Impact of Fertilizing Amount on the Development of Yield Producing Sprouts of Risling Vine Variety and on Its Self-Pollination

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ABSTRACT

This article represents the study of the impact of fertilizer amount on the development of yield producing sprouts and self pollination of Risling variety of vine crop. It was observed in the study that indications of yield producing sprouts of Risling type vine variant were 3,6-12,6% more than the control variant. In this variant where the applied fertilizer amount was in the form of $N_{140}K_{80}P_{65}$ kgs the most yield producing sprouts appeared 3,6-12,6% more than the control variant. While the fertilizing amount was increased, total number of flowers also increased following considerable impact on maturation of grape heads. The quantity of flowers in $N_{140}K_{80}P_{65}$ kgs fertilizer applied variant reached to 468 pcs, matured grape heads were in the highest point, 68,7% relatively.

KEY WORDS: Vine, variety, yield, sprout, fertilizer, grape head, flower

Introduction

Important biological attributes of vine plants are the length of growth period and absorbtion of nutrients for a long time. In order to provide the vine with essential nutrients, it is necessary to use fertilizers rationally. Fertilizing refers to creating nutrient reserve in soil to improve the content of the soil, and also applying natural ferti lizers to the soil for normal biochemical processes and development of plants. In viticulture fertilizing is of greater importance, because vine is a perennial plant which has strongly developed root system and ground-surface system. Starting from spring it produces full foliage during a short time. Until the growth period of vine crop favourable nutrient condition is provided by applying mineral and organic fertilizers, and it allows to rapid accumulation of green mass for high yield of grape, rapid growth and growing power of the plant (Aratunyan, 1965)

The efficacy of integration of fertilizing with plant nourishing during its growth period is defined by possibilities of controlling food elements conforming to requirements of growth period phases of vine crop by taking into account various needs of vine for nourishing elements

and all variation processes of applied fertilizer to the soil. Additionally, the positive effects of nourishing can be connected with increasing amount of applied fertilizer elements. Fertilizing plays a great role in growth, development and self pollination of vine crop. In the following experience the impact of fertilizer amount on development and self pollination of yield producing sprouts of Risling type of vine has been studied (Temurov, 2000)

Materials and Methods

The research has been conducted in experimental field of scientific experimental enterprise "Sharob" of Kibray district. The experiments have been done on 20 years old vine plants of Risling variety. During the study variants were tested in 4 rotations and in each rotation 5 vine plants were chosen and then fertilized with NPK in different amounts. Choosing the sample experiments and placing the variants have been conducted in accordance with conventional methods. The statistical analysis of taken data has been done under the method of Dospekhov (1986).

Results and Discussions

It is obvious in the table data that under fertilizing impact the indications of yield producing sprouts of Risling variety of vine was 3,6-12,6% higher than control variant (Table 1).

In the variant where the applied fertilizer amount was in view of $N_{140}K_{80}P_{65}$ kgs the most yield producing sprouts appeared 3,6-12,6% more than control variant. In this variant one yield producing sprouts were 45,3 %, two yield producing sprouts were 26,4% and three yield sprouts were 3,2 %. Grape heads in one sprout made 0,75 %, and total number of yield sprouts were 74,9%. In the variant where the amount of fertilizer is increased in view of $N_{160}K_{100}P_{95}$ kgs applied, it was observed that yield sprouts became less, that is, one yield sprout was 43,7%, two yield sprout was 24,3% and three yield sprout was 1,0%. In result, it is clear that if the fertilizer is applied to vine plant in less or too much amount, it causes harm on development of yield sprouts. In the analysis of yield sprouts structure of Risling variety it was observed that most of them contain the sprouts with one or two grape heads

Table 1: Impact of fertilizer amount on development of yield producing sprouts of Risling vine variety

Variants	Yield producing sprouts, in %				Number of grapeheads in one sprout, %
	Oneyield	Twoyield	Threeyield	Total	
No fertlizer application (control)	40,2	22,1	0	62,3	0,62
$N_{100}K_{40}P_{25}$ kgs in neat form	44,2	25,3	0,8	70,3	0,70
$N_{120}K_{60}P_{45}$ kgs in neat form (control	44,6	24,1	2,6	71,3	0,71
$N_{140}K_{80}P_{65}$kgs in neat form	45,3	26,4	3,2	74,9	0,75
$N_{160}K_{100}P_{95}$ kgs in neat form	43,7	24,3	1,0	69,0	0,69

Fertilizing is considered as a vital source of food for plants growth and development and plays an important role in flowering and self pollination processes. As it is seen in the data of the 2 nd table due to increasing fertilizer amount the total numbers of flowers are raised and also maturation of grape heads is observed. In this case the quantity of flowers in $N_{140}K_{80}P_{65}$ kgs fertilizer applied variant reached to 468, matured grape heads were in the highest point, 68,7%. And dropped buds made 3,1 % while dropped fruits were of 28,2 %. The quantity of matured heads was 7,4-17,5 % higher than the control variants. As a result of observation, it can be surely said that application of fertilizer either in less amount or much gives negative impact on self pollinating of Risling vine type.

