Scientific Papers, Series B, Horticulture, Vol. LVI, 2012
ISSN Online 2286-1580, ISSN-L 2285-5653

THE IMPACT OF SOME MODERNIZED TECHNOLOGICAL OPERATIONS UPON THE PRODUCTIVE POTENTIAL OF SOME CUCURBITA PEPO L., CONVAR. GIROMONTIA HYBRIDS, CULTIVATED IN COLD SOLARIUMS

Alexandra BECHERESCU[1], HORGOŞ A.[1], POPA D.[1], Anca DRĂGUNESCU[1], Anişoara IENCIU[1], Roxana STEPAN[2]

[1]Banat's university of Agricultural Sciences and Veterinary Medicine, Faculty of Horticulture and Forestry, Fruit Culture, Calea Aradului 119, 300645, Timisoara, Romania, Phone: 0256 277006, fax: 0256 277263
[2]Family association

Corresponding author email: alexandra_becherescu@yahoo.com

Abstract

The importance of courgette in alimentation is duet o its alimentary value given by the high content of Carbone hydrates, proteins, Ca, P and Iron salts, vitamins A and C with their favorable role in metabolism. Obtaining efficient quantitative productions is very important for vegetable growers, who hope to introduce this vegetable, in the near future, more and more in alimentation. This can happen only by applying in culture a modern technology. In this purpose we experienced two courgette hybrids Cavili F_1 and Ambasador F_1, cultivated in two types of culture systems – one with modeled field and mulching with white polyethylene (PE) foil and drip irrigation (b1) and one with no modeled field, no mulching and with drip irrigation (b2) – and by applying as fertirrigation three types of completely soluble chemical fertilizers – Agriplant, Haifa Chemicals and Kemira. The results showed that the field has to be modelled with raised layers of 104 cm width, on which to apply white PE foil as mulch. It is recommended to use the two completely soluble fertilizers Haifa Chemicals and Kemira, applied by fertirrigation, which determined high yields for both hybrids. The biological value of the two hybrids, considering their quantitative productive potential is very close, the differences between the hybrids being not significant, so that from Cavili F1 we obtained 27.1 t/ha (100%) and from Ambasador F1 we obtained 26.3 t/ha (97%), the difference expressed in physical units being of 0.8 t/ha, and in percentage units of 3%.

Keywords: *technology, production, alimentation, grower*

INTRODUCTION

Courgette is vegetable species from *Cucurbitaceae* family, which was not given too much attention if we consider other species like cucumbers (long, semi-long and cornichon) or yellow and green melons, all these species having improved technologies in the past years, some of them considered as being modernized compared to the classic ones. Obtaining early or very early productions, as an effect of some culture protecting systems by using some plastic shelters with new features, obtaining quantitative productions close to the theoretical potential of the cultivars and the organoleptic features of the new varieties and hybrids, meaning the taste, core's color and smell and, the lack of seeds (eg. yellow melons), the use of drip irrigation and fertirrigation, all these are technological elements which form the modern technology.

The alimentary values of courgette (ignored till now), meaning the high content of carbon hydrates, proteins, calcium salts, phosphorus and iron, vitamins A and C (with their extremely favorable role in human metabolism), will get their well-deserved place in human alimentation as the natural remedies and the alternative alimentation conceptions are more and more used and nutritionists give higher attention to researches in this domain. Obtaining high productions, which can satisfy consumers' requests for this vegetable along the spring-summer period, are aimed by specialized and common vegetables' growers, so that they can improve and modernize the culture technology of this species. Cultivating courgette in protected spaces and modernizing

a technological link are the aims of our experimental research.

MATERIAL AND METHOD

This research took place in a family association from Iermata locality, Seleuş district, near Ineu city, in Arad County, where there is a tradition in cultivating vegetables on large surfaces in a protected system by private growers. The family association has a large surface with cold solariums of almost 0.5 ha. The culture was established in 10-15 April 2010 and 2011 in cold solariums, at a density of 12500 pl/ha and seedlings' age was of 45-50 days. ***The goal*** of the research was to study the productive potential behavior of two courgette hybrids (Cavili F1 and Ambasador F1) in conditions of modernizing the culture technology in cold solariums, meaning the culture system (modeled and mulched field and not modeled and not mulched field in conditions of drip irrigation and fertilization done through drip irrigation installation) and the use during vegetation period of some modern completely soluble fertilizers such as Agriplant, Kemira and Haifa-Chemicals. The flowers of this species, and all other species in this botanical family, which are not pollinated or incompletely pollinated, usually don't bind, falling down of the plant (abortion) mainly in early season because of low temperatures during night and the high differences between day and night temperatures and because of insufficient sun light, conditions which are not favorable for pollination.

