THE INFLUENCE OF ENVIRONMENTAL CONDITIONS ON THE FORMATION AND ACTIVITY OF FOLIAR APPARATE OF VINE PLANT

INFLUENȚA CONDIȚIILOR ECOLOGICE ASUPRA FORMĂRII ŞI ACTIVITĂȚII APARATULUI FOLIAR AL VIȚEI DE VIE

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Abstract. *The main body of vine plant, which plays a role photosynthetic, is a leaf. From its status, size and structure depends vine plant in total. Dependings of formation of leaf size depending on location, availability of moisture, insolation, etc.*
Key words: vine plant, leaf, sugarity, slope

Rezumat. *Principalul organism al viței de vie, care joacă un rol fotosintetic, este o frunză. De la starea ei, mărimea şi structura depinde starea plantei în total. Au fost stabilite legile de bază ale formării mărimii farfurii de frunză în funcție de condițiile amplasării, de disponibilitatea de umiditate, expunere la soare etc.*
Cuvinte cheie: vița de vie, frunza, zaharitatea, pantă

INTRODUCTION

The leaves are the main body of the vine, showing the ability of the inorganic synthesizing organic substances under the action of solar energy. P.G.Tavadze and other researchers (1, 2, 3, 4) notes that to obtain the fruits of high need for optimal photosynthetic apparatus after its dimensions. In his research A.G.Amirdjanov has concluded that to obtain 10 tons of grapes with sugarity of 17-18% was needed to 1 ha approximately 10-15 thousand m² of leaf surface.

The foliage is reflected environment (ecological and agro-technical factors). That determine its production and quality, which is the main goal in vine cultivation.

MATERIAL AND METHOD

The research was conducted in major wine grape varieties, the most important regions of the Republic of Moldova. Registrations, analysis and monitoring carried out according to methodology of carrying out agrobiological research on the vine.

RESULTS AND DISCUSSIONS

Our research, spent the major wine regions of Moldova shows that of all ecological factors most influence on the formation of a foliar surface, water exercise and diet regime of the territory. On slopes with soils with more satiate

the productive moisture and nutrients to form a larger leaf surface. Depending on the location of plants on the slope (tab. 1) greater leaf area observed at plants located in the bottom.

Training area depends primarily foliar nutrition and water regime of the sector from other ecological factors. Satiate the slopes with soil moisture and nutrients productive forms a larger leaf surface.

Table 1

Influence of plant location on the slope on the development of foliar surface of the vine. National Institute of Vine and Wine. Moldova. 2000-2008

The exhibition, the degree of inclination of the slope	Number of leaves on the block	Surface of a leaf, cm²	Leaf area	
			a bloc, m²	a hectare, thousands m²
Variety Bastardo Magaraciskii				
SW, 3-5°, the top	631,5	82,5	5,21	11,57
SW, 8-10°, the middle	656,6	73,1	4,86	11,57
SW, 3-5°, the bottom	672,3	88,5	5,95	12,83
Variety Merlot				
SE, 5-8°, the top	570,5	80,1	4,57	10,15
SE, 5-8°, the middle	645,8	86,1	5,56	12,35
SE, 3-5°, the bottom	834,0	98,8	8,24	18,31

It is known fact that the character training of the vine harvest, especially an influence on the formation of generative organs essential to exercise some special areas of the leaf or leaves some special. Research this phenomenon showed that the leaf surface in different. The varieties studied was established that the higher leaf nodes are between 4 and 6. Plants with a well developed root system and growth were stronger in increased leaf area throughout the length string. At these plants the increased size of the leaf begins closer to the string and extended through most of its length.

Depending on the location of plants growing on the slope flatter leaf size in the middle. The plants located at the top and bottom of the slope there is a sudden increase in leaf area. With a larger surface area to leaf in these plants start closer to the shoot (Fig. 1)

Given that the very size of foliar surface does not reflect the full picture on photosynthetic productivity, we conducted research to test the optical properties (rejection and absorption solar energy).

Absorption of solar energy by vine leaves (fig. 2) the initial period of vegetation (flowering stage) tub of 69.5 up to 71.5%; less on slopes oriented on south-west, west, in those areas where the concentration of pigments increases than the same indices from other sectors. Then, with increasing volume foliar mass, improving and optical features of leaves, increased ability to absorb. This follows up to complete maturation of the leaves. During this period rates of absorb solar energy drops sharply.

