

# LOIAL – A NEW POTATO ADVANCED CULTIVAR FOR AUTUMN-WINTER CONSUME

## LOIAL – UN NOU SOI DE CARTOF PENTRU CONSUM DE TOAMNĂ -IARNĂ

**BODEA D.**

Agricultural Research and Development Station of Suceava

**Abstract.** *The improving of the cultivars sets with new and more performances genotypes, represents one of the most efficient ways for increase of the yield productivity, quality and stability. The potato cultivar "Loial" was created at the ARDS of Suceava through sexual hybridizing followed by individual clonally selection. Loial is a semi later cultivar, having a very high resistance to the Y virus, middle resistance to leaf roll of potato, middle resistance to the potato manna and with a high yield potential (72,9 t/ha). This characteristics recommend it besides the existent cultivars, for introduction in the crop yield in order to perform and diversify the cultivars sets.*

**Rezumat.** *Îmbunătățirea sortimentului de soiuri cu noi genotipuri mai performante, reprezintă una din căile cele mai eficiente de creștere a productivității, calității și stabilității recoltelor. Soiul de cartof "Loial" a fost creat la Stațiunea de Cercetare Dezvoltare Agricolă Suceava prin hibridare sexuală urmată de selecția clonală individuală. Loial se înscrie în grupa soiurilor semitârzii, având o rezistență foarte ridicată la virusul Y<sup>0</sup>, mijlocie la virusul răsucirii frunzelor (VRF), mijlociu de rezistent la mană și cu un potențial de producție ridicat (72,9t/ha). Acestea sunt o parte din caracteristicile ce-l personalizează și-l recomandă pentru introducerea în cultură, alături de soiurile existente în vederea perfecționării și diversificării sortimentului de soiuri cultivat.*

Utilization in the crop yield of bigger numbers of potato cultivars, means a high genetic diversity and a high possibility to select the most adaptable cultivar at the yield conditions and which suffer more less to the unfavorable crop factors (Fodor I., 1982).

Thus, the diversification of the cultivars set becomes a technical decision more complex which has to satisfy the following conditions:

- The yield maximize for whole cultivated sets;
- The decreasing of the crops disparagement risk because of unfavorable environmental conditions, the diseases and pests.
- The adaptation of the cultivars to the diversity of environmental and technological conditions (Bodea D., 2001)

The new cultivar "LOIAL" fulfill all above conditions because of both him yield potential and the other characteristics.

## BIOLOGIC MATERIAL AND RESEARCH METHOD

The cultivar „*Loial*“ was obtained through sexual hybridizing, followed by individual clonal selection.

The cultivar “Loial” was selected from one hybrid population which has as parental forms the cultivar *Concorde* and *Fauna N*. The analyses and testing processes were realized during 12 years, according to the breeding classical scheme.

## RESULTS AND DISCUSSIONS

Immediately, after germinating the cultivar „*Loial*“, it is remarked through a rapidly and uniform growing rhythm. The radicular system is well developed in the superficial soil layer (20-30 cm).

The potato shrub is well developed and is formed by 5-7 main stems, with semi erect habit, rich in leaves. The stems are thickly, canted with pigments on brown- violet color, which in the bottom part are more intensely. The leaves have the dark green color and on medium dimensions.

The inflorescence is a simple cyme which is formed by 7-10 flowers with corolla on light violet color, and sepals are green anthocyan color. The flowering is small, usually the floral buds fall down.

In each hole are 11-14 tubers, big and uniform. The tuber shape is long oval, regularly, with superficial eyes, and the skin is plane. The tuber color is yellow and of the pulp is light yellow.

Referring to the resistance of the viruses diseases attack the studies from the last year emphasized that the cultivar “LOIAL” is very resistant to the Y virus and middle resistant to the leaf roll of (table 1).

