THE INFLUENCE OF THE MINERAL FERTILIZATION UPON BUDS VIABILITY ON FRUIT CORDS AT FEW WINES GRAPES VARIETIES IN RECAS VITICULTURAL CENTER CONDITIONS

INFLUENTA FERTILIZARII MINERALE ASUPRA VIABILITATII MUGURILOR PE COARDELE DE ROD LA CATEVA SOIURI DE STRUGURI PENTRU VIN IN CONDITIILE CENTRULUI VITICOL RECAS

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Abstract: *This paper research the mineral fertilization influence in different doses, upon buds viability at Pinot Noir, Riesling Italian, and Feteasca neagra varieties. Because of buds last on winter's time, bud's viability on fruit cords control is a compulsory study. Buds lost depend on minimum temperatures, on frost's time on vine physiological state and on applied agrotechnics.*

Rezumat: *Lucrarea urmăreşte influenta fertilizării minerale in doze diferite, asupra viabilităţii mugurilor la soiurile: Pinot noir, Riesling Italian, Feteasca neagra. Datorita pierderilor de muguri care apar in cursul iernii, controlul viabilităţii mugurilor pe coarde este o lucrare obligatorie. Pierderile de muguri depind de temperaturile minime, de durata gerului, de starea fiziologica a butucilor si de agrotehnica aplicata.*

Key words**:** *fertilization, cords, viability, wines grapes varieties*
Cuvinte cheie: *fertilizare, coarda, viabilitate, soiuri de struguri pentru vin*

INTRODUCTION

Wines grapes varieties in comparison with table grapes varieties have a much higher resistance of buds on frost influence.

Eye lost on fruit cords represent an important element because grapes production, yield quality and even viability and exploitation period of vineyards are influenced.

MATERIAL AND METHOD

This research has been made in vineyards from Recas Viticulture Centre.

Planting distances are 2m between rows and 1,2 m on the same row resulting a number of 4166 vans/ha.

Experience plots are: - V_1 - $N_0P_0K_0$
V_2 - $N_{100}P_0K_0$
V_3 - $N_{100}P_{100}K_0$
V_4 - $N_{100}P_{100}K_{100}$
V_5 - $N_0P_{100}K_{100}$

These are arranged after random blocks method. Each plot has 30 vines in three repetitions.

This research has been made at the beginning of march, after frost period and it's aim was to determine eye loss percentage to frost influence in order to make a correct determination of fruit load.

From each plot, we have taken ten cords, which were bound in packets and labelled. Cords were put in chambers at $18^0 – 20^0$ C where were kept with their base in water receptacle

for 3-4 days. After that, every cord's buds were analyzed. There buds beginning from the bottom to top of the cord were longitudinally cut with blade and visual examined, being noted in table with "+ "viable buds and with "– "dead ones.

Each plot result was expressed in percentage values proceeding from relation:

$$P\% = \frac{bx100}{a}$$; where P% - dead eyes percentage;

a – total number of examined eyes

b – dead eyes number

In table 1, 2 and 3 are presented plot results expressed in percentage values, upon buds viability at Pinot Noir, Riesling Italian and Feteasca neagra varieties.

Table 1

The buds viability at Pinot Noir grape variety

PLOT	R_1	R_2	R_3	Average	Difference%	Significance
$V_1N_0P_0K_0$	86.5	93.4	94	91.3	-	-
$V_2N_{100}P_0K_0$	88	91	93	90.6	0.7	-
$V_3N_{100}P_{100}K_0$	94.2	92.5	94.2	93.6	2.3	-
$V_4N_{100}P_{100}K_{100}$	96.8	91.8	97.6	95.4	4.1	-
$V_5N_0P_{100}K_{100}$	95.8	97	93.7	95.5	4.2	-
x	92.2	93.1	94.5	93.2		

DL 5%= 5.24 DL 1%= 7.63 DL 0.1%= 11.45

Table 2

The buds viability at Riesling italian grape variety

PLOT	R_1	R_2	R_3	Average	Difference%	Significance
$V_1N_0P_0K_0$	88.6	89.3	90.1	89.3	-	-
$V_2N_{100}P_0K_0$	87	93.5	89.7	90.06	0.76	-
$V_3N_{100}P_{100}K_0$	91.5	94.3	89.9	91.8	2.5	-
$V_4N_{100}P_{100}K_{100}$	96.5	94.5	91.2	94.06	4.76	-
$V_5N_0P_{100}K_{100}$	96.6	92.4	97.8	95.6	6.3	*
x	92.04	92.8	91.7	92.1	2.8	

