FOLIAGE FERTILIZATION IN THE INTENSIVE APPLE ORCHARD

FERTILIZAREA FOLIARĂ ÎN CULTURA SUPERINTENSIVĂ DE MĂR

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Abstract: *The objective of this research is to study the effect of foliage fertilization about the tree productivity in plantings of Pinova and Gala Must cultivars. During the period of vegetation was effected 3 foliage fertilization with nitrogen in following rates: 0,4%; 0,6%; 0,8%; 1,0%; 1,2%, using 1000 l solution per hectare. The yield of both cultivars was significantly higher (43,8-47,0 t/ha) in the variant where the rate of fertilizing element was 1,2% N.*

Rezumat. *Scopul cercetării a fost de a studia efectul fertilizării foliare la pomii de măr din soiurile Pinova şi Gala Must. S-au administrat 3 fertilizări foliare cu uree în concentraţie de: 0,4%; 0,6%; 0,8%; 1,0%; 1,2%, folosindu-se 1000 l soluţie pentru un hectar. În urma aplicării fertilizării foliare cu uree se obţin sporuri importante de producţie, cuprinse între 43,8 t/ha la pomii soiului Pinova şi 47,0 t/ha la pomii soiului Gala Must. Efectul maximal al fertilizării foliare cu uree se face resimţit la varianta 6 (1,2% N) atât în cantitatea fructelor cât şi în calitatea lor.*

Key words: *apple trees, foliage fertilization, nutritive element, variety, yield.*

INTRODUCTION

The fertilization of agricultural crop is an important technological means in performing agriculture. The application of mineral fertilizer on the trees foliage is more advantageous because the assimilation of the macro and microelements to made easily than through of the root system. The foliage fertilization compensates quickly the mineral element insufficient and made possible the application simultaneous with protection treatments (*1,5,4*).

The improvements of the mineral nutrition condition through foliage fertilization influence the growing processes and the productivity of the plants. Due to foliage fertilization increase considerable the vegetal productivity and the quality of the production (*3,2*).

MATERIAL AND METHODS

The research was founded in 2005 years in the intensive apple orchard of the agricultural society „Alfa-Nistru”. The biological material was constituted from 2 apple trees (Pinova, Gala Must) grafted on M 9 and planted at a distance of 3,5 x 1,2 m. In the experience was studied 6 variants of foliage fertilization with nitrogen (46% s. a.).

The following rates of nitrogen were used:

Nr.	The period of treatments	The rates of nitrogen, %					
		V1 control	V2	V3	V4	V5	V6
1	After blossoming (75% flowers is fall)	Water	0,4	0,6	0,8	1,0	1,2
2	When the fruit is the size of one hazel (20-30 May)	Water	0,4	0,6	0,8	1,0	1,2
3	When the fruit is the size of one nut (20-30 June)	Water	0,4	0,6	0,8	1,0	1,2

RESULTS AND DISCUSSIONS

After the administration of the nitrogen foliage fertilization the fruit productivity was increased indifferently of the variety (tab. 1). During the period of the years 2005-2007 the fruit production at the variety Pinova increased at 14,8 kg/tree in the variant with the rates of nitrogen was 0,4% to 18,4 kg/tree in the variant with the foliage fertilization was effected in the rate of 1,2%. At the tree apple Gala Must cultivar the fruit production increase also in the fertilization variant at 16,0 kg/tree (V2) to 19,7 kg/tree (V6).

Through the administration of nitrogen fertilization the fruit production to improve in correlation with the medium weight of the fruit (fig.1)

The medium weight of the fruit at both cultivar is more great (157 g) also in the variant 6 (1,2% N).

In accordance with experimental data we can conclusion that the foliage fertilization in the intensive apple orchard affects directly the fruit production and increase once with the rate of nitrogen.

Table 1

The influence of the nitrogen foliage fertilization about the fruit production at the apple varieties Pinova and Gala Must

The rootstock M9, the distance of the planting, 3,5x1,2m, the shape of the crown, spindle slender S. A. "Alfa-Nistru", in medium of the years 2005-2007

The experimental variant	The medium weight of the fruit (g)	The fruit production		
		kg/tree	t/ha	The difference face of the control (%)
The variety Pinova				
V_1 (c)	143	14,3	34,1	100
V_2	143	14,8	35,2	103,2
V_3	145	15,8	37,5	109,9
V_4	148	16,4	39,1	114,6
V_5	157	17,3	41,2	120,8

V_6	158	18,4	43,8	128,4
The variety Gala Must				
V_1 (c)	145	15,2	36,3	100
V_2	147	16,0	38,2	105,2
V_3	149	17,0	40,4	111,2
V_4	151	17,8	42,3	116,5
V_5	154	18,7	44,5	122,5
V_6	157	19,7	47,0	129,4

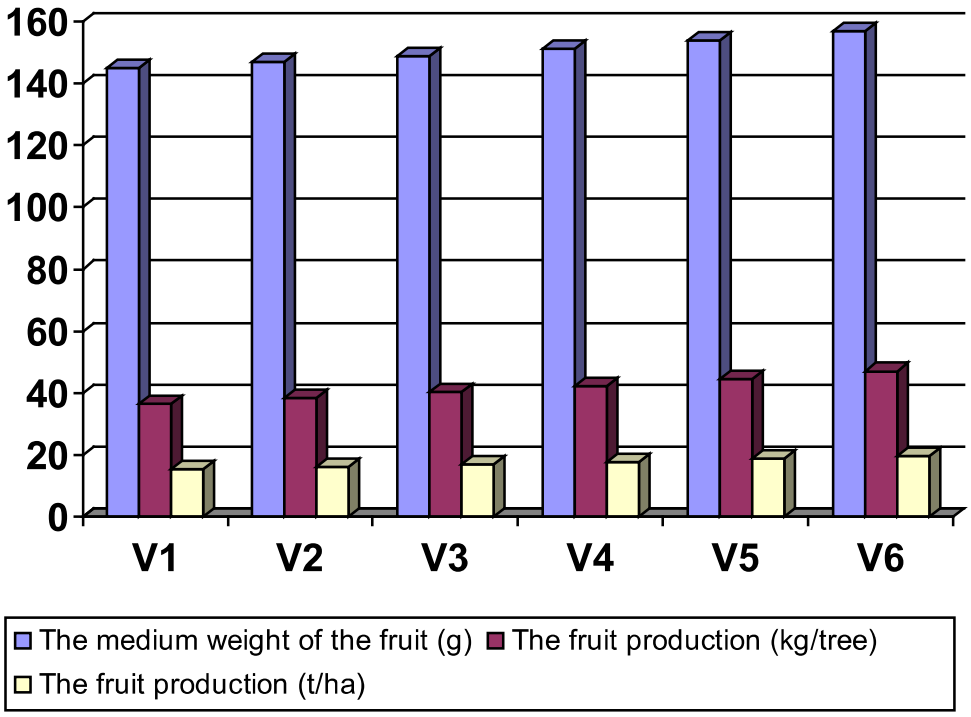

Fig. 1. The correlation of the fruit production and the medium weight of the fruit at the Gala Must variety in dependence of the nitrogen foliage fertilization.

CONCLUSIONS

Due to the possibility to effect the foliage fertilization simultaneous with protection treatments that agriculture means is financial productive.

Nitrogen foliage fertilization had significant effect the productivity of trees, yield and fruit quality of Pinova and Gala Must apple cultivar.

The highest yield (43,8-47,0 t/ha) was obtained in variant with the foliage fertilization in the rate of the nitrogen 1,2%.

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