

THE INFLUENCE OF THE INTERACTIONS HYBRID X IRRIGATION AND IRRIGATION X HYBRID ON THE TOMATOES CULTURE CULTIVATED IN SOLARIUM AND DRIPPING IRRIGATED

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Abstract: The paper presents the results of the production concerning the influence of the interactions hybrid x irrigation and irrigation x hybrid, at three tomatoes hybrids: Astona, Falcato and Sprinter, dripping irrigated on three minimums humidity irrigation levels: 50 %, 70 % and 90 % from the active humidity interval (A.H.I.).

The production values presents in the main paper are the results of the experimental field of the year 2006, in Cluj-Napoca.

INTRODUCTION

The main purpose of this paper is to present the production results regarding the influence of the interactions hybrid x irrigation and irrigation x hybrid, at three tomatoes hybrids: Astona, Falcato and Sprinter, dripping irrigated on three minimums irrigation levels: 50 %, 70 % and 90 % from the active humidity interval (A.H.I.).

The experiences are extending on three years of study, started in 2006 to this year, 2008. The experimental field was located in Someșeni, a neighborhood from Cluj-Napoca city, on the left side of the Someșul Mic River.

MATERIALS AND METHODS

The materials of the experiences in year 2006 are incorporated two factors: the hybrid and the irrigation at the minimum level from active humidity interval.

The experimental field was structure using the combinations between the factors take in study. The combinations are like in the Table 1.

All the obtain production values are interpreted using the statistic methods of interpretation to arrive at the best interpretations.

Table 1

The factors and the combinations in experimental year of 2006

“Hybrid”	“Irrigation plafond”	The combinations
Astona	50% from AHI	Astona irrigated at the minimum humidity level of 50% from AHI
		Astona irrigated at the minimum humidity level of 70% from AHI
		Astona irrigated at the minimum humidity level of 90% from AHI
Falcato	70% from AHI	Falcato irrigated at the minimum humidity level of 50% from AHI
		Falcato irrigated at the minimum humidity level of 70% from AHI
		Falcato irrigated at the minimum humidity level of 90% from AHI
Sprinter	90% from AHI	Sprinter irrigated at the minimum humidity level of 50% from AHI
		Sprinter irrigated at the minimum humidity level of 70% from AHI
		Sprinter irrigated at the minimum humidity level of 90% from AHI

RESULTS AND DISCUSSIONS

The tomatoes productions dripping irrigated in solarium area are influence by the interactions of the hybrid x irrigation and the production values are show in Table 2.

At the every variant of irrigation, used for all three tomatoes hybrids, was take as a witness the Falcato hybrid irrigation. The witness was taking to interpret the results, of the tomatoes hybrids productions, by comparing with every experimental variant value. The witnesses are:

Falcato irrigated at the minimum humidity level of 50 % from A.H.I. - H_2I_1 .

Falcato irrigated at the minimum humidity level of 70 % from A.H.I. - H_2I_2 .

Falcato irrigated at the minimum humidity level of 90 % from A.H.I. - H_2I_3 .

Table 2

The influence of the interaction hybrid x irrigation on the tomatoes production
(Cluj-Napoca, Someşeni, 2006)

Variant	Variant	Medium production (t/ha)	Relative production (%)	$\pm d$ (t/ha)	The signification of the difference
H_2I_1	Falcato / 50 % AHI	60,70	100,0	-	Witness
H_1I_1	Astona / 50 % AHI	68,80	113,4	2,1	-
H_3I_1	Sprinter / 50 % AHI	57,60	94,9	- 3,1	o
H_2I_2	Falcato / 70 % AHI	62,68	100,0	-	Witness
H_1I_2	Astona / 70 % AHI	78,10	124,6	15,43	***
H_3I_2	Sprinter / 70 % AHI	62,30	99,4	- 0,38	-
H_2I_3	Falcato / 90 % AHI	66,50	100,0	-	Witness
H_1I_3	Astona / 90 % AHI	72,20	108,6	5,7	**
H_3I_3	Sprinter / 90 % AHI	58,30	87,7	- 8,2	ooo
	DL 5%	=		2,81	
	DL 1%	=		4,10	
	DL 0,1%	=		6,22	

In the conditions of the irrigation at the minimum humidity level of 50 % from A.H.I., Astona hybrid obtain a production of 68,80 t/ha, recording any difference comparing with the witness (Falcato hybrid, 60,70 t/ha). Sprinter hybrid records a significant difference in negative direction (57,60 t/ha) comparing with the witness Falcato hybrid (60,70 t/ha).

