# APPLYING THE MAIN IN GREEN OPERATIONS TO SILVANIA GRAPE VARIETY CULTIVATED IN THE DIDACTIC STATION TIMISOARA

**Ciprian BLIDARIU, Alin DOBREI**

***Banat's University of Agricultural Science and Veterinary Medicine Timişoara***
***Calea Aradului no.119, 300645 Timişoara, Romania***
***E-mail: ciprian_blidariu@yahoo.com***

***Abstract:*** *Vine culture in our country has an old tradition, being an ancient occupation that needs specific knowledge, sometimes close to art. The future vine culture will be different than the actual one and it has to consider the environmental factors and the rational appliance of all production methods so that there will be respected the standards for products' quality and the protection of the environment. The culture technologies must be applied differently from one vine culture area to another, from one variety to another, considering the principles of organic vine culture so that the toxic impact upon the environment and vine products to be reduced at minimum. In this article we followed the regulation of vine growth and fructification processes, which is done by, works and operations in green, as a group of works applied on the stock, during the vegetation period. In green period works and operations have a complex of agrotechnical measures that complete pruning done in the dormant period for a better distribution of vegetation so that there will be a larger photosynthetic surface, which can increase the productive potential of vines. The researches followed the impact of these works and operations done in green period upon the quality and quantity of grapes' production from Silvania variety, a table grape variety which responds pretty well to these works. The best results were obtained in variant 16$^{th}$ where there were applied in complex all of the operations (n + p + s + t) and downwards are variants 15$^{th}$ and 14$^{th}$ (n + p + t).*

***Key words:*** *in green operations, grapes, pinching, in green works*

## INTRODUCTION

In green operations, the same as those made in the dormant period, are done in order to equilibrate the growth and fructification processes, to ease the other agrotechnical works that need to be done, to increase trunks longevity and to improve productions' quality. Compared to the works done in the dormant period, the works in green period avoid wounds and correct the mistakes done with pruning in the dormant period, they create easier and without large perturb useful fructification rapports between the overhead system and the root one and it modifies the rapport between fertile and non-fertile shoots in favor of the first ones. Even if they are done since over two millenniums, the effects of some works are not fully determined.

In order to know the contribution to the increase and improvement of grapes' production and to establish the most efficient combination of the main in green operations, there were done researches by different authors [1], [2], [3].

## MATERIAL AND METHODS

Starting with 2011, at the Didactic Station Timisoara I have studied the appliance of combined in green works, which gave the best results in the experiment where there were done in green works at Silvania variety in a vineyard of 18 years old.

The experimental variants are the following:

V 1 – control variant (no operations made in green period)

V 2 – tipping (t)

V 3 – snapping (s)
V 4 – tipping and snapping (t + s)
V 5 – pinching (p)
V 6 – pinching and tipping (p + t)
V 7 – pinching and snapping (p + s)
V 8 – pinching, snapping and tipping (p + s + t)
V 9 – nipping (n)
V 10 – nipping and tipping (n + t)
V 11 – nipping and snapping (n + s)
V 12 – nipping, snapping + tipping (n + s + t)
V 13 – nipping and pinching (n + p)
V 14 – nipping, pinching and tipping (n + p + t)
V 15 – nipping, pinching and snapping (n + p + s)
V 16 – nipping, pinching, snapping and tipping (n + p + s + t)

## RESULTS OBTAINED

Because of the classification of in green works and operations known in viticulture, according to the frequency of how they are done, these are: works and operations in green currently and rarely applied and works and operations in green specific for table grape varieties.

We studied the most current ones: nipping, bounding and tipping of shoots and those rarely applied pinching and snapping.

The low value of the obtained productions for all the experimental variants are due to some late frosts in April this year, which affected partially the shoots.

The productions results are synthesized in table 1.

Out of table 1 we can see that compared to the average value of the experiment (6.05 t/ha) considered the control, we can see that variant 16, where all in green works and operations were done (n + p + s + t) over passed the control with 1.35 t/ha, and compared to the control variant (no operations) with 2.01 t/ha.

Downwards there are variants 15 (n + p + s), with 7.06 t/ha and variant 14 (n + p + t) with 6.54 t/ha which over passes with 1.01 t/ha respectively 0.49 t/ha grapes the control (average value of the experiment) and with 1.67 t/ha respectively 1.15 t/ha the control variant.

Out of the analyze of probabilities it results that of the four operations done in green period, only three, which are nipping, pinching and snapping have a significant efficiency in increasing the production.

## CONCLUSIONS

Applying as a complex the operations in green period as nipping, pinching, snapping and tipping at Silvania variety is more efficient in increasing the production than doing these operations separately.

Taking off the not needed shoots by pinching the growth tops of main shoots near flowering period and snapping them when they have 4-6 leaves gives the maximum effect on production.

For Silvania variety we obtained significant increases of production of 1350 kg/ha grapes by nipping at the first fastening of shoots and snapping at the third fastening of shoots.

*Table 1*

The significance of differences between the experimental variants concerning grapes production

| No. | Variant | Grapes production (t/ha) | To the average value of the experiment | | To the control variant | |
|---|---|---|---|---|---|---|
| | | | Relative value (%) | Significance difference | Relative value (%) | Significance difference |
| 1 | Average | 6.05 | 100.00 | Control | 112.24 | 0.66 |
| 2 | V1 | 5.39 | 89.09 | -0.66 | 100.00 | Control |
| 3 | V 2 | 5.78 | 95.54 | -0.27 | 107.24 | 0.39 |
| 4 | V 3 | 5.54 | 91.57 | -0.51 | 102.78 | 0.15 |
| 5 | V 4 | 5.64 | 93.22 | -0.41 | 104.64 | 0.25 |
| 6 | V 5 | 5.56 | 91.90 | -0.49 | 103.15 | 0.17 |
| 7 | V 6 | 6.52 | 107.77 | 0.47 | 120.96 | 1.13* |
| 8 | V 7 | 6.15 | 101.65 | 0.10 | 114.10 | 0.76 |
| 9 | V 8 | 6.20 | 102.48 | 0.15 | 115.03 | 0.81 |
| 10 | V 9 | 5.74 | 94.88 | -0.31 | 106.49 | 0.35 |
| 11 | V 10 | 5.60 | 92.56 | -0.45 | 103.90 | 0.21 |
| 12 | V 11 | 5.90 | 97.52 | -0.15 | 109.46 | 0.51 |
| 13 | V 12 | 5.84 | 96.53 | -0.21 | 108.35 | 0.45 |
| 14 | V 13 | 6.08 | 100.50 | 0.03 | 112.80 | 0.69 |
| 15 | V 14 | 6.54 | 108.10 | 0.49 | 121.34 | 1.15* |
| 16 | V 15 | 7.06 | 116.69 | 1.01* | 130.98 | 1.67*** |
| 17 | V 16 | 7.40 | 122.31 | 1.35** | 137.29 | 2.01*** |

| $DL_{5\%}$ | $DL_{1\%}$ | $DL_{0.1\%}$ |
|---|---|---|
| 0.92 | 1.23 | 1.63 |

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