The objectives of this research, considering the hybrids under the impact of the other two factors, were:

- the behavior of the two hybrids cultivated in cold solariums in conditions of soil mulching and fertilization with modern completely soluble chemical fertilizers;
- to determine the productive potential of the two hybrids per plant and per surface (m^2 or ha);

In order to obtain the objectives there were done the following determinations:

- number of flowers per plant;
- percentage of bind fruits;
- fruits' weight.

In this purpose there was settled a polyfactorial experiment with the fallowing experimental factors:

Factor A – The hybrid

a_1 – Cavili F_1; a_2 – Ambasador F_1

Factor B – Irrigation and field modeling system for establishing the culture (culture system)

b_1 Modeled field with raised layer width 104 cm and mulching with white polyethylene foil (PE)+drip irrigation; b_2 not modeled and not mulched field + drip irrigation

Factor C – Types of modern completely soluble chemical fertilizers used for fertirrigation

c_1 – Agriplant (Agriplant 1-4);

c_2 – Haifa-Chemicals (*Agro-Feed Multicote 4; Agro-Feed – Magnesium nitrate; Agro-Feed – Complex soluble fertilizers N-P-K; Agro-Feed – Potassium nitrate – KNO_3;*

c_3 – Kemira (Cropcare and Ferticare);

In order to have a complete image of the two courgette hybrids' behavior Cavili F_1 and Ambasador F_1, under the impact of the experimental factors (culture systems and fertilizers) there were done the following observations:

- production quality index for establishing the consume on the market;
- average weight of fruits and average production obtained on the surface unit;
- fruits' dimensions for determining the size units;
- productions obtained per plant and per surface unit under the unilateral and factors' interaction impact.

RESULTS AND DISCUSSION

By analyzing table 1 and figure 1 one can see the features specific for this species culture under the impact of the two experimental factors considering the feontipic behavior:

- the total number of flowers per plant varies from 14.2 to 14.8 for Cavili F_1 and from 13.5 to16.0 for Ambasador F_1, the variation limits being conditioned by the bifactorial combinations of factors B and C.;
- the total number of bind fruits per plant is not in directly proportional relation with the

number of flowers on the same plant, the binding degree varying from 46.3 % and 50.7 % under the impact of factor b_1 (modeled field, mulching and drip irrigation) for both hybrids and between 40.1% and 46.5% under the impact of b_2 (not modeled or mulched field, drip irrigation).

- fruits' length at consume or technical maturity (courgettes in flower) is not higher or lower correlated to factor B (b_1 and b_2), but more to factor C;
- for c_1 - Agriplant combined with b_1 and b_2 fruits length at consume maturity is lower compared with c_2 (Haifa Chemicals) and c_3 (Kemira), which shows a favorable effect of using the two completely soluble chemical fertilizers;
- fruits' weight at consume maturity is higher for Cavili F_1 compared with Ambasador F_1 but only under the impact of b_1 (modeled field + mulch); while under the impact of b_2 (level field) the situation is opposite, the higher weight values being obtained from Ambasador F_1.
- the average production per plant varies from 1.776-2.570 kg/plant for Cavili F_1 and from 1.688-2.480 kg/plant for Ambasador F_1 in the phase of consume maturity;
- the average productions per hectare are very different, the extreme limits being of 17.3-30.2 t/ha.

Table 1. Experimental results concerning the behavior of some courgette hybrids cultivated in cold solariums on modeled and level field by using in vegetation foliar fertilizers in cycle I 2010-2011*