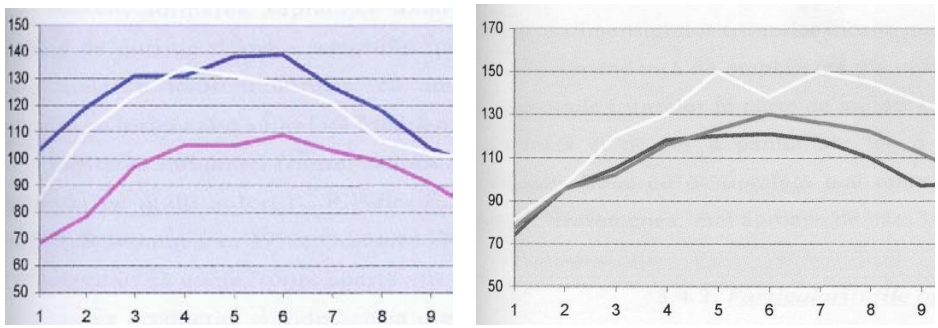

Fig. 1. Changing leaf area (cm ²) along the length depending on the location shoot of plants on the slope. College planning and economy Bender.

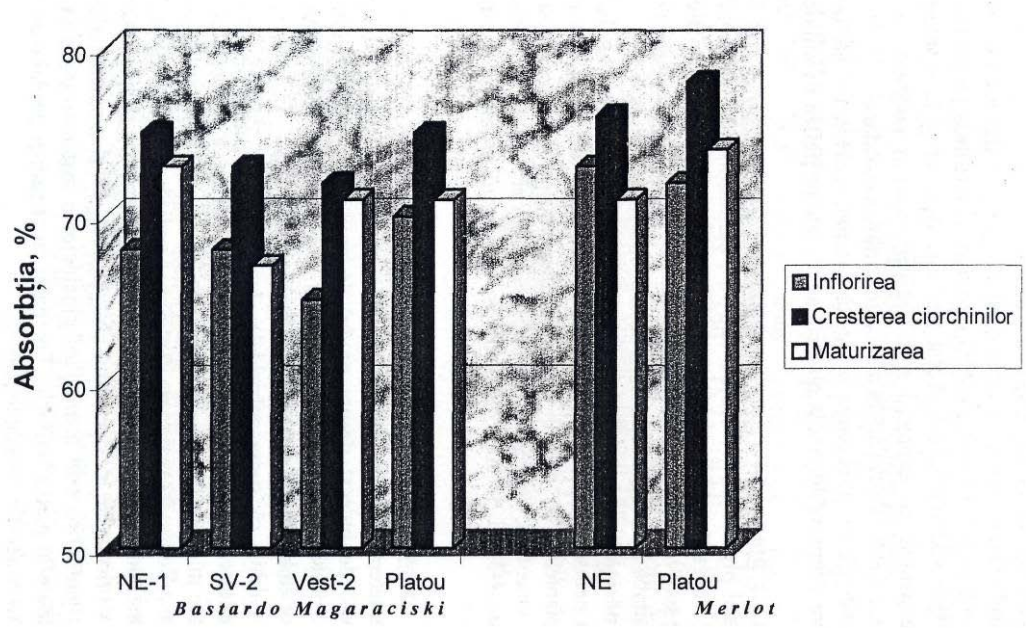

Fig. 2. Absorption RFA in vine leaves in dependence of environmental conditions. College planning and economy Bender.

The absorption of solar energy in the flowering period varies from 69.5% to 71.5%: more than the slopes located on the plateau and less on slopes with exhibitions southwest, west and north-east (fig. 2), in those areas where the concentration of pigments increases than these indices in other sectors. The ownership of the vine is the result of its ability to adapt to lighting conditions.

Then, in the development of the vine, there is increasing amount of mass from the surface, the result is improving optical properties of leaves, increase the absorption capacity.

Then, in the vine growth and development, rapid absorption of solar energy falls. It explains this by aging some of the leaves.

Depending on the location of plants on the slope are also differences, though not as large. In the initial period of vegetation with an increased activity of the absorption leaves characterized in location at the top and bottom of the slope. Then these indices are equals. The higher capacity to absorb solar energy plant was noted at the stage of grape growth and maturation chords. However, it must stressed that the greatest activity in the plants absorb is located in the middle of the slope (73%), then the top and bottom (corresponding to 70 and 69%).

It should stressed that during drought, with low humidity air and soil, absorbing solar energy slump, while most stands on slopes facing southwest, with the degree of inclination 8-10° (nearly 10%) and less on the plateau (around 5%).

CONCLUSIONS

Thus, knowing laws of training foliar surface and its photosynthetic activity, an agricultural technique can elaborate on more productive varieties in different growing conditions of the vine.

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