

RESEARCHES CONCERNING MULCHING AND FOLIO COVERING INFLUENCE FOR TOMATO CROPS TILLED IN PLASTIC GREEN HOUSE

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Abstract

Within tomato crops from plastic green house, new elements, brought to crop technology influences positively, the precocious production and its quality. Two of these elements are represented by the use of mulching and covering the plastic green houses with a longlasting folio.

Key words: mulching, covering folio, plastic green houses

INTRODUCTION

Among the vegetable species cultivated, the tomatoes are the first in our country and over the world from the point of view of consumption and the tilled area. The statistics point out the leadership of this crop also on protected areas.

In our country, in the last years the plastic green houses areas increased considerably and proportionally the tomato crop in these areas. The success of this crop is determined on one hand by the good choice of the hybrid and the element's coordination of crop technology according to the species' factors of vegetation. Soil mulching and the folio covering quality are due to influence favorably the precociousness, the quantity and the quality of production simultaneous with a decrease of expenses.

MATERIAL AND METHOD

The experience made between '99 – 2001 took place in Husasau de Tinca, a vegetable fauna, passing area from west hills to Tisa plain. The biological material was represented by Cristal F1 hybrid, a half precocious hybrid for plastic green houses crops.

To fulfill the aim and objectives a polyfactorial experience 2x3 was organised with the following degrees: F factor – covering folio of plastic green house – f1- poliethylene folio, f2 – longlasting folio.

M factor – mulching material

m1 – unmulched

m2- mulching with translucent folio

m3 – mulching with black folio

The combination of the 2 factors produced experimental choices which were put in three reiteration in divided places. Data processing was made by analysing the choice.

RESULTS AND DISCUSSIONS

The first analysed parameter was the precocious production. The soil mulching within tomato crop influences positively the early production in a plastic green house covered with normal folio but also in the one covered with longlasting folio in all experimental years (table 1).

Table 1

The influences of mulching method on tomatoes early yield in solarium covered with ordinary film (PE) and with long duration film (Luminal 4), Husasau de Tinca, 1999-2001

Variant		1999 - 2001			
Covering folio	Type of mulching	To/ha	± D	%	Significance
PE	unmulching	21,61	-	100	-
	Translucid folio	46,56	24,94	215,4	XXX
	Black folio	32,63	11,02	151,0	XXX
LUMINAL 4	unmulching	32,94	-	100	-
	Translucid folio	52,96	20,02	160,8	XXX
	Black folio	53,94	21,00	163,8	XXX
					LSDp (5%) 2,01 LSDp(1%) 2,77 LSDp(0,1%) 3,81

The early medium crops on three years were analysed by two factors, the results putting into light the positive effects obtained in mulching with translucid folio in both plastic green houses types. Mulching with black folio in plastic green house covered with normal folio, the effect is weaker, and in plastic green house covered with Luminal 4 folio, the increase of approximately 21 t/ha is equal to that realised by mulching with translucid folio.

The bilateral interaction of soil mulching with covering folio of plastic green house (M to F) and the effect over the whole production of tomatoes can be observed in table 2.

Table 2

The influences of mulching method on tomatoes yield in solarium covered with ordinary film (PE) and with long duration film (Luminal 4), Husasau de Tinca, 1999-2001

Variant		1999 - 2001			
Covering folio	Type of mulching	To/ha	± D	%	Significance
PE	unmulching	82,99	-	100	-
	Translucid folio	99,70	16,80	120,2	XXX
	Black folio	104,79	21,79	126,3	XXX
LUMINAL 4	unmulching	93,65	-	100	-
	Translucid folio	110,89	17,24	118,4	XXX
	Black folio	118,32	24,67	126,3	XXX
					LSD p(5%) 5,19 LSD p(1%) 7,14 LSDp(0,1%) 9,85

The results obtained between 99 and 2001 show that both in the plastic green house covered with normal folio and in the one covered with longlasting folio, the mulching choices realised increase of production assured statistically in opposition with unmulching choice.

Analysing the quality of tomato fruits over the experiences, one may see that on the whole good fruits were obtained with bigger or smaller differences according to the choice (see table 3)

Table 3

The commercial quality of tomatoes

The months of the year	Variant		1999 - 2001				Extra-quality from total
	Covering folio	Type of mulching	Total production to/ha	Production on qualities (to/ha)			
				extra	quality I	quality II	
I	Normal folio	unmulching	80,6	48,90	22,35	9,32	60,7
II		Translucid folio	104,6	63,73	30,47	10,4	60,9
III		Black folio	104,3	81,34	13,60	9,39	78,0
IV		unmulching	84,8	42,69	28,17	13,91	50,6
V		Translucid folio	100,2	73,52	20,12	6,56	73,4
VI		Black folio	100,2	60,05	32,85	9,07	54,7
VII	Longlasting folio	unmulching	96,1	70,48	17,25	8,40	73,3
VIII		Translucid folio	113,2	97,65	10,42	5,10	86,3
IX		Black folio	122,6	98,55	21,20	2,85	80,4
X		unmulching	97,3	64,40	25,48	7,42	66,2
XI		Translucid folio	109,2	88,70	15,75	4,75	81,2
XII		Black folio	117,8	91,65	22,85	3,33	77,8

We can see that the covering folio had an influence on the fruits' quality. Thus in the plastic green house covered with longlasting folio a higher percentage of quality fruits was obtained compared with the choices covered with normal folio. More to that one may see the superior quality of fruits from the mulching choices compared to unmulching ones.

CONCLUSIONS

From the researches made in the vegetable fauna of Husasau de Tinca some conclusions may be underlined:

1. covering with longlasting folio of plastic green houses, besides the advantage of longer usage by the its qualities compared with normal folio- more favorable conditions of microclimate.
2. favorable conditions from the plastic green house covered with Luminal 4 folio assures the better growth of plants, early production, bigger ones and of higher comercial qualities.
3. the soil mulching within the tomato crop in the plastic green house influences strongly the vegetation of plants due to increasing the termal gradient
4. for the mulching choices the production is much more precocious, higher and of a better quality than the unmulching crop.

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