Experimental factors			No.of flowers/ plant	Bind fruits/plant		Fruit's length (cm)	Average weight (g/piece)	Average production		
A (Hybrid)	B (culture system)	C (chemical fertilizer)		piece	%			Kg/plant	t/ha	% than Mt not fertilized
a_1– Cavili F_1	b_1 –modeled field + mulch + drip irrigation	c_1 – Agriplant	14,5	7,2	49,7	24,0	326,3	2,344	29,4	100,0
		c_2 – Haifa-Chemicals	14,8	7,5	50,7	26,4	342,7	2,570	31,0	126,9
		c_3 – Kemira	14,7	7,4	50,3	25,7	335,1	2,480	24,6	122,5
	b_2 – level field not mulched + drip irrigation	c_1 – Agriplant	14,8	6,3	42,5	22,9	281,9	1,776	28,5	100,0
		c_2 – Haifa-Chemicals	14,2	6,5	45,7	26,1	302,8	1,968	30,3	121,8
		c_3 – Kemira	14,2	6,6	46,5	25,2	281,2	1,856	23,8	114,9
a_2 – Ambasador F_1	b_1 –modeled field + mulch + drip irrigation	c_1 – Agriplant	14,9	7,2	48,3	22,9	316,7	2,280	29,0	100,0
		c_2 – Haifa-Chemicals	16,0	7,4	46,3	25,9	335,1	2,480	30,7	126,5
		c_3 – Kemira	15,7	7,6	48,4	24,1	318,9	2,424	24,2	123,7
	b_2 – level field not mulched + drip irrigation	c_1 – Agriplant	13,5	5,8	40,1	21,9	291,0	1,688	100,0	100,0
		c_2 – Haifa-Chemicals	14,8	6,1	41,2	25,1	312,1	1,904	122,5	124,6
		c_3 – Kemira	15,3	6,3	41,1	24,2	293,3	1,848	121,8	120,9
a_3 –Average (Mx)	b_1 –modeled field + mulch + drip irrigation	c_1 – Agriplant	14,7	7,2	49,0	23,5	321,5	2,307	100,0	100,0
		c_2 – Haifa-Chemicals	15,4	7,5	48,7	26,2	338,9	2,525	123,7	109,0
		c_3 – Kemira	15,2	7,5	49,3	24,9	335,0	2,452	124,6	105,9
	b_2 – level field not mulched + drip irrigation	c_1 – Agriplant	14,2	6,1	42,9	22,4	286,5	1,732	100,0	100,0
		c_2 – Haifa-Chemicals	14,5	6,3	43,4	25,6	307,5	1,936	105,9	111,5
		c_3 – Kemira	14,8	6,5	43,9	24,7	287,3	1,852	111,5	106,9

* fruits harvesting was done at consume maturity (courgette in flower)

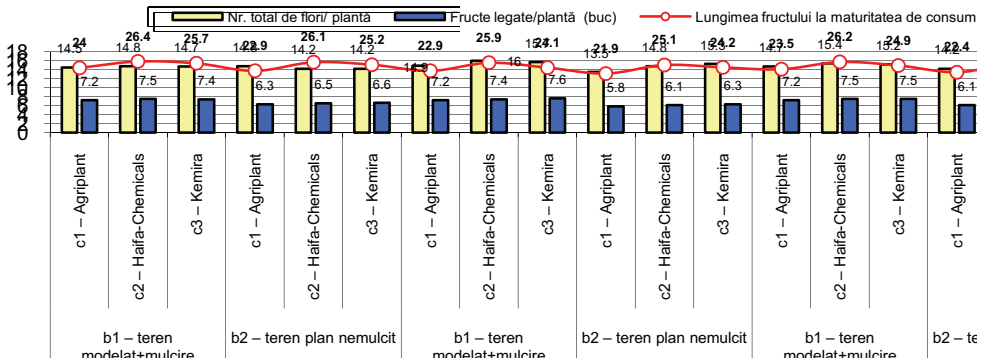

Fig.1. Experimental results concerning the behavior of some courgette hybrids cultivated in cold solariums on modeled and level field by using in vegetation foliar fertilizers in cycle I 2010-2011

In Table 2 and Fig. 2 there is presented the synthesis of experimental results under the unilateral impact of the experimental factors.

Table 2. Synthesis of production results for courgette hybrids cultivated in cold solariums in cycle I 2010-2011 (production obtained at consume maturity)

