STUDIES CONCERNING TOMATOES HYBRID TILLED IN SOLARIUM IN ECOLOGICAL CROP

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Abstract
The actual range of tomatoes in very diverse due to the importance of this crop. Not all range or tomatoes hybryds can be tilled in an ecological system, that is why their analysis in such an agricultural model may offer us useful information for the farmers, thus avoiding possible losses.

Key words: ecological crop, tomatoes hybrids, solarium

INTRODUCTION

As a model of alternative agriculture, the ecological agriculture is still at its beginings in Romania. In cantries which have a more advanced agriculture,the ecological one has an important place both among farmers but also particularly among consumers.
Here, the surfaces tilled with vegetables in an ecological system are very limited. Among vegetable species, the tomatoes are the most appreciated by the consumers, being tilled on the biggest surfaces. In ecological system but especially in closed spaces, these are less encourtered firstly because of the lack of information and secondly because of thar sensitiveness for associated diseases with higt standards for vegetation factors. One of the factors which assire the succes of the crop is ckoosing the right hybrid.

MATERIAL AND METHOD

To accomplish the objectives of these studies a monofactorial experiment was held which had as a biological material ten (10) tomatoes hybrids. The experiment was held in a microfarm of ecological vegetables with solarium in 2009 (two thousand nime) in Husasau de Tinca. The tested hybrids were:Marfa, Sympathie, Red chief, Aurelius, Pantera, Jaguar, Optima, Cristal, Malike and Sinson. The ten variants were put in the subdivised blocks method in plants. The statistical processing of data has been mode throughout the variant analysis. The cropping technology applied in the experimental culture was that specific for ecological tomatoes.

RESULTS AND DISCUSSION

Tomatoes hybrids, selected for the ecological crop were firstly analysed under the aspect of productivity, of resistance to diseases, of pedoclimatic exactingness of organic altering according to the ecological technology.

The first parameter analysed through this study is the premature productivity of ecological tomatoes.
The productivity data concerning the premature production are shown in tabel 1.

Table 1

Precocious tomatoes productivity

Nr. crt.	Hybrid	Absolute production	Relative production	± d	Semnification
1	Marfa mt.	3,22	100,00	0,00	-
2	Sympatie	5,20	161,49	+ 1,98	XXX
3	Red chief	2,35	72,98	- 0,87	000
4	Aurelius	5,31	164,90	+ 2,09	XXX
5	Pantera	4,28	132,29	+ 1,06	XXX
6	Jaguar	3,85	119,56	+ 0,63	XX
7	Optima	2,75	85,40	- 0,47	0
8	Cristal	4,15	128,88	+ 0,93	XXX
9	Malike	5,18	160,86	+ 1,96	XXX
10	Sinson	5,05	156,83	+ 1,83	XXX

LSD5%=0.38
LSD1%=0.49
LSD0,1%=0.68

The analysis of premature productivity stands out big differences comparing with the Marfa hybrid (the experimental witness). The most part of the hybrids got profits of premature production from 0,63 (zero point sixty-three/kg/m^2 of Jaguar hybrid to 2.09 (two point zero nine kg/m^2) of Aurelius hybrid.
In the case of the hybrids Sympathye , Aurelius, Pantera, Cristal, Malike and Sinson, the differences of premature production comparing to the witness were statistically positive assure in a very significant way and the Jaguar hybrid where the difference comparing to the witness was smaller, this one was assured statistically positive in a significant way.
Two of the hybrids taken into account got premature productivity under the level of the witness productivity, namely Red chief and Optima, which obtained only 72,98% (seventy two point ninety-eight percent) of production of Marfa hybrid and respectively 85.40% (eight five point fourty pecent).
The productivity potential of each tomato hybrid was registered and analysed from the statistic point of view in tabel 2.

