COMPARATIVE BEHAVIOR FOR A NEW TOMATO ASSORTMENT FOR POLYTUNNEL, IN ORGANIC SYSTEM AT S.D.E. IASI

COMPORTAREA ÎN CULTURĂ COMPARATIVĂ A UNUI NOU SORTIMENT DE TOMATE PENTRU SOLAR, ÎN SISTEM ECOLOGIC LA S.D.E. IAŞI

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Abstract. *In this paper are presented six cultivars of tomatoes for polytunnels in the experimental conditions of Teaching Station "V. Adamachi" Iasi. During the experiments were conducted observations and biometric measurements for the main features agroproductive: early and total yield, harvest on dynamic. The best results were obtained early production of Galina F1 cultivar (40.16 t/ha) compared with the Brillante F1 (35.70 t/ha). Total yield was remarked Primadonna F1 (134.36 t/ ha), while F1 Brillante witness obtained 89.25 t/ ha.*

Key words: assortment, tomatoes, comparative crop

Rezumat. *În lucrarea de faţă sunt prezentate şase cultivare de tomate pentru solar, în condiţiile experimentale ale Staţiunii Didactice „V. Adamachi" Iaşi.Pe parcursul experimentării s-au efectuat observaţii şi determinări biometrice pentru principalele însuşiri agroproductive: producţia timpurie şi totală de fructe, dinamica recoltei s.a. Cele mai bune rezultate pentru producţia timpurie au fost obţinute de cultivarele Galina F1 (40,16 t/ha), în comparaţie cu martorul Brillante F1 (35,70 t/ha). Pentru producţia totală s-a remarcat cultivarul Primadona F1 (134,36 t/ha), în timp ce martorul Brillante F1 a obţinut 89,25 t/ha.*

Cuvinte cheie: sortiment, tomate, cultură comparativă

INTRODUCTION

While promoting organic vegetable (organic, biological), the cultivar is the most important factor of production, which is directly related to environmental plasticity and consumer preference. Mean while, the cultivar is also an element of biodiversity crops expression, under a permanent change in the assortment of cultivars. The paper present a relatively new variety assortment of tomato for protected crop, consisting of six high production hybrid cultivars.

MATERIAL AND METHOD

Research was done at the University of Agricultural Sciences and Veterinary Medicine Iasi, during 2008 and 2009 years. An assortment of six tomato hybrids: Galilea F1, Margarita F1, Primadonna F1, Winona F1 and Galina F1, compared with the control Brillante F1 was studied. The experiment was placed in an individual polytunnel of 5.4 m from SDE Iasi. Soill tillage and plant teding were performed in accordance with technologies of organic crops.

Planting was done in the second decade of April, using seedlings produced in

pots of 620 cm^3 and 55 days old. Establishment of crop was based on a scheme with three bands of two rows; the plants have been driven by a single stem and individually strain. The crop density was 27,778 plants /ha. For Galilea and Galina, plants growth was ensured through the last prefloral offshoot. During the experiments were carried out observations and measurements to ensure the implementation of biometric for general characterization of the cultivars. Also, early production (at 30 July) and total production at the end of the growing season were considered. The experimental data have been processed by specific methods (Saulescu and Saulescu, 1967).

RESULTS AND DISCUSSIONS

A brief agrobiological characterization of assortment is shown in table 1.

In 2008-2009, the early yield of tomatoes produced in organic ranged from 28.59 t/ha to Primadonna F1 at 40.16 t/ha for Galina F1. The Brillante F1 hybrid (control) obtained an early production estimated at 35.70 t/ha (table 2). Distinctly positive significant differences compared to the control variant was obtained by Galina F1 cultivar, Brillante F1, mean difference being of 4.46 t/ha.

Negative significant differences and very significant were obtained by F1 Margarita (4.23 t/ha), Winona (6.74 t/ha) and Primadonna (7.10 t/ha). Although, Galilea F1 hybrid has achieved significant results compared to the control, remains a high appreciated hybrid for early production, and fruit shape. Lower early yield Primadonna and Winona compared to control, could be explain by the fact that these hibrids are more belated and produce large fruits.

Total yield of tomatoes obtained in the experiment is presented in table 3. This varied in very wide limits, because of ecological plasticity of the hybrids and the type of growth.