Experimental factors			Average production per plant and per hectare for:										
A (Hybrid)	A (Hybrid)	A (Hybrid)	Factor C				Factor B				Factor A		
			g/buc	kg/pl.	t/ha	%	g/buc	kg/pl.	t/ha	%	/buc	t/ha	%
a_1– Cavili F_1	b_1 –modeled field + mulch + drip irrigation	c_1 – Agriplant	326,3	2,344	29,4	100,0	334,7	2,464	30,8	100,0	311,7	27,1	101,5
		c_2 – Haifa-Chemicals	342,7	2,570	32,1	109,2							
		c_3 – Kemira	335,1	2,480	31,0	105,4							
	b_2 – level field not mulched + drip irrigation	c_1 – Agriplant	281,9	1,776	22,2	100,0	288,6	1,866	23,3	75,6			
		c_2 – Haifa-Chemicals	302,8	1,968	24,6	110,8							
		c_3 – Kemira	281,2	1,856	23,2	104,5							
a_2 – Ambasador F_1	b_1 –modeled field + mulch + drip irrigation	c_1 – Agriplant	316,7	2,280	28,5	100,0	323,6	2,395	29,9	100,0	311,2	26,3	98,5
		c_2 – Haifa-Chemicals	335,1	2,480	31,0	108,8							
		c_3 – Kemira	318,9	2,424	30,3	106,3							
	b_2 – level field not mulched + drip irrigation	c_1 – Agriplant	291,0	1,688	21,1	100,0	298,8	1,813	22,7	75,9			
		c_2 – Haifa-Chemicals	312,1	1,904	23,8	112,8							
		c_3 – Kemira	293,3	1,848	23,1	109,5							
a_3 –Average (Mx)	b_1 –modeled field + mulch + drip irrigation	c_1 – Agriplant	321,5	2,307	29,0	100,0	329,2	2,430	30,4	100,0	311,5	26,7	100,0
		c_2 – Haifa-Chemicals	338,9	2,525	31,6	109,0							
		c_3 – Kemira	327,0	2,452	30,7	105,7							
	b_2 – level field not mulched + drip irrigation	c_1 – Agriplant	286,5	1,732	21,7	100,0	293,7	1,840	23,0	75,7			
		c_2 – Haifa-Chemicals	307,5	1,936	24,2	111,5							
		c_3 – Kemira	287,3	1,852	23,2	106,9							

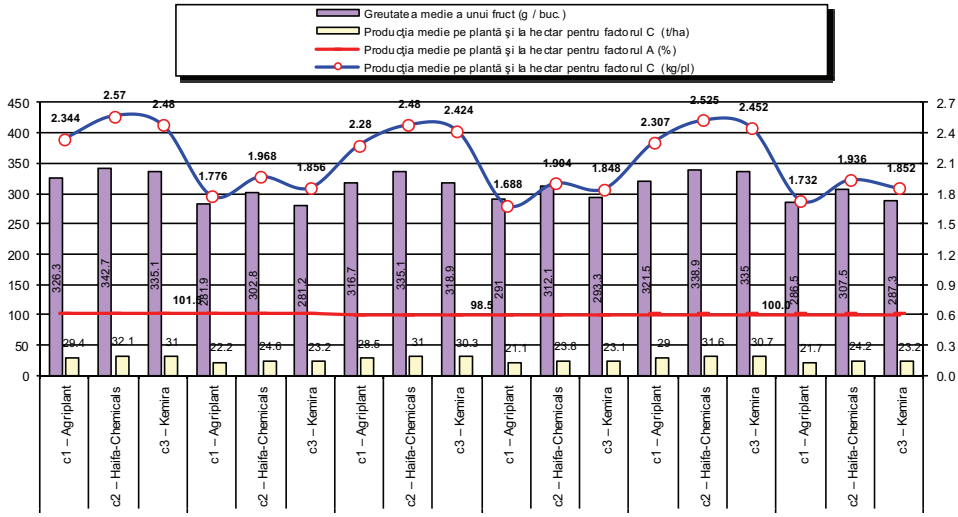

Fig.2. Synthesis of production results for courgette hybrids cultivated in cold solariums in cycle I 2010-2011 (production obtained at consume maturity)

By analyzing the impact of factor B (culture system) with its two graduations - b_1 (modeled field + mulch) and b_2 (level field, not mulched) – we see production variation limits for each hybrid and for the average value of the experiment (Mx –a_3). These limits are more emphasized for factor A (the hybrid) and less emphasized for factor C (the fertilizers). They vary from 22.7 t/ha (a_2b_2) to 30.8 t/ha (a_1b_1), a difference of +8.1 t/ha, meaning +24.1%, the average being of 23.0 (b_2) – 30.4 (b_1) t/ha, meaning 24.3%. The percentage differences for hybrids vary between – 24.4 and – 24.1%, showing the high impact of filed modeling and mulching with PE upon the production. Graduations of factor C (the fertilizers) show the highest variation of production at the same time for consume maturity and physiological maturity. The extreme limits are of 104.5% ($a_1b_2c_3$) and 112.8% ($a_2b_2c_2$), evident from Agriplant fertilizer. The average value (Mx – a_3) has limits of 21.7 t/ha – 100.0% ($a_3b_2c_1$) and 31.6 t/ha – 109.0% ($a_3b_1c_2$). In table 3 there is presented the synthesis of production results as an effect of interactions between the experimental factors for each gradient.


