the case of canopy thinning, removal of leaves around the bunch during inflorescence formation, the incidence of grey mould and powdery mildew is lower, within the range of 5.30% to 20%, compared to the controls.

Chemical control is not always carried out in accordance with the biological characteristics of the pathogens and the critical phenophases of plant development. For example, the causal agent of powdery mildew survives in vine buds as mycelium, and the causal agent of excoriose in the first 1 to 4 internodes, which necessitates treatments as early as the phenophase of 2–4 cm long shoots. Another example is the flowering form of grey mould, which requires treatment during flowering.

The biological potential of the vine and its defence reactions against pathogens increase when complex measures are implemented – site selection, balanced fertilization, irrigation, varietal structure, etc. At present, the choice of variety is determined by the market realisation of the production, without taking into account its resistance to the pathogenic flora.