

„Ilindenka” and „Pela”- the first confirmed soybean varieties in Republic of Macedonia

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Abstract

Soybean varieties (*Glycine max* (L.) Merrill) “Ilindenka” and “Pela” are made in the Institute of Southern Crops in Strumica. In 2004 are confirmed by the sort commission of Ministry of Agriculture, Forestry and Water economy. Both sorts' selectioners are Mihajlov Ljupco, Mitrev Sasa and Vasilevski Goce. Ilindenka variety belongs to the II maturity group, which means that 140-150 days needs to distinguish mature at breeding conditions in Macedonia. “Pela” is early variety and belongs to (00) group or about 100 days needs for its maturing in breeding agroclimate conditions in Macedonia and it's recommended for breeding as a second culture, except the regular seedtime. “Ilindenka” is selected from F₄ generation from hybrid population of crossing (L-111 x L-8) x Balkan. “Pela” is selected also in F₄ generation of crossing between (015 x Sabina) x Oak Wislon. In the selection process is used the “pedigree method”. According to the results from two year researches by the National Sort Commission and from more year researches, micro and macro tests, both varieties characterizes with high,(for 20 – 25% more than the control), and stable grain yield and good grain quality (proteins and oils).

Key words: quality, selecting, soybean, varieties, yield.

Introduction

Soy tests in field, in Macedonia, for the first time are made in 1959 (Social agriculture, 1960, Skopje, No.11-12). With our more than ten year researchs based on science, trough exact tests in field and laboratorial analysis with varieties from different filiations, we proved that in the specific agroclimate conditions in Macedonia can be supplied soy grain yield with quality and quantity in the frame of Europe average.

Project for examination of breeding conditions, crop production, scientific help and education of potencial soybean producers, has accomplished the International Organization VOKA. The four year project (1995-1998) is accomplished in seven different locations in Macedonia. According to Dr. Jagohman Djoshi's data, international expert and professor of agriculture in the University in Meriland and project manager, in Macedonia, there are ideal soil and climate conditions for successful soybean production. All varieties and lines examed in this project are with American filiations. The selective material from different filiations disposed in the Institute in Strumica, motivate us to work on creating soybean varieties suitable for our climate conditions, with aim, to be created high productive, stable and adaptable varieties, resistant to lodging, disease and pests in the frame of 00 to II mature group. The first new confirmed soybean varieties in Macedonia with their good productive characteristics have all predispositions for massive production. In Macedonia, soybean production has no tradition and from minimal 50ha in 2001, overtakes only 500ha in 2005 in entire country, although the average import for a year is about 50.000t soybean or soybean products.

Materials and methods

The first new made soybean varieties (*Glycine max* L. Merill) “Ilindenka” and “Pela” are confirmed on 23.02.2004, decree No. 08-2263/2 and 08-2264/2 at the Ministry of Agriculture, Forestry and Water economy on R. Macedonia. Selectioners are Mihajlov Ljupco, Mitrev Sasa and Vasilevski Goce. “Ilindenka” variety has been made by crossing the lines (L-111 x L-8) with “Balkan” variety, filiations from Serbia and Monte Negro while “Pela” variety is made with crossing between varieties: (015 from Serbia and Monte Negro x “Sabina” from Austria) x “Oak Wislon” from Canada. First crossings were made 1994. In the selection process is used the “pedigree method”. Commission tests were performed during 2002 and 2003. The standard was “Korsoj” variety from SAD. Tests were made in location of Skopje, Strumica and Prilep on 12,5m² parcels in six repetitions. Yields were statistically elaborated by the method of Variance Analysis and tested with LSD test.

Results and discussion

To select a new variety, priority is grain yield enlargement, which is the most important characteristic from production point of view. Yield enlargement is conditioned by the genetical and agronomical improvements, respectively breeding better yielded varieties and using appropriate agrotechnical methods (Specht and Gref., 1996). Data computer elaboration, allowed the selectioners to evaluate a large number of lines, while very often use of green houses and winter breeding places reduced the time for creating new variety (Fehr, 1976).

With grain yield result analyses from both years researches, evidenced in the sort commission report, in three locations where examinations were made, is noticed the comparative value for high and stability of new confirmed varieties in comparison with the control.

"Ilindenka" variety with average grain yield of 4,01 t/ha for both years from the three locations, is on the first place with 25% higher yield than "Kosoroj" (2,71 t/ha). "Pela" has 20% higher yield than "Kosoroj". These results point out good fecundity of these varieties and presupposed that they will significantly spread in the generous production. The average grain yield from all examined varieties for both years in the three locations is 3,68 t/ha.

Table 1. Grain yield and estimation of yield stability of three soybean varieties at three localities for two growing seasons

Grain yield of three soybean varieties (t ha ⁻¹ on 13% grain moisture basis) and yield stability						
Property	The growing season 2002			The growing season 2003		
	Kosoroj Ø	Pela	Ilindenka	Kosoroj Ø	Pela	Ilindenka
Locality Strumica						
Yield (t ha ⁻¹)	4,71	4,87	5,73	2,96	3,55	3,45
Variety – control	Ø	0,16	1,02	Ø	0,59	0,49
CV	4,09	6,66	5,00	11,1	16,08	10,65
LSD 5%	0,234			0,516		
LSD 1%	0,332			0,734		
Locality Prilep						
Yield (t ha ⁻¹)	4,30	4,41	4,68	2,42	3,63	3,14
Variety – control	Ø	0,11	0,38	Ø	1,21	0,72
CV	13,0	9,20	18,7	9,76	10,53	14,55
LSD 5%	0,250			0,396		
LSD 1%	0,364			0,575		
Locality Skopje						
Yield (t ha ⁻¹)	2,23	2,74	3,30	3,20	3,82	3,78
Variety – control	Ø	0,51	1,07	Ø	0,62	0,58
CV	7,89	4,43	12,83	5,75	7,61	4,31
LSD 5%	0,396			0,275		
LSD 1%	0,575			0,401		

Conclusions

The new confirmed varieties "Ilindenka" and "Pela" are with high fecundity and grain yield stability. Especially the variety "Ilindenka" raise oneself with its fecundity. Already mentioned varieties are with high resistance of lodging and field tolerance of main pathogens in the production, and all three examined varieties are very satisfying. "Ilindenka" and "Pela" varieties accomplished all needs to take significant place of soybean production in R. Macedonia.

References

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