Table 2

Total tomatoes productivity the quality of production

Nr. crt	Hybrid	Total productivity	Cal.extra	Cal.I	Cal. II	The importance-extra quality of total	First quality and extra quality of total
1	Marfa mt.	6.65	2.52	2.11	2.02	37.89	69.62
2	Sympatie	7.44	3.78	2.64	1.02	50.80	86.29
3	Red chief	8.47	2.68	3.92	1.87	31.64	77.92
4	Aurelius	6.84	2.37	2.54	1.07	34.64	71.78
5	Pantera	7.58	3.18	2.35	2.05	41.95	72.95
6	Jaguar	6.92	2.25	2.67	2.00	32.51	71.09
7	Optima	9,25	4,67	3,18	1,40	50,48	84,86
8	Cristal	8,32	5,61	2,46	0,25	67,42	96,99
9	Malike	6,31	3.19	2.08	1.04	50.55	83.51
10	Sinson	7.19	4.27	2.69	0.23	59.38	96.80

If in the case of tomatoes premature productivity the differences compared to the witness were consistent, in the case ot total productivity the quantities of harvested tomatoes are more closed to the witness production. The benefits were from 0,79 (zero point seventy-nine kg/m^2 for the Sympathy hybrid to 2,60 kg/m^2 (two point sixty for the Optima

hybrid.The only hybrid which registered a tomato production under the witness level was Malike hybrid.

The difference from Marfa hybrid didn't exceeded the limit p=5% (five percent) and consequently was statistically assured. In the ecological crops system the most important element is quality. The quality of harvested tomatoes in this experiment is shown in tabel 3.

Table 3

Total of production

Nr. crt	Hybrid	Absolute production	Relative production	± d	Semnification
1	Marfa mt.	6,65	100,00	0,00	-
2	Sympatie	7.44	111.87	+ 0.79	X
3	Red chief	8.47	127.36	+ 1.82	XXX
4	Aurelius	6.84	102.85	+ 0.19	-
5	Pantera	7.58	113.98	+ 0.93	X
6	Jaguar	6.92	104.06	+ 0.27	-
7	Optima	9.25	139.10	+ 2.60	XXX
8	Cristal	8.32	125.11	+ 1.67	XXX
9	Malike	6.31	94.88	- 0.34	-
10	Sinson	7.19	108.12	+ 0.54	-

LSD 5%=0.79
LSD 1%=1.08
LSD 0.1%=1.48

After each crop the tomatoes fruits were divised in three stages of qualities as following: extra quality, first quality and second quality.

Reffering to the extraquality the best results were obtained by the Cristal hybrid with 5,61 kg/m^2 (five point sixty one) which represents 67.42% (sixty seven point fourty two percent) from the total of production.

The lowest production of extra quality was obtained by Red chief hybrid with a percentage of 31.64 from the total production.Adding to extra quality the first quality tomatoes we can observe that the same hybrid the Cristal was situated on the first place with a percentage of 96.99% (ninety six point ninety nine) but the lowes results were registered by the witness with 69.62% (sixty nine point sixty two percent)

CONCLUSION

The resarches for the study of tomatoes hybrids in ecological crop led us a few conclusions.

1. Tomato ecological crop has almost the same productivity performances as the classic crop in productivity.
2. The precociousness manifested the most to Aurelius with a range of 64.90% (sixty four point ninety percent).
3. The Optima hybrid although is registered a precocious productivity under the witness level,finally it achieved the highest degree of productivity with the absolute range of 9.25 kg/m^2(nine point twenty five).
4. As quality is concerned the Cristal hybrid was the most appreciated one both from the organoleptic point of view and that of taste. If we refer to productivity the hybrid also realized important performances.
5. Both Cristal and Optima hybrids have the best strength to the diseases specific for tomatoes

REFERENCES

1. Apahidean Al..S. si colab. ,2001,Legumicultura generala, Ed. Academic Pres Cluj-Napoca
2. Butnariu, H.,Indrea, D.,Petrescu, C., Savitchi, P., Pelaghia, Chilon, Ruxandra, Ciofu, Popescu, V, Radu, Gr., Stan,N.,1992. Legumicultura. E.D.P.,Bucuresti
3. Ciofu Ruxandra, Stan N., Popescu V., Pelaghia, Chilom, Apahidean S., Horogos A., Berar V., Lauen,K.,F., Atanasiu N., 2004. Tratat de legumicultura. Ed.Ceres, Bucuresti.
4. Chabousson, F.,1975.Physiologie et resistence de la plante.Nature et Progres,2,11-12.
5. Cristea, Maria,2004.Riscurile climatice din bazinul hidrografic al Crisurilor, Ed.Abaddaba, Oradea,186p.
6. Domuta ,C.,2005.Irigarea culturilor.Ed.Universitatii din Oradea
7. Indrea, D.,Apahideanu,Al.,1997.Cultura legumelor timpurii.Ed. Ceres, Bucuresti.