

THE PLANTING TIME AND VEGETATION INTERRUPTION EFFECTS ON THE POTATO PLANTING MATERIAL YELD

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The agrotehnological measures which have a major negative impact on the planting material rated capacity are the following: on the first place is situated the planting of the potato 30 days later, followed by stems damaging after 20 days from the warning.

From quantity point of view the later planting and the vegetation interruption had a negative effect on the planting material rated capacity at both cultivars (Astral and Rapsodia). The diminishing of the planting material rated capacity, as a consequence of the vegetation interruption was significantly amplified when the planting activity was accomplished earlier both in Suceava and Lucina at the cultivars Rapsodia and Astral.

In comparison with Suceava, in Lucina was registered a significant grows of the tuber yields used like planting material (13,3 q/ha), representing a significant increase of the yield with 9%. The quantitative estimation of the triple interactions (cultivar –planting time - stage of the vegetation interruption) suggested that the yields diminishing are caused by the later planting being dependent by the stage of the vegetation interruption too. If in Suceava those two cultivars reacted in a similar manner, in Lucina the postpone of the vegetation interruption with 20 days, attenuated the limitative effect of the planting delay only at the Astral cultivar.

Key word: *planting material, planting stage, vegetation interruption*

MATERIAL AND METHOD

The experiments on type 2x2x2x2, in four replications, were placed in field, after subdivided plots method, (ARDS of Suceava and Experimental Center of Lucina) taking into consideration the following factors:

- A factor - the cultivar: a₁ – cultivar Astral (earlier cultivar); a₂ – cultivar Rapsodia (semi earlier cultivar);
- B factor – planting time: b₁ – the earlier spring; b₂ – after 30 days;
- C factor – vegetation interruption period : c₁ – at warning ; c₂ – after 30 days;
- D factor – biological category: d₁ – basis (SE class) d₂ – basis (E class) - d₃ certified A;

The complex effect of all studied factors was researched and interpreted in all experimental years, going to clone D (prebasis) taking in the study the planting material yield at both cultivars.

Fertilization of the potato plots with N:P:K, 100:100:100 kg s.a /ha, in a balanced rapport, was accomplished.

The tubers were planted semi - mechanically at a distance on 21,5 cm between tubers and 70 cm between rows, using the fraction on 30-45 mm.

In order to destroy of the potato herbage the first treatment was made mechanically, at warning – after 70 days from the plant sprouting. The second treatment was made with Diquat (Reglone forte) 5 l /ha. After three weeks from the vegetation interruption, the harvesting of the tubers was accomplished.

RESULTS AND DISCUSSIONS

The planting material relative rates, evaluated on basis of the middle data were dependents, in a biggest manner, on planting time (*tab.1*). As follow as later planting with 30 days, the rated capacity was diminished with 32% , that's mean a yield diminishing with 56,5q/ha against the early planting.

Table 1

The dependence of the planting material yield (q/ha), by the technological measures effect

SPECIFICATIONS		Planting material (q/ha)	Differences	Significations
Villages	SUCEAVA	140,7	Standard.	
	LUCINA	154,0	13,3	xxx
Biological Categories	basis (SE class)	155,5	standard	
	bază (clasa E)	149,0	- 6,5	
	Certified A	137,7	-17,8	ooo
Cultivars	RAPSODIA	138,6	standard	
	ASTRAL	156,1	17,5	xxx
Planting material	Early	175,6	standard	
	AFTER 30 DAYS *	119,1	-56,5	ooo
Vegetation interruption	AT WARNING	160,7	standard	
	AFTER 20 DAYS **	134,0	-26,7	ooo

DL 5 % = 6,0 q/ha * - at the early planting 1 % = 8,3
0,1 % = 11,5 ** - at warning

The significant decreasing, but more little when the vegetation interruption was registered after 20 days from warning (17%, that mean 26,7 q/ha). The yield decreasing with 17,8 q/ha (11%), was registered at the biological category „Certified A”. This yield decreasing in comparison with obtained yield at the biological category basis (SE class), is because of meteorological conditions, taking into consideration that the frequency amplification of the grave viroses was not so big so that whole yield differences have to attribute them From the other measures which contributed at the increase of the planting material rated capacity, the cultivar Astral was on the first place, surpassing the cultivar Rapsodia with 17,5 q/ha, respectively 13 %.

In comparison with Suceava at Lucina was registered a significant increase of the tubers yields employable like planting material , with 13,3 q/ha (*tab. 1*) (the diameter on 35 – 45 mm), that's mean a significant increase on 9% (*fig. 1*).