Table 1

The resistance to the Y virus and to Leaf rolls of potato (VRF)

VIRUS	Middle note MEDIE		
	LOIAL	DESIREE (Mt.VRF)	KONDOR (Mt. Y <sup>0</sup> )
Y <sup>0</sup>	9,0	8,0	3,2
VRF	5,0	2,0	6,8

Note: 1-2 : very sensitive

5-6 : middle sensitive

9 : the very high resistance

Concerning the resistance to manna the cultivar „*Loial*“ is middle resistant both to manna on leaf and tubers.

The cultivar “*Loial*“ is resistant to *Synchytrium endobioticum* and medium resistant to *Streptomyces scabies*.

Concerning the vegetation period, the cultivar “*Loial*” is frames in the semi later cultivars group with a vegetation period between 95 and 105 days.

Referring to quality traits, the tubers of the cultivar “*LOIAL*” is framed in the coking class A-A/B, with starch content on 14,2%.

This cultivar is fated for autumn -winter consumes, in the fresh form, but it is possible to use in the food industry (chips, fried potatoes).

The expression of the cultivar “*LOIAL*” productivity is dimensioned through very high average yields, between 35,4 t/ha and 50,1 t/ha . In the last three years in four localities the cultivar “*LOIAL*” accomplished 41,4 t/ha, in comparison with cultivar *Desirée* which accomplished 34,2/ha, that meaning a spore on 7,2 t/ha, and relatively value on 21% (table 2).

Table 2

**The tubers yield obtained by cultivar “*LOIAL*“ during 1999-2001, in four localities (t/ha)**

CULTIVAR	LOCALITY				Average	%
	Suceava	Braşov	Tg.Secuiesc	M.Ciuc		
Loial	38,5	50,1	41,6	35,4	41,4	121,1
Desirée	25,0	44,8	37,6	29,3	34,2	100,0

The obtained results in the last three years in seven localities (the network of the National Institute for Testing and Registration of the Cultivars) emphasized the high productive value of the cultivar “*LOIAL*”, achieving a medium yield on 34,4 t/ha having a relatively spore on 20,7% bigger then standard (table 3).

Table 3

**The tubers yields obtained by cultivar „*Loial*“ in the network ISTIS (2001-2003)**

Locality/Specification		Cultivar	
		Loial	Desirée
Bacău	t/ha	35,5	31,6
	%	112,6	100,0
Hărman	t/ha	35,4	25,0
	%	141,3	100,0
Rădăuți	t/ha	24,6	23,2
	%	106,3	100,0
Satu Mare	t/ha	32,7	26,2
	%	124,9	100,0
Sibiu	t/ha	30,7	27,2
	%	112,2	100,0
Tg. Secuiesc	t/ha	54,0	44,6
	%	120,9	100,0

Târgoviște	t/ha	24,4	19,0
	%	128,3	100,0
Average	t/ha	34,4	28,5
	%	120,7	100,0

The testing of the yield maximum potential of the cultivar “LOIAL” was realized in the Braila Big Isla condition. This cultivar accomplished an average yield on 65,3 t/ha with limits, between 57,2 t/ha and 72,9 t/ha, that mean it is a cultivar with big yield capacity(table 4).

Table 4

**The maximum yield potential (t/ha) achieved during 2001-2003**

Cultivar	Braila Big Isla				%
	2001	2002	2003	Media	
Loial	65,7	72,9	57,2	65,3	125,8
Desirée	44,8	62,8	48,0	51,9	100,0

For accomplish of these parameters on performances a high role has the yield stability and the high resistance to the viroses diseases and manna.

## CONCLUSIONS

- The cultivar Loial is framed of intensive cultivars group having a high yield potential which is associated with high superior agronomic traits.
- The high resistance to the viruses diseases make possible the seed production without difficulties.
- The cultivar “Loial” is recommended for favorable and very favorable potato crop areas, and in the less favorable are is recommended only in the irrigated conditions.

## REFERENCES

1. Bodea D., 2001 – *Magic și Astral – noi soiuri semitimpurii de cartof*. Anale ICPC Brașov, Vol. XXVIII.
2. Fodor I., 1982 – *Creșterea potențialului de producție prin soi*. Cartof, soi și sămânță. ICPC Brașov.