

STUDIES ON THE BEHAVIOUR OF SOME APPLE VARIETIES CULTIVATED ON THE HORTICOL FARM „V. ADAMACHI” IAȘI

STUDII PRIVIND COMPORTAREA UNOR SOIURI DE MĂR CULTIVATE ÎN FERMA HORTICOLA „V. ADAMACHI” IAȘI

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Abstract *Apple is the species which occupy in temperated areas first place as volume of production and surfaces.*

In the period 2013-2015 were performed biometric measurements on three apple varieties (Idared, Generos and Florina), planted in intensive system from horticultural farm "V. Adamachi" Iași

Key words: Apple, varieties, biometrics particularities

Rezumat. *Mărul este specia care ocupa în climatul temperat locul întâi atât ca volum al producției cât și ca suprafețe.*

În perioada anilor 2013 – 2015 s-au efectuat măsuratori biometrice asupra a trei soiuri de măr (Idared, Generos și Forina), plantate în sistem intensiv în cadrul fermei horticole „V. Adamachi” Iași.

Cuvinte cheie: Măr, soiuri, particularități biometrice

INTRODUCTION

Romania shows favorable natural conditions for apple culture. The culture is optimal to the Carpathian hills, in the area of beech and oak forests (Istrate, 2007).

Iasi County shows as a limitation for apple crop, the rainfall witch is lower in summer period for species requirements. However, apple production potential in the area offering a reasonable value, witch covers the investment during the year (Aiacoboaie *et al.*, 1994).

MATERIAL AND METHOD

Experience was conducted in an orchard of apple set up in horticultural farm "V. Adamachi" Iași. The soil is a cernoziom loeosoid cambic clay formed on a terrace.

The average annual temperature in Iasi during the experimental years is 11.2°C, and the average annual rainfall is 520.8 mm.

Studied varieties (Idared, Generos and Florina) were grafted on rootstock MM106, trees being driven form of free palmettes, flattened by pruning.

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Planting distance was 4 x 3 m returning about 833 trees per hectare. The land was kept as black field by repeated manual and mechanical works

Each variety of the experience was a variant of experience, and within each variant were performed five repetitions (Grădinaru *et al.*, 1996).

RESULTS AND DISCUSSIONS

Analyzing the height of trees (tab. 1) finds that the highest value is achieved during the experience at variety Florina with 4.20 m in 2013 and 4.12 m respectively in 2015.

Generos variety in 2013 had an average height of 3.61 m, 3.73 m and 3.85m in years 2014, 2015.

The control, variety Idared, gained 3.17 m in 2013, 3.14m in 2014 and 3.25m in 2015.

Table 1

The height of trees (m)

Variant name	The height of trees (m)		
	2013	2014	2015
V1 Generos	3.61**	3.73**	3.85**
V2 Idared (control)	3.17	3.14	3.25
V4 Florina	4.20***	4.05***	4.12***
LSD 5%	0.10	0.11	0.11
LSD 1%	0.19	0.21	0.19
LSD 0.1%	0.24	0.43	0.28

From table 2 it can be seen that the largest cross sectional area of the trunk was obtained from Florina variety, it recorded values between 198.2 - 201.5 cm², followed by Generos variety with 146.6 to 149.8 cm² and witness, the variety Idared who recorded at this item 88.7 - 91.5 cm² during the experiment.

Tabelul 2

Cross-sectional area of the trunk (cm²)

Variant name	Cross-sectional area of the trunk (cm ²)		
	2013	2014	2015
V1 Generos	146.6	148.0	149.8
V2 Idared (control)	88.8	89.7	91.5
V3 Florina	198.2	199.8	201.5
LSD 5%	38.3	36.5	37.3
LSD 1%	58.0	55.3	56.5
LSD 0.1%	93.2	88.8	90.8

Tree crown volume oscillated between 9.3 - 9.9 m³ at variety Idared, followed by Generos variety with 12.0 – 12.4 m³ in 2014 and 2013 respectively.

Florina variety recorded a crown volume variation limits between 14.3m³ in 2013 and 2014 and 14.5 m³ in year 2015 (tab.3).

Table 3

The crown volume (m³)

Variant name	The crown volume (m ³)		
	2013	2014	2015
V1 Generos	12.4	12.0	12.2
V2 Idared (control)	9.3	9.4	9.9
V3 Florina	14.3***	14.3***	14.5***
LSD 5%	0.31	0.12	0.07
LSD 1%	0.52	0.18	0.13
LSD 0.1%	0.86	0.27	0.24

Table 4

The production of fruit

Variety	Production of fruit (kg/tree)	Production of fruit (t/ha)
V1 Generos	38.41	32.00
V2 Idared (control)	36.8	30.65
V3 Florina	42.85	35.70

The cumulated fruit production during the experiment is analyzed in table 4. For Generos variety the average production in all three years was 38.41 kg/tree, respectively 32 t/ha. At V3 – Florina variety average production / tree was 42.85 kg/tree (35.7 t/ha). The smallest production is obtained at control V2 – Idared variety with 36.8 kg/tree (30.65 t/ha).

CONCLUSIONS

Making annual technological interventions have the effect of maintaining tree crown in the designed parameters.

In some years more severe interventions are needed in the trees crown that fructify type III - Generos and Idared or type IV - Florina.

These interventions has as short-term effect a temporary reduction in the size of the crown, but for long term, these engineering works renew production capacity of trees, regenerating specific fructifying elements.

Fruit productions obtained are satisfactory considering the fact that rainfalls in the Iasi area are deficient for the apple species.

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