The total yield of tomatoes in 2008-2009 ranged from 62.65 t/ha at Galilea F1 to 134.36 t/ha Primadonna F1 hybrid, while Brillante witness obtained an average yield of 89.25 t/ha.

Referring to total yield, very significant positive differences are obtained at variant Primadonna F1 , the difference being 45.11 t/ha over control. Very significant negative differences were obtained compared with the control by variants: Galilea F1 (26.60 t/ha), Margarita F1 (26.32 t/ha) and Galina F1 (17.53 t/ha).

Table 1

The characterization of comparative crops assortment of tomatoes

Cultivar	Precocity	Potential of yield (t/ha)	Plant		Fruit characteristics						
			type of growth *	height (cm)	shape	height (cm)	diameter (cm)	number of lodges	color	weight (g / pcs)	resistance **
Galilea F1	early	60-70	D	70-80	oval	9,2	5,1	4	red	112-115	TM, C, V, A
Brillante F1	early	80-90	ID	190-200	round	6,7	6,4	5	red	160-165	TM, N, V, A
Margarita F1	mid-early	65-75	ID	180-190	round	5,8	5,5	4	dark red	113-118	TM, V, F, A
Primadona F1	mid-early	120-140	ID	200-220	rotund flat	7,4	8,2	5	red	360-370	TM, C, N, V, F, A
Winona F1	mid-early	85-90	ID	200-210	round	6,2	6,5	5	red	150-160	TM, V, F, A
Galina F1	early	70-80	D	80-100	rotund flat	5,8	6,5	5	light red	160-170	TM, V, F, A

* D- determined, ID - indetermined

** TM – *Tomato mosaic virus*; F – *Fusarium*; C – *Cladosporium*; A – *Alternaria*; V – *Verticilium;* N – *Nematodes*

Table 2

Early yield of tomatoes and significance of differences to control (2008-2009)

Crt. no.	Variant	Early yield t/ha	% to control	Differences to control	Significance
1	Galilea F1	36,34	101,79	0,64	-
2	Margarita F1	31,47	88,15	-4,23	oo
3	Galina F1	40,16	112,49	4,46	**
4	Winona F1	28,96	81,12	-6,74	ooo
5	Primadona F1	28,59	80,08	-7,1	ooo
6	Brillante F1 (control)	35,70	100	0,00	-

DL 5% = 1,97; DL 1% = 3,76; DL 0,1% = 5,84.

Table 3

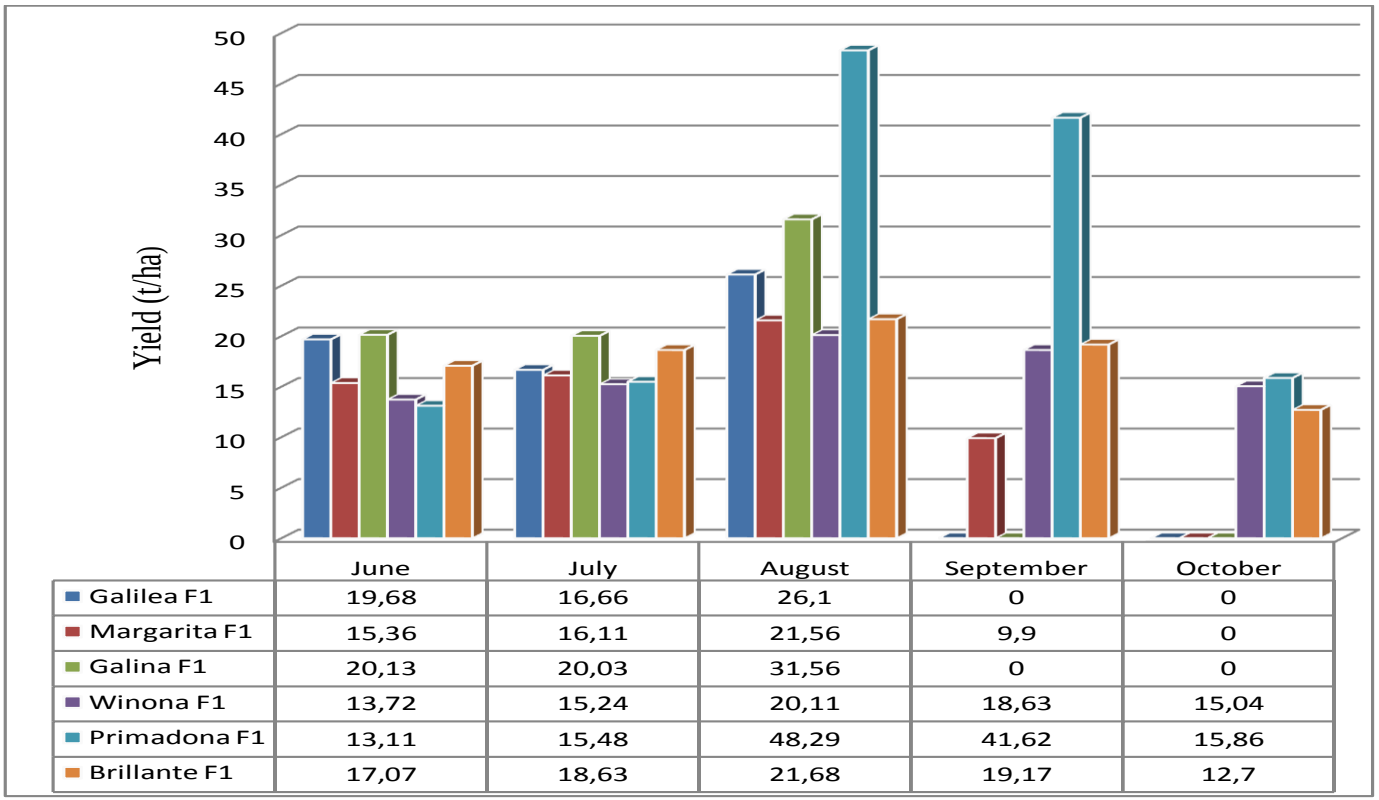
Total yield of tomatoes and significance of differences to control (2008-2009)

