ON THE BEHAVIOUR OF SOME RYE CULTIVARS IN THE SUB-MOUNTAIN AREA OF THE MERIDIONAL CARPATHIAN MOUNTAINS

COMPORTAREA UNOR SOIURI DE SECARĂ DE TOAMNĂ ÎN ZONA SUBMONTANĂ A CARPAȚILOR MERIDIONALI

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Abstract: *Research aimed at the following rye cultivars: Gloria, Suceava, Orizont, Picasso, and Ergo. The pre-emergent plant was potato. Crops ranged between 3,693 kg per hectare in the Ergo cultivar and 5,243 kg per hectare in the Orizont cultivar. Protein content was close, and it ranged between 11.09% (in the Gloria cultivar) and 12.28% (in the Picasso cultivar).*

Rezumat: *Cercetările au avut în vedere soiurile de secară de toamnă Gloria, Suceveana, Orizont, Picasso şi Ergo. Planta premergătoarea a fost cultura cartofului. Recoltele s-au situate între 3693 kg/ha la soiul Ergo şi 5243 kg/ha la soiul Orizont. Conținutul de proteină a fost apropiat, cuprins între 11,9% (Gloria) şi 12,28% (Picasso).*

Key words: *rye cultivars, rye yield, and rye quality*
Cuvinte cheie: *soiuri de secară,producția şi calitatea acesteia*

INTODUCTION

The Horezu territory is located in the sub-mountain area of the Meridional Carpathian Mountains.

Rye is one of the few crops that can valorise efficiently the potential of the area under study.

Research covered four typical grain cultivars and one sclerotes cultivar. Results concerning both grain yield and grain quality are in favour of introducing and expanding into cultivation winter rye in this area.

MATERIAL AND METHOD

Research aimed at four winter rye cultivars that are already cultivated in Romania (Gloria, Suceava, Orizont, and Picasso) and at one rye cultivar cultivated mainly for the sclerotes production.

Trials were of the monofactorial type; they were set after the stripe method with three replications.

The pre-emergent plant was potato.

Fertilising was done with $N_{60}P_{80}K_{40}$, and sowing was done in the 2nd decade of September with a sowing density of 500 grains per square meter.

The land cleaned from weeds and the good seedling capacity of all the cultivars under study claimed no herbicide treatment.

Upon harvesting, we measured the mass of thousand grains and the hectolitric mass, and we analysed the protein content on which ground we also calculated protein yield per ha.

RESULTS AND DISCUSSION

Harvest results are shown in Table 1 and in Figure 1.

Table 1

Crop obtained in the Horezu area

Cultivar	Crop kg/ha	%	Difference Kg/ha	Significance
Gloria	4305	100		
Suceveana	4575	106	270	
Orizont	5243	122	938	xxx
Picasso	3719	86	-586	000
Ergo	3693	85	-612	000

Dl 5% = 279 kg/ha;
Dl 1%= 397 kg/ha;
Dl 0.1%= 575kg/ha.

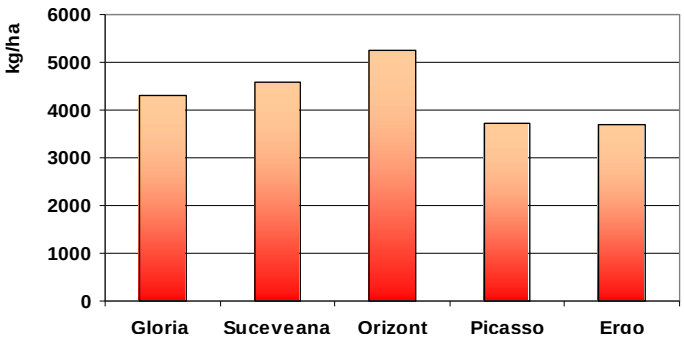


Figure. 1 Crops obtained in 2006 in the Horezu area

We can see that the most adapted cultivar to the conditions in the area proved to be the Orizont cultivar, in which yield level was over 5,200 kg per hectare, i.e. 22% more than in the control cultivar Gloria. The difference in yield of over 900 kg per hectare compared to the control cultivar yield is statistically ensured as very significant.

The