Photo 1. Cougette culture in cold solariums in different stages of growing and development

Table 3. Synthesis of production results for courgette hybrids cultivated in cold solariums in cycle I 2010-2011, as an effect of interactions between the experimental factors (consume maturity)

Experimental factors			Average production per hectare (t/ha şi %) for:									
A	B	C	Factor C				Factor B		Factor A			Average exp. Mx
			c_1-c_3		b_{1-2} c_{1-3}	a_{1-2} c_{1-3}	$a_{1-3}b_{1-2}$	$a_{1-2}b_1$ şi $a_{1-2}b_2$	a_{1-3}	% faţă de a_1	%faţă de Mx	t/ha (%)
			t/ha	%								
a_1	b_1	c_1	29,4	100,0	$b_{1-2}c_1$ 25,8 (100,0%)	$a_{1-2}c_1$ 25,3 (100,0%)	30,8 (100,0%)	$a_{1-2}b_1$ 30,4 (100,0%)	27,1	100,0	101,5	26,7 (100,0%)
		c_2	32,1	109,2								
		c_3	31,0	105,4	$b_{1-2}c_2$ 28,4 (110,1%)							
	b_2	c_1	22,2	100,0			23,3 (75,6%)					
		c_2	24,6	110,8	$b_{1-2}c_3$ 227,1(105,0%)	$a_{1-2}c_2$ 27,9 (110,3%)						
		c_3	23,2	104,5								
a_2	b_1	c_1	28,5	100,0	$b_{1-2}c_1$ 24,8 (100,0%)		29,9 (100,0%)	$a_{1-2}b_2$ 23,0 (75,7%)	26,3	97,0	98,5	
		c_2	31,0	108,8								
		c_3	30,3	106,3	$b_{1-2}c_2$ 27,4 (110,5%)	$a_{1-2}c_3$ 26,9 (106,3%)						
	b_2	c_1	21,1	100,0			22,7 (75,9%)					
		c_2	23,8	112,8	$b_{1-2}c_3$ 26,7 (107,7%)							
		c_3	23,1	109,5								
a_3 (Mx)	b_1	c_1	29,0	100,0	$b_{1-2}c_1$ 25,3 (100,0%)	a_3c_1 25,3 (100,0%)	30,4 (100,0%)	a_3b_1 30,4 (100,0%)	26,7	98,5	100,0	
		c_2	31,6	109,0		a_3c_2 27,9 (110,3%)						
		c_3	30,7	105,7	$b_{1-2}c_2$ 27,9 (110,3%)							
	b_2	c_1	21,7	100,0		a_3c_3 26,9 (106,3%)	23,0 (75,7%)	a_3b_2 23,0 (75,7%)				
		c_2	24,2	111,5	$b_{1-2}c_3$ 26,9 (106,3%)							
		c_3	23,2	106,9								

Both the analyses done for each hybrid (a_1 – Cavili F_1 and a_2 – Ambasador F_1) correlated with the culture system (b_1 and b_2) and for the average value of the experiment (Mx – a_3) differentiated for b_1 and b_2 shows that the largest production increase other than c_1 – Agriplant, is obtained when using Haifa Chemicals (c_2) which gives a plus of 2.7 t/ha – 109.2% for Cavili F_1 (a_1) and of 2.5 t/ha – 108.8% for Ambasador F_1 (a_2). In average there is a plus of 2.6t/ha – 110.3%, being followed by Kemira (c_3) with +4.6 t/ha – 122.5%.

As a conclusion we can say that both Haifa Chemicals (c_2) and Kemira (c_3) fertilizers determine high increases of production by root administration than Agriplant fertilizer.

Factor B (culture system) by its two graduations (b_1 and b_2) give an emphasized production differentiation, in favor of b_1 (modeled field + mulch), of 30.4 t/ha (100.0%) compared to b_2 (level field, not mulched), 23.0 t/ha (75.7%). The production increase is of 7.4 t/ha, meaning +24.3%.