At the minimum humidity level of 70 % from A.H.I., Astona hybrid obtain the biggest production of all nine variants, 78,10 t/ha, recording a very significant difference in positive direction comparing with the witness (Falcato hybrid, 62,68 t/ha). The Sprinter hybrid production did not records any difference comparing with the witness.

At the variant of irrigation at the minimum humidity level of 90 % from A.H.I., Astona hybrid obtains a distinct significant superior production, of 72,20 t/ha, comparing with the witness hybrid production (Falcato hybrid, 66,50 t/ha). Sprinter hybrid records a very significant difference in negative direction (58,30 t/ha) comparing with the witness Falcato hybrid.

These influences on the obtain productions, of these three tomatoes hybrids dripping irrigated with three different irrigation levels, in the solarium area, are graphically represented in next figure.

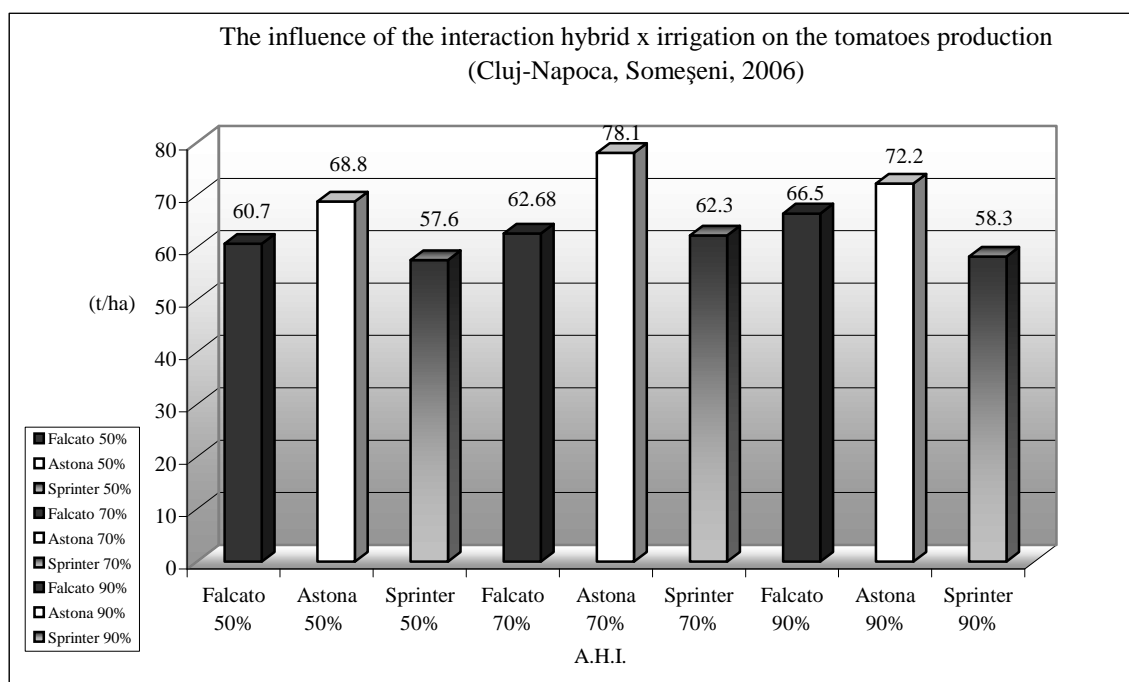


Figure 1

The influence of the interaction hybrid x irrigation on the tomatoes production
(Cluj-Napoca, Someşeni, 2006)

The following results are about the influence of the interaction irrigation x hybrid on the tomatoes production, dripping irrigated with three minimums humidity levels on solarium area, in the year of study 2006.

To get to the finest conclusions we take three witnesses, all three variants irrigated at the minimums humidity levels of 70 % from A.H.I., like this:

Astona irrigated at the minimum humidity level of 70 % from A.H.I. - I_2H_1 .