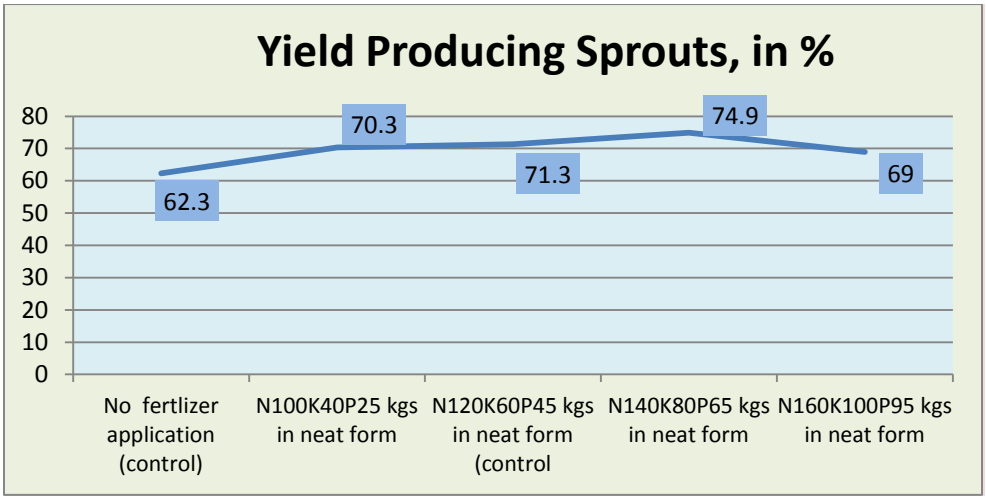

Figure 1. Indications of yield sprouts

Table 2: Impact of fertilizer amount on self pollinating of Risling variety

Varieties	Total number of flowers, pcs	Dropped buds, %	Dropped fruits, %	Matured grapes, %
No fertlizer application (control)	458	3,4	45,4	51,2
$N_{100}K_{40}P_{25}$ kgs in neat form	462	3,6	40,6	55,8
$N_{120}K_{60}P_{45}$ kgs in neat form (control)	465	3,4	35,3	61,3
$N_{140}K_{80}P_{65}$ kgs in neat form	468	3,1	28,2	68,7
$N_{160}K_{100}P_{95}$ kgs in neat form	461	3,7	40,2	56,1

Conclusion

In the experimental variants yield producing sprouts quantity differs from each other on self pollinating. The major part of the yield, that is, its 50% was available only in single grape head sprouts. Less or more application of fertilizer amount caused negative effects on the quantity of yield sprouts and their self pollination. Therefore, fertilizing norms suitable for vine crop are to be improved in order to get high yield of best quality.

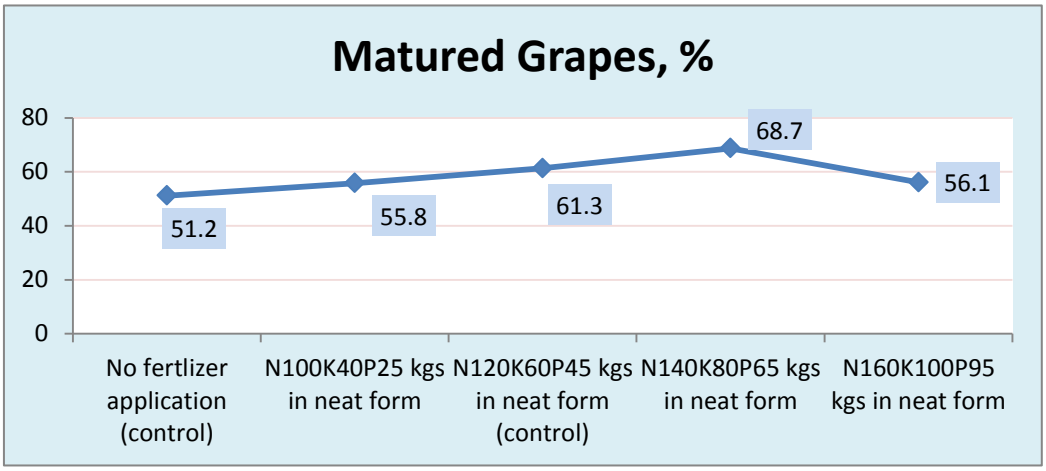

Figure 2. The quantity of matured grapes

REFERENCES

Aratunyan A.S. (1965). Vineyard fertilizer. -Moscow: Kolos. 215 p (in russian).

Dospekhov B.D. (1986). *Field study methods*. Moscow: Kolos. p.207-218 (in russian).

Temurov S. H. (2000). *Viticulture*. "National Encyclopedia of Uzbekistan" The state scientific publication. -Tashkent. p.154-157 (in uzbek).