The natural conclusion that emerges is that for courgette's culture it's recommended to use modeled field with raised layer width 104 cm and mulching with white PE foil. Factor A (the hybrid) with its two graduations (a_1 Cavili F_1 and a_2 Ambasador F_1) doesn't determine high production increases, showing

the almost similar productive potential of the two hybrids. The difference of 0.8 t/ha (3,0%) between Cavili F_1 (a_1) and Ambasador F_1 (a_2) is not significant.

In table 4 there are presented the production differences' significations under the unilateral and experimental factors' interactions impact.

Table 4. Unilateral and experimental factors' interactions impact upon courgette's production at consume maturity in conditions of modernizing some technological culture's links

Variant	Average production (kg/ha)		Relative production (%)	Difference (± t/ha)	Significance
1. Unilateral impact of the hybrid upon the production					
a2-a1	26,30	27,08	97,11	-0,78	-
a3-a1	26,71	27,08	98,63	-0,37	-
a3-a2	26,71	26,30	101,56	0,41	-
DL 5%= 2,85		DL 1%= 4,32		DL 0,1%= 6,94	
2. Unilateral impact of the culture system upon the production					
b2-b1	23,01	30,39	75,71	-7,38	000
DL 5%= 1,74		DL 1%= 2,40		DL 0,1%= 3,30	
3. Unilateral impact of the modern completely soluble chemical fertilizers upon the production					
c2-c1	27,88	25,31	110,19	2,58	***
c3-c1	26,91	25,31	106,32	1,60	*
c3-c2	26,91	27,88	96,49	-0,98	-
DL 5%= 1,41		DL 1%= 1,91		DL 0,1%= 2,55	
4. The impact of interaction between the same hybrid and different culture systems upon the production					
a1b2- a1b1	23,33	30,83	75,68	-7,50	000
a2b2- a2b1	22,67	29,93	75,72	-7,27	000
a3b2- a3b1	23,02	30,40	75,73	-7,38	000
DL 5%= 3,01		DL 1%= 4,15		DL 0,1%= 5,71	
5. The impact of interaction between the same hybrid and different types of modern completely soluble chemical fertilizers upon the production					
a1c2- a1c1	28,35	25,80	109,88	2,55	*
a1c3- a1c1	27,10	25,80	105,04	1,30	-
a1c3- a1c2	27,10	28,35	95,59	-1,25	-
a2c2- a2c1	27,40	24,80	110,48	2,60	*
a2c3- a2c1	26,70	24,80	107,66	1,90	-
a2c3- a2c2	26,70	27,40	97,45	-0,70	-
a3c2- a3c1	27,90	25,32	110,20	2,58	*
a3c3- a3c1	26,92	25,32	106,32	1,60	-
a3c3- a3c2	26,92	27,90	96,48	-0,98	-
DL 5%= 2,44		DL 1%= 3,30		DL 0,1%= 4,41	
6. The impact of interaction between the same culture system and the same or different types of modern completely soluble chemical fertilizers upon the production					
b2c1- b1c1	21,66	28,96	74,79	-7,30	000
b2c2- b1c2	24,21	31,56	76,73	-7,34	000
b2c3- b1c3	23,16	30,66	75,53	-7,50	000
b2c2- b1c1	24,21	28,96	83,61	-4,74	000
DL 5%= 2,38		DL 1%= 3,25		DL 0,1%= 4,42	
7. The impact of interaction between the same hybrid and the same culture system and different types of modern completely soluble chemical fertilizers upon the production					
a1b1c2- a1b1c1	32,10	29,40	109,18	2,70	-
a1b1c3- a1b1c1	31,00	29,40	105,44	1,60	-
a1b1c3- a1b1c2	31,00	32,10	96,57	-1,10	-
a2b2c2- a2b2c1	23,80	21,10	112,80	2,70	-
a2b2c3- a2b2c1	23,10	21,10	109,48	2,00	-
a2b2c3- a2b2c2	23,10	23,80	97,06	-0,70	-
DL 5%= 3,45		DL 1%= 4,67		DL 0,1%= 6,24	
8. The impact of interaction between the same hybrid and different culture systems and the same type of modern completely soluble chemical fertilizers upon the production					
a1b2c1- a1b1c1	22,20	29,40	75,51	-7,20	000
a2b2c2- a2b1c2	23,80	31,00	76,77	-7,20	000
a3b2c3- a3b1c3	23,17	30,67	75,54	-7,50	000
DL 5%= 4,12		DL 1%= 5,63		DL 0,1%= 7,65	