Falcato irrigated at the minimum humidity level of 70 % from A.H.I. - I_2H_2 .

Sprinter irrigated at the minimum humidity level of 70 % from A.H.I. - I_2H_3

Table 3

The influence of the interaction irrigation x hybrid on the tomatoes production
(Cluj-Napoca, Someșeni, 2006)

Variant	Variant	Medium production (t/ha)	Relative production (%)	$\pm d$ (t/ha)	The signification of the difference
I ₂ H ₁	70 % AIH / Astona	78,10	100,0	-	Witness
I ₁ H ₁	50 % AIH / Astona	68,80	88,1	- 9,30	ooo
I ₃ H ₁	90 % AIH / Astona	72,20	92,4	- 5,90	ooo
I ₂ H ₂	70 % AIH / Falcato	62,68	100,0	-	Witness
I ₁ H ₂	50 % AIH / Falcato	60,70	96,8	-1,98	-
I ₃ H ₂	90 % AIH / Falcato	66,50	106,1	3,82	**
I ₂ H ₃	70 % AIH / Sprinter	62,30	100,0	-	Witness
I ₁ H ₃	50 % AIH / Sprinter	57,60	92,5	- 4,70	ooo
I ₃ H ₃	90 % AIH / Sprinter	58,30	93,6	4,00	***
	DL 5%	=		2,06	
	DL 1%	=		2,83	
	DL 0.1%	=		2,85	

It can be remark that at the Astona hybrid, irrigated at the minimum humidity level of 50 % from A.H.I., obtains a production of 68,80 t/ha and irrigated at the minimum humidity level of 90 % from A.I.H 72,20 t/ha. Both productions are recording influences very significant in negative direction comparing with the witness production 78,10 t/ha (the variant irrigated at the minimum humidity level of 70 % from A.H.I.).

On Falcato hybrid, the irrigation at the minimum humidity level of 50 % from A.H.I., 60,70 t/ha, didn't records any influence on the production, comparing with the witness, the differences obtain are insignificant.

The irrigation at the minimum humidity level of 90 % from A.H.I., with the production of 66,50 t/ha, recording a distinct positive significant influence on it, comparing with the witness (the irrigation at the minimum humidity level of 70 % from A.H.I. (62,68 t/ha).

Looking for Sprinter hybrid, the irrigation at the minimum humidity level of 50 % from A.H.I., influence very negative significant on the obtain production (57,60 t/ha) comparing with the witness variant (irrigation at the minimum humidity level of 70 % from A.H.I. (62,30 t/ha). The variant irrigated at the minimum humidity level of 90 % from A.H.I. (58,30 t/ha) was influence the production very negative significant comparing with the witness.

The figure below summarize all the influences, regarding the irrigation x hybrid, on the obtain production, in 2006 experiences.