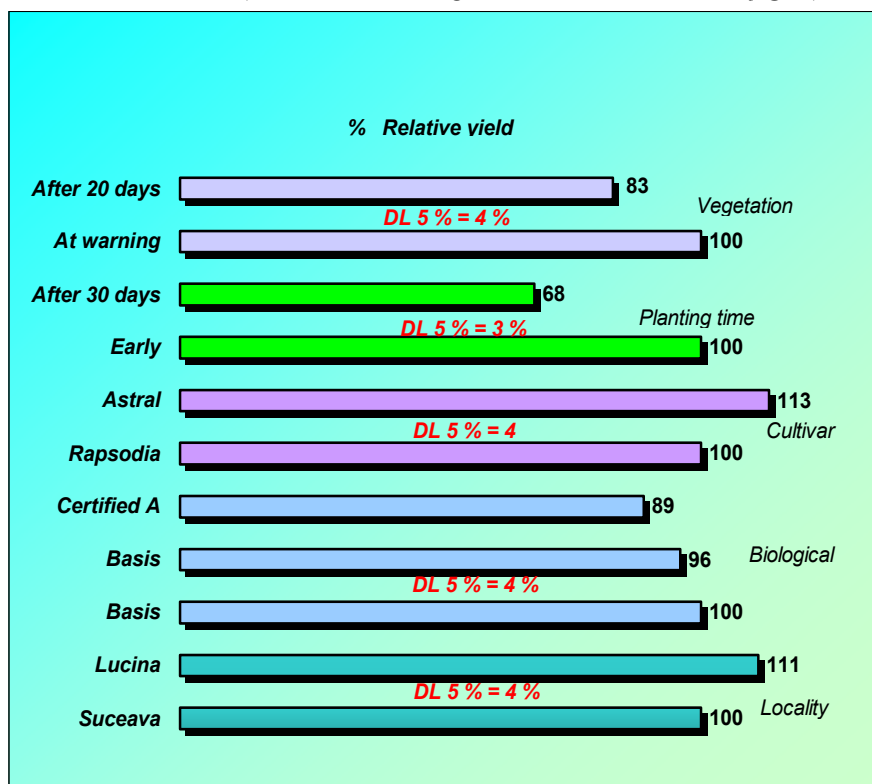


Figure 1 The influences of the technological measures upon the planting material relative yields

The most important rated capacity decreasing of the employable tubers in the both places at both cultivars were registered (*tab. 2*).

The relative decreasing because of vegetation interruption depended to a certain extent by the planting time. The below data redolent of limitative effect of the later vegetation interruption was more significant when planting was realized earlier.

From planting material quantitative aspect point of view when the crop establishment it accomplished earlier, the vegetation interruption at warning is more important then the later planting.

Table 2

The planting time effect and the vegetation interruption stage roles upon the planting material harvest, in the years 2004 - 2006

SPECIFICATION		Place	Cultivar	Planting material (q/ha)
Planting Time	Vegetation interruption			
Early	At warning	Suceava	Rapsodia	169,5
	After 20days from warning			142,6
After 30 days *	At warning			111,2
	After 20 days from warning			105,5
Early	At warning	Suceava	Astral	189,8
	After 20 days from warning			160,2
After 30 days	At warning			128,7
	After 20 days from warning			118,1
DL 5 %				8,1
DL 1 %				11,1
DL 0,1 %				15,0
Early	At warning	Lucina	Rapsodia	197,5
	After 20 days from warning			156,7
After 30 days *	At warning			130,3
	After 20 days from warning			96,0
Early	At warning	Lucina	Astral	220,1
	After 20 days from warning			169,0
After 30 days *	At warning			138,2
	After 20 days from warning			124,7
DL 5 %				6,4
DL 1 %				8,7
DL 0,1 %				11,8

- - from the early planting

The relative expression of these diminutions represent 26 – 37 %, and the quantitative one, 47,7 – 64,0 q/ha (*tab. 3*).

The presented data in the table 3, emphasize that the later planting generated the same quantitative decreasing at both cultivars even if they were cultivated at Suceava or Lucina. So, in Suceava if both cultivars were later planting the yield decreased with 47,7 – 51,6 q/ha, and in Lucina the yield decreased with 63,0 – 64,0 q/ha. Concomitantly it observe the similarity of the quantitative reactions of both cultivars to the later crop establishing (*tab. 3*).

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Table 3

The influence of the planting time and the Vegetation interruption upon the planting material yields

Cultivar	Specification	SUCEAVA		LUCINA	
		q/ha	diferences	q/ha	Diferences
Planting epoch					
Rapsodia	Early	156,0	Standard	177,1	Standard
	after 30 days	108,3	- 47,7 ^{ooo}	113,1	- 64,0 ^{ooo}
Astral	Early	174,9	Standard	194,4	Standard
	after 30 days	123,3	- 51,6 ^{ooo}	131,4	- 63,0 ^{ooo}
Vegetation interruption					
Rapsodia	At warning	140,3	Standard	163,9	Standard
	After 20 days	124,0	- 16,3 ^{ooo}	126,3	- 37,6 ^{ooo}
Astral	At warning	159,2	Standard	179,1	Standard
	After 20 days	139,0	- 20,2 ^{ooo}	146,7	- 32,4 ^{ooo}
	DL 5%		8,1 q		6,4 q
	DL 1%		11,1		8,7
	DL 0,1%		15,0		11,8

CONCLUSIONS

Between measures which had a major negative impact upon yield planting material rated capacity on the first place (with 32).

2%) is situated the later planting with 30 days followed by later vegetation interruption (16,6 %).

The diminishing of the planting material rated capacity as follow of vegetation interruption was amplified significant when the planting activity was early accomplished at both places, both Astral cultivar and Rapsodia cultivar.

From quantitative aspect point of view the later planting and vegetation interruption had negative effect upon rated capacity of both cultivars, the limitative effects of the later planting (with 30 days) being closely in both places.

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