

THE MAIN DIRECTIONS OF SCIENTIFIC WORK OF THE INSTITUTE OF VITICULTURE AND ENOLOGY

PACHEV I., Prof. Dr.

The Institute is a state scientific-research institution within the structure of the Agricultural Academy (AA) at the Ministry of Agriculture, Food and Forestry.

Pursuant the law on AA it has legal autonomy as it is financially supported by the national budget and its own revenues. Its main activities are researches and their practical application in the field of viticulture and enology.

Geographic and soil-climatic characteristic of pleven region:

Location – the central part of the Danubian plain.

Altitude – 134 m above sea level.

Coordinates – 43°24' N latitude and 24° 35' E longitude.

Soils – leached carbonated chernozem, at some places on loess basis.

Annual rainfall – 600 mm.

The lowest annual temperature sum – 3420° C.

The highest annual temperature sum – 4370° C.

The Institute of Viticulture and Enology was founded in 1902 on the recommendation of the French Professor Pierre Viala. It was established as a State Experimental Station of viticulture for the restoration and further development of the Bulgarian viticulture after the Phylloxera crisis.

It was the first scientific-research institution in the field of plant growing in Bulgaria and the fifth one in the world after the experimental stations in viticulture in Jalta, Asti, Colmar and Budapest. At present the Institute is a coordinator and main executive of the program for scientific researches and their applications into the practice of vine growing in Bulgaria. Its main branches of research include genetics, breeding, vine propagating material technologies, environmental and resource-economical technologies for grapes, wine and alcoholic beverage production. Highly qualified research staff is involved in solving the viticultural science problems. The personnel are divided into four departments service sections, and an extension service center.

Cultivars and cultivar backing department and enology chemistry. The researches are in the following fields:

- maintaining and improving the varieties of the vine in the country by introducing and studying the adaptive potential of grape varieties and clones of vines and rootstock. At present (2017) the genetic bank at the Institute comprises 1695 cultivated vine varieties, 245 elite hybrid forms and clones, 89 direct hybrids and 41 rootstocks;

- hybridisation (intraspecies and interspecies) for obtaining new table and wine varieties with valuable economic qualities, including varieties high resistant to abiotic and biotic stress factors;

- clonal selection for choosing on the positive qualities of new clones of local and introduced grape varieties;

- Study affinity of varieties of different genetic origin with common types of rootstocks in the country

The main directions of research in the Department of Enology and Chemistry are:

- Technological characteristic of local, newly selected and introduced grapevine varieties and production of new wine assortments.
- Development of technological schemes for the production of white and red wines from local, newly selected and introduced grapevine varieties, clones and hybrids.
- Research of the influence of some technological and environmental factors on the composition and quality of must and wine.
- Study of the impact of different agrotechnical and plant protection measures on vineyards on the composition and quality of grapes and wine.
- Organic production of grapes and wine.
- Sensory characteristic and evaluation of white and red wines.
- Gas-chromatographic determination of aromatic components in grapes, wine and higher alcohol beverages.

The experimental work on the scientific research in the Department is carried out in three chemical laboratories and in the experimental wine cellar.

Technologies department and plant protection. The Department develops tasks related to technologies for the production of vine propagation material, wine and table grapes, including:

- optimization of the technologies for production of vine propagation material;
- establishment of appropriate systems for growing vineyards with goals to increase the quantity and quality of grapes and the longevity of the vine;
- development of technological and technical solutions for optimization of conventional and organic grape production;
- preserving soil fertility, improving vine production and increasing the profitability of wine production;
- setting up of criteria for vines of low winter temperatures resistance;
- establishment of technical means and technologies for mechanization of the main cultivation processes in the vineyards, with regard to the sizes and technologies of growing the vineyards, in the conditions of climate change, environmental protection and saving energy and resource;
- appropriate product, technological, marketing and organizational-management decisions for the development of the table grape and wine viticulture, winemaking and wine tourism.

The research work of the department involves conducting experiments, observations and analyzes in field and laboratory conditions on the elements of diagnosis and integrated pest protection in vineyards, namely:

- Application of modern molecular methods in the diagnosis of diseases transmissible with the vine propagation material; Studies on the distribution and species composition of insect vectors and host plants of viruses and phytoplasmas causing diseases on the vine; Maintain and study a collection of strains of

Agrobacterium spp. = *Rhizobium* spp. And prebasic propagation material from the vine in cultivation facilities

- Monitoring studies of biology, phenology and epidemiology of economically important pests on the vine and their impact on vine, grapes and wine.
- Establishing the biological action of plant protection products on the pests of the vine and its impact on beneficial species, alcohol fermentation and wine quality.

The department has two laboratories: for the diagnosis and identification of phytopathogenic fungi, insects and weed plants and for in vitro viticulture and diagnosis of phytopathogenic viruses, bacteria and phytoplasmas.

THE IMPACTS OF CLIMATE CHANGE IN TURKEY IN THE CONTEXT OF AGRICULTURE AND DEVELOPMENT

**ATASEVEN Yener, Associated Professor,
Board member, Chamber of agricultural engineers**

Ankara, Turkey

Agriculture is the most important because this is nutrition for the community, contribution to employment, foreign currency, national income, raw materials for agriculture and agriculture-related industries, for environmental contributions, livelihood in the rural area.

What is climate change? Climate change is a change in the pattern of weather and related changes in oceans, land surfaces and ice sheets, occurring over time scales of decades or longer. Natural causes and human-induced causes are responsible for climate change. Global average temperatures have increased over the past century. The regional differences of climate change in the world are presented in Figure 1.

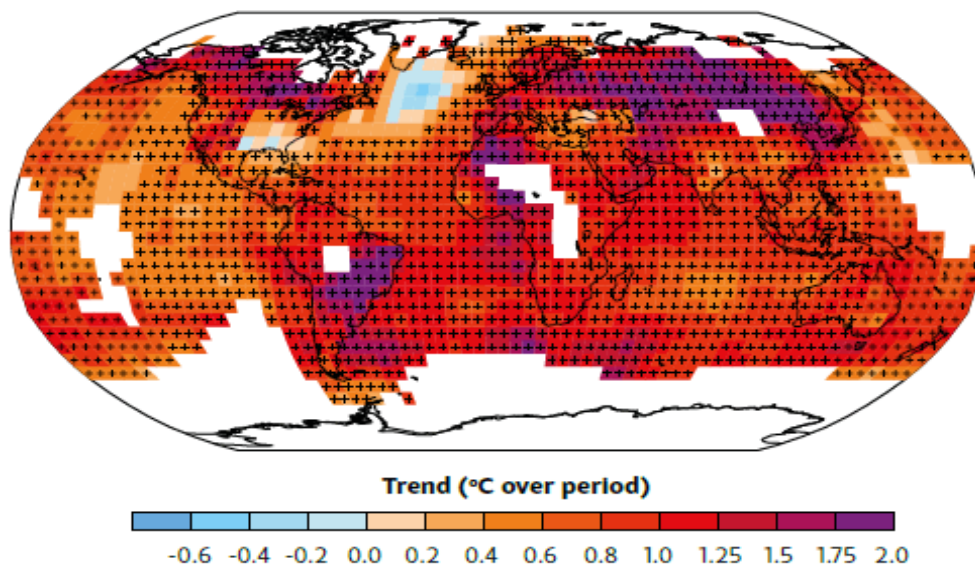


Figure 1. The regional differences of climate change in the world