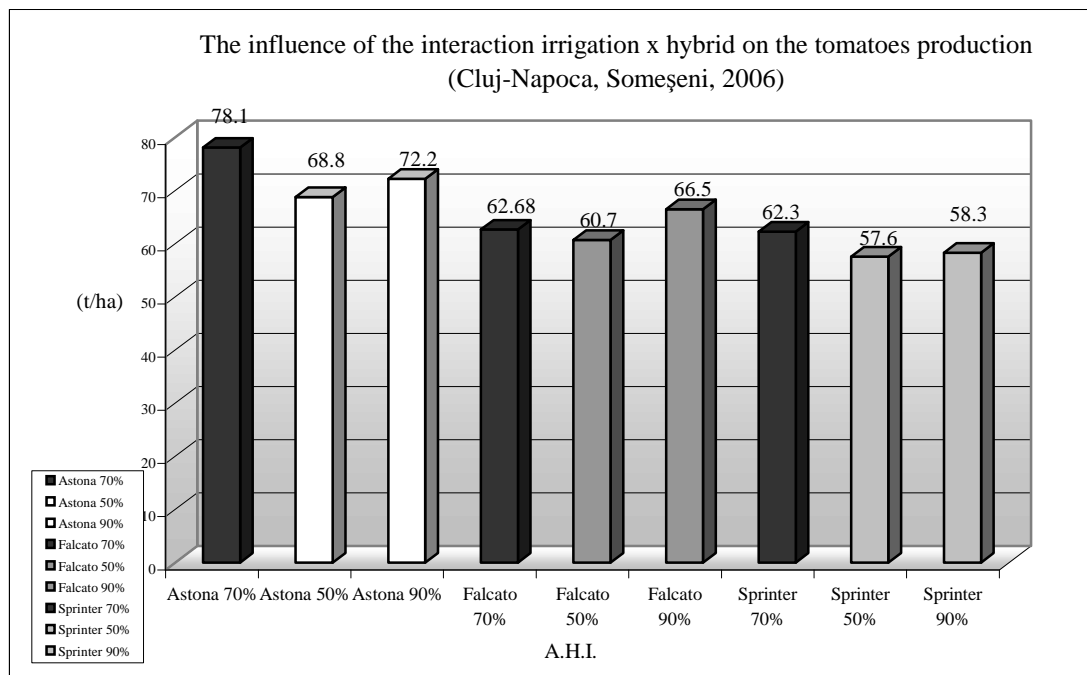


Figure 2

The influence of the interaction irrigation x hybrid on the tomatoes production
(Cluj-Napoca, Someşeni, 2006)

CONCLUSIONS

Experiences of one year of study, 2006 regarding the influence of the interaction hybrid x irrigation and the influence interaction irrigation x hybrid, of three hybrids dripping irrigated on three irrigations levels from active humidity interval, in solarium, in Someşeni, Cluj-Napoca city, are show in this paper.

The conclusions regarding the influence of the interaction hybrid x irrigation, comparing with the witness Falcato irrigated at the minimum humidity level of 50 % from A.H.I., are: the production of the Astona hybrid is insignificant influenced by the interaction between hybrid and irrigation, obtain a production of 68,80 t/ha;

Sprinter hybrid, irrigated at the minimum humidity level of 50 % from A.H.I., with a production of 57,60 t/ha, obtain a negativ significant production influenced by the hybrid and irrigation interaction.

At the variant of irrigation at the minimum humidity level of 70 % from A.H.I., the same hybrid was take as a witness, Falcoto hybrid. On this variant, Astona hybrid obtain the higher production from all variants, record a difference very positive signification (78,10 t/ha). With the same witness, at the same variant irrigated at the minimum humidity level of 70 % from A.H.I., Sprinter hybrid did not recording any difference.

Irrigation at the minimum humidity level of 90 % from A.H.I., take as witness the same hybrid Falcato. Astona hybrid obtain a production of 72,20 t/ha recording a distinct superior significant difference comparing with the witness, regarding the influence of interaction hybrid x irrigation.

Regarding the influence of the interaction hybrid x irrigation, the best influence and higher production in 2006 was obtain by the variant Astona hybrid irrigated at the minimum humidity level of 70 % from A.H.I., with 78,10 t/ha tomatoes production, dripping irrigated in solarium, in Someşeni, Cluj-Napoca city.

Concerning the influence of the interaction irrigation x hybrid Astona hybrid, irrigated at the minimum humidity level of 50 % and 90 % from A.H.I., they both have a very negative significant influence on the production comparing with the witness.

Falcato hybrid, irrigated at the minimum humidity level of 50 % from A.H.I., records an insignificant difference on the obtain production (60,70 t/ha), compare with the witness, Falcato hybrid irrigated at the minimum humidity level of 70 % from A.H.I.. In addition the variant irrigated at the minimum humidity level of 90 % from A.H.I., record a positive distinct significant difference at the obtain production 66,50, comparing with the witness.

Sprinter hybrid with the variant irrigated at the minimum humidity level of 70 % from A.H.I. is take as witness and the variant irrigated at the minimum humidity level of 50 % from A.H.I., record, compare with it, a very significant difference in negative way, with a production of 57,60. Sprinter irrigated at the minimum humidity level of 90 % from A.H.I. record a very significant influence in positive way on the production, comparing with the witness.

For the point of view of interaction hybrid x irrigation, the best influence on the tomatoes production is variant of the Sprinter hybrid irrigated at the minimum humidity level of 90 % from A.H.I., with 58,30 t/ha.

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