Crt. no.	Variant	Total yield t/ha	% to control	Differences to control	Significance
1	Galilea F1	62,65	70,19	-26,60	ooo
2	Margarita F1	62,93	70,50	-26,32	ooo
3	Galina F1	71,72	80,35	-17,53	ooo
4	Winona F1	82,74	92,70	-6,51	-
5	Primadona F1	134,36	150,54	45,11	***
6	Brillante F1	89,25	100	0,00	-

DL 5% = 7,48; DL 1% = 9,67; DL 0,1% = 13,64.

Analyzing the monthly dynamics of tomatoes yields, it is remarked that in June, the largest early yields were gotten by Galina F1 (20.13 t/ha), Galilea F1 (19.68 t/ha) and Brillante F1 (17.07 t/ha) (fig. 1). In economic terms, early hybrids is a positive aspect because the value of production per unit area increases and benefit per kg of product is higher, to same cost of production. The same three hybrids made up and early production in July, which shows that biological earliness of cultivar is expressed in terms on organic production.

In June and July, late as hybrids carried smallest tomato production. In August, the highest yields are produced by the hybrids: Primadonna F1, Galina F1 and Galilea F1. The determinated type of cultivars Galilea and Galina F1 do not obtain yield in September and October, it suggests that these hybrids are susceptible to tomato crops in two crops (cycles) per year. The Brillante F1 (Mt) and Winona F1 achieved tomato yields relatively constant throughout the growing season (14-20 t/month/ha).



	June	July	August	September	October
Galilea F1	19,68	16,66	26,1	0	0
Margarita F1	15,36	16,11	21,56	9,9	0
Galina F1	20,13	20,03	31,56	0	0
Winona F1	13,72	15,24	20,11	18,63	15,04
Primadona F1	13,11	15,48	48,29	41,62	15,86
Brillante F1	17,07	18,63	21,68	19,17	12,7

Fig. 1. Dynamics of tomato yield on months

CONCLUSIONS

1. Early tomato yield in the assortment varies between 28.59 t / ha and 36.34 t / ha.

2. Higher total yield compared to the control Brillante F1 (89.25 t / ha), was very significant Primadonna cultivar F1 (134.36 t / ha).

3. Maximum amount of yield was in June and July (Galina, Margarita and Galilea), July-August (Primadonna). The cultivars Brillante F1 and Winona F1 achieved during the growing season constant yield in all months.

4. The largest fruit (on average 300 g) were obtained by the cultivar Primadonna F1.

5. The average fruit weight, shape, external appearance, internal structure and other characteristics varied within normal limits, giving a high range studied.

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