DL 5%= 5.15 DL 1%= 7.5 DL 0.1%= 11.25

Table 3

The buds viability at Feteasca neagra grape variety

VARIANT	R_1	R_2	R_3	Average	Difference %	Significance
$V_1N_0P_0K_0$	87	88.1	89.2	88.1	-	-
$V_2N_{100}P_0K_0$	89	90.2	87.6	88.9	0.8	-
$V_3N_{100}P_{100}K_0$	86.5	92.2	87.2	88.6	0.5	-
$V_4N_{100}P_{100}K_{100}$	93.2	89.5	91.4	91.3	3.2	-
$V_5N_0P_{100}K_{100}$	92.5	94.5	91.2	92.7	4.6	*
x	89.6	90.9	89.3	89.9		

DL 5%= 3.68 DL 1%= 5.35 DL 0.1%= 8.03

RESULTS AND DISCUSSIONS

Buds viability on these plots has close values. At all plots, excepting V_2 ($N_{100}P_0K_0$) viable eyes percentage was superior to the witness. In case of V_2 nitrogen action lead to a percentage of viable eyes lower than in other plots case.

The best bud viability at Pinot Noir variety was registered at V_5 ($N_0P_{100}K_{100}$) plot were it was felt the good effect of phosphorus and potassium upon buds frost resistance.

In case of Riesling Italian variety, buds viability it was good, viable eyes percentage varying between 90.06 % in V_2 ($N_{100}P_0K_0$) case and 95.6 % in V_5 ($N_0P_{100}K_{100}$) case.

In addition, at Fetească neagră variety the best bud viability was registered in V_5 ($N_0P_{100}K_0$) case, due to phosphorus and potassium good effect. On the opposite pole, it is V_2 ($N_{100}P_0K_0$) plot with the lowest bud viability due to nitrogen influence.

When we compared all three varieties, we noticed that the best bud viability was registered at Riesling Italian variety with 95.6 %, followed by Pinot noir variety with 95.5% and Fetească Neagră variety with 92.7% (fig 1).

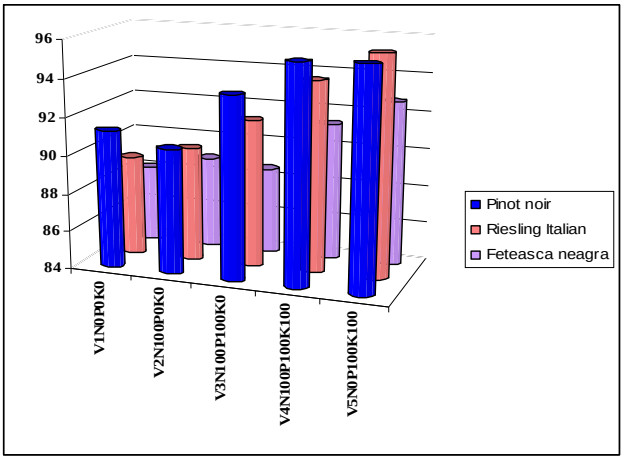

Figure 1 Bud's viability at Pinot noir, Riesling Italian and Feteasca neagra wines varieties.

It was noticed that the plots, which were fertilized with phosphorus and potassium, have a higher viable eyes percentage in comparison with the witness or in case of unilateral nitrogen fertilized plot. Because the monthly average temperature value from winter ´s time does not lowered under the minimum limit of buds resistance to frost, the affected buds percentage it was small.

The limit differences calculated at all three varieties have close values. We noticed that in case of Pinot noir variety significant differences not appear; at Riesling Italian variety at V_4 plots are significant differences and in case of Fetească Neagră variety, significant differences appear in V_5 plot case.

CONCLUSIONS

It was noticed the fact that buds viability at studied varieties under different fertilizers dose influence and buds start for the vegetation period were influenced by annual climate conditions, by variety and by applied fertilizers dose.

Nitrogen unilateral application at all three studied varieties (in V_2 plot case) has offered to plants frost sensibility; meanwhile phosphorus and potassium application at V_5 ($N_0P_{100}K_{100}$) plot lead to the increase of viable buds percentage on both varieties.

In all three studied varieties case the best buds viability was registered in V_5 plot case, which was fertilized with phosphorus and potassium.

LITERATURE

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