From the Table 4 we conclude that:

- considering hybrids' impact upon the production there is no production differences' significance between Ambasador F_1 and Cavili F_1 or between the average value of the experiment and each hybrid, which shows the almost similar production value (point 1);

- the culture system (b_1 – modeled field + mulch and b_2 – level field, not mulched) has a very favorable impact upon the production, compared with b_2 the production difference' signification being very significant negative, and the relative production difference being - 24.29% than de b_1 - (point 2);

- considering the unilateral impact of fertilizers upon the production, the obtained values were statistically assured, the differences being very significant positive for c_2 (Haifa-Chemicals) – c_1 (Agriplant) and significant positive for c_3 – c_1 (Kemira - Agriplant); this shows the favorable effect of Haifa Chemicals and Kemira fertilizers upon the production compared with Agriplant fertilizer (point 3);
- the interactions' impact from points 4-8 shows the association superiority of c_2 and c_3 (Haifa Chemicals and Kemira fertilizers) used for root fertilization, with any of the culture systems and hybrids and also the lack of remarkable effects in case of the association between any culture systems and Agriplant fertilizer.

CONCLUSIONS

1. Courgette hybrids Cavili F_1 – recent hybrid and Ambasador F_1 – already known for growers, have some morphological features of fruits at consume (technical) maturity which recommends them for extension in solariums' culture;
2. The biological value of the two hybrids, considering their productive potential is very similar, the differences between them being not significant, so that Cavili F_1 has a production of 27.1 t/ha (100,0%), and Ambasador F_1 26.3 t/ha (97.0%), the difference being of 0.8 t/ha, meaning 3%;
3. The culture system has a great impact upon production, the physical units' differences being up to 7.4 t/ha, meaning 24.3%, as it follows:
- under the impact of b_1 (modeled filed, mulching with PE + drip irrigation) there was obtained a production of 30.4 t/ha (100.0%);
- under the impact of b_2 (level field – not modeled, no mulching + drip irrigation) there was obtained a production of 23.0 t/ha (75.7%);
4. Modern completely soluble chemical fertilizers, of types Agriplant, Haifa Chemicals and Kemira, being used in fertirrigation, have an extremely favorable impact upon the productive potential of the two hybrids (Cavili F_1 ans Ambasador F_1), no matter the culture system;
5. In both culture systems (b_1 and b_2) the best impact was noticed when using Haifa Chemicals and Kemira, but of them the best was Haifa Chemicals;
6. The average productions obtained under the impact of Haifa Chemicals (c_2) are on the first place and they vary from 24.2 t/ha–111.5% in b_2 to 31.6 t/ha–109.0% in b_1, while the productions obtained under the impact of Agriplant (c_1), which were of 21.7 t/ha (100.0%) in b_2 and of 29.0 t/ha (100.0%) in b_1;
7. On the second place there are the productions obtained under the impact of Kemira (Ferticare in vegetation period) (c_3), which had values between 23.2 t/ha – 106.9% in b_2 and 30.7 t/ha – 105.7% in b_1, compared to the same productions obtained in b_1 and b_2 under the impact of Agriplant;
8. The average productions value under the impact of Haifa Chemicals (c_2) and Kemira (c_3) are of 27.9 t/ha – 110.3% for c_2 and 26.9 t/ha – 106.3% for c_3, compare with those obtained under the impact of Agriplant (c_1), 25.3 t/ha - 100.0%;
9. It is recommended to use the two completely soluble fertilizers Este Haifa Chemicals and Kemira, which can be applied at the same time with irrigation water through the drip irrigation system cu, having as support for this recommendation the productions values of the two hybrids, Cavili F_1 and Ambasador F_1.

REFERENCES

[1] Becherescu Alexandra, Horgoş A., Popa D., Ţârau O., 2010. *The productive potential manifestation of some courgette hybrids under the impact of some culture technologies modernization in conditions of cold solariums*. Analele Universităţii din Craiova, vol. XV (XLXI), Universitaria PH.
[2] CIOFU Ruxandra, Stan N., Popescu V., Chilom Pelaghia, Apahidean S., Horgoş A., Berar V., Lauer K.F., Atanasiu N., 2003. *Tratat de legumicultură*. Ceres PH, Bucureşti.
[3] Horgoş A., 2003. *Legumicultură special*. Agroprint PH, Timişoara.


EX·TERRA·AVRVM