

## RESEARCH ON THE INFLUENCE OF ORGANIC PRODUCTS NUMBER OF TUBERS/NEST ECOLOGICAL CONDITIONS AT SC ASTRA Trifesti SRL, IASI

**Marius Cornel ANTONESCU<sup>1</sup>, Teodor ROBU<sup>1</sup>, Mihai Tălmăciu<sup>1</sup>,  
Cristina ANTONESCU<sup>1</sup>, Marius Sorin ZAHARIA<sup>1</sup>**

antonescu\_marius\_cornel@yahoo.com

### Abstract

In this paper we propose to determine the number of tubers / nest from three potato varieties grown in organic conditions Bivolari micro area, village Trifesti. The experience was located within Agricole Society Trifesti Astra, company standard of agriculture in Romania. From a climate perspective, the area is characterized by cold winters and hot summers. It was installed on trifactorial experiences in 3 repetitions of the type 4Ax3Bx2C, being studied five varieties of potato. In this paper we present partial results of three varieties. Factors are studied, A Factor – Foliar fertilizing, with graduations, a<sub>1</sub>- not fertilized, a<sub>2</sub> – NPK, a<sub>3</sub>- ECO 1, a<sub>4</sub>- ECO 2, B Factor – Foliar fertilizing : b- Adora A, România, variety, b<sub>2</sub> - Adora E, Olanda, variety, b<sub>3</sub>- Velox A, Factorul C – vegetation treatment with organic herbicide: c<sub>1</sub>- treatment with Novodor ( 4l/ha), c<sub>2</sub> treatment with NeemAzal (2l/ha). The analysis of data, it was found that the three varieties, Adora A, România, variety, b<sub>2</sub> - Adora E, Olanda, variety, b<sub>3</sub>- Velox A, România, behaved positively registering positive differences from not fertilized var.

**Key words:** fertilisation, nest, potato

Potato (*Solanum tuberosum* L.) is grown on every continent, but particularly in Europe, which has about 50% of the world. (Bîlteanu Gh, 2001)

Potato is given great importance both in Romania and globally.

In Romania in 2010 cultivated area reached 246,982 ha, but in 2009 was peaked at 260,317 ha.

In to the production is noted that in 2010 3,283,870 tons were produced in 2009 was peaked at 4,003,980 t.

The amount of boiled potatoes 200g body provides 16-18% of protein for 24 hours. Composition of potato protein has a broad spectrum of essential amino acids and free, the most important of which are tryptophan, lysine and isoleucine. (Berindei M., 1995)

In this research have been studied three varieties of potato, as follows: VELOX, which is a kind of high production, very early, and french fries consumption.

The variety has large tubers, long oval yellow shell, smooth, very beautiful, ideal for washing and packing.

It is a resistant variety Wart race 1, UCP Ro 1, 4. common scab, rozoctonioză, Erwinia, manna from tubers.

It's love and adore very early to early tubers - large, oval, round, uniform shape, yellow skin, eyes without great depth. Good resistance to crushing, dry matter content is average, fairly good resistance to degradation tubers, the turning leaves rezisteta moderate, good resistance to virus A, fairly good resistance to virus X, good resistance to virus Yn, the plant is high up the average semi-erect stems grow, thick up to normal, weak to moderate anthocyanin discoloration, large green leaves and open, with the figure to open the half closed, numerous flowers, red-purple berries to moderate one.

Potato is one of the most important crops, which have a high ecological plasticity, is grown on all continents, in over 140 countries, which are grown mainly for food, but also for industrial and animal feed.

For human food potato occupies the fourth place in the world after wheat, rice and corn, using fresh or as dried and cooked.

It was studied and a the Netherlands potato. Potato is an important crop for Netherlands agriculture industry.

It occupies almost one quarter of the country's arable land and nearly half of total

<sup>1</sup> University of Agricultural Sciences and Veterinary Medicine, Iasi

production value achieved on farms with arable land (van der Zaag, 1992)

## MATERIALS AND METHODS

The research was conducted in 2011 in SA Astra Trifesti, village Trifesti, the micro Bivolari who are in an area with temperate climate and is characterized by cold winters and hot summers with irregular winds, more frequent in the north-west and north - winter and south-east and east - especially in spring, sufficient rainfall - especially in early summer.

For realization of this study, we used three varieties of potato.

In this micozonă, 5% of the area is planted with potatoes, from which most of them remains with the company Astra Trifesti. Experience is trifactorial carried out in three repetitions of type AxBxC being studied five varieties of potato. We present partial results of the three varieties.

The factors studied are:

Factor (A) – fertilization:

- a1- nefertilizat
- a2 - NPK
- a3- ECO 1
- a4- ECO2

Factor (B) – variety:

- b1- Adora A, România – martor
- b2 - Adora E, Olanda
- b3- Velox A, România

Factor (C) – ecological vegetation herbicide treatment:

- c1- treatment with Novodor ( 4l/ha)
- c2 -treatment with NeemAzal(2l/ha)

At harvest were sampled to determine the number of tuber-nest all 4 variants, in three repetitions of the three varieties.

Using ecologic products is a plus because the trend worldwide is expanding and the demand for agricultural products is growing.

Statistical data processing was performed using analysis of variance. This paper presents the results obtained from potato varieties studied in 2011

## RESULTS AND DISCUSSION

Regarding the influence of fertilization treatments and analyzing data in Table 1 kind notice that the largest number recorded in the variant fertilized tubers classic variety Adora is the difference from the control is 276.42%.

With regard to organic fertilization, it appears that the version which applied ECO1 ecological product, number of tubers per nest tubers increased very significantly from the control,% 171.82% as compared to the control the variety Adora E.

Using organic products was beneficial recorded significant increases in the number of tubers per nest in all varieties that have been applied.

From Table 2 the shows that in both of which have used these products have obtained increases Relevant to version control, so the variety is the difference from the control loves being 164.84%.

All three varieties used have performed well, both classical fertilization and organic fertilization

From tables 1,2,3 and 4 shows that the three varieties used, the volume is performed best. In all variants of fertilization.

Regarding the influence of variety on the number of tubers in 2011, is seen from Table 3, loves the variety that is, to obtain the highest yield% compared to the control was 112.67%

Analyzing Table 4, it is noted that the variant fertilized with NemAzal classic combination to obtain the largest production increase 210.99%

## CONCLUSIONS

The data presented can draw the following conclusions.

Taking account that the world is putting great emphasis on using organic products, it is found that potato and they give a good performance compared with conventional products. Two.

Influence of fertilization on the number of tubers classic in 2011, was manifested by production increases significantly compared to version control.

In all three varieties of potato used, variance analysis by F test, reveals that the number of tubers per nest was significantly influenced by classical fertilization and organic fertilization.

Table 1

**Influence of fertilization treatments and variety, the number of tubers / potato in 2011**

Var.		tub/nest (kg/ha)	%	Dif.	significanc e	
<b>Unfertilized</b>	<b>Novodor</b>	<b>Adora A Control</b>	<b>4.6</b>	<b>100.00</b>	<b>Control</b>	
		Adore E	5.2	112.74	0.6	
		Velox	5.4	117.62	0.8	
	NeemAzal	Adora A	4.9	107.15	0.3	
		Adore E	5.5	120.00	0.9	*
		Velox A	5.9	127.37	1.3	**
<b>NPK</b>	Novodor	Adora A	9.4	204.34	4.8	***
		Adore E	12.8	276.42	8.1	***
		Velox A	9.6	207.59	5.0	***
	NeemAzal	Adora A	9.8	213.01	5.2	***
		Adore E	13.1	284.55	8.5	***
		Velox A	9.2	199.46	4.6	***
<b>ECO 1</b>	Novodor	Adora A	7.5	161.52	2.8	***
		Adore E	7.9	171.82	3.3	***
		Velox A	6.7	145.80	2.1	***
	NeemAzal	Adora A	8.0	172.36	3.3	***
		Adore E	7.8	169.65	3.2	***
		Velox	6.8	147.43	2.2	***
<b>ECO2</b>	Novodor	Adora A	7.3	157.18	2.6	***
		Adore E	7.4	160.98	2.8	***
		Velox A	6.6	143.63	2.0	***
	NeemAzal	Adora A	8.0	173.44	3.4	***
		Adore E	7.2	156.10	2.6	***
		Velox A	6.9	149.05	2.3	***
<b>MEAN</b>		<b>8</b>				
		LSD 5% = 0.8	tub/nest			
		LSD 1% = 1.1	tub/nest			
		LSD 0.1% = 1.5	tub/nest			

Table 2

**Interaction between fertilization and variety on the number of tubers / nest in 2011**

fertilization	variety	tub/nest	%	Dif (kg/ha)	significance
<b>Unfertilized</b>	<b>Adora A Control</b>	<b>5</b>	<b>100.00</b>	<b>control</b>	
	Adore E	5	112.35	0.6	
	Velox A	6	118.26	0.9	*
<b>NPK</b>	Adora A	10	201.47	4.8	***
	Adore E	13	270.80	8.2	***
	Velox A	9	196.49	4.6	***
<b>ECO 1</b>	Adora A	8	161.17	2.9	***
	Adore E	8	164.84	3.1	***
	Velox A	7	141.55	2.0	***
<b>ECO 2</b>	Adora A	8	159.60	2.8	***
	Adore E	7	153.06	2.5	***
	Velox A	7	141.29	2.0	***
<b>MEAN</b>		<b>8</b>			
		LSD 5% = 0.7	tub/nest		
		LSD 1% = 0.9	tub/nest		
		LSD 0.1% = 1.2	tub/nest		

Table 3

**Influence of variety on the number of tubers / nest in 2011**

variety	tub/nest	%	Dif.	significance
<b>Adora A Control</b>	<b>7</b>	<b>100.00</b>	<b>control</b>	
Adore E	8	112.67	3.1	***
Velox A	7	96.04	1.9	***
		LSD 5% = 0.8	tub/nest	
		LSD 1% = 1.1	tub/nest	
		LSD 0.1% = 1.5	tub/nest	

Table 4

**Influence the interaction between fertilization and foliar treatments**

fertilization	foliar treatment	tub/nest	%	Dif.	significance
Unfertilized	Novodor	<b>5</b>	<b>100.00</b>	<b>control</b>	
	NeemAzal	5	107.32	0.4	
NPK	Novodor	11	208.37	5.5	***
	NeemAzal	11	210.99	5.6	***
ECO 1	Novodor	7	145.04	2.3	***
	NeemAzal	8	148.15	2.4	***
ECO 2	Novodor	7	139.79	2.0	***
	NeemAzal	7	144.87	2.3	***
MEAN		8			

LSD 5% = 0.5 tub/nest  
 LSD 1% = 0.7 tub/nest  
 LSD 0.1% = 1.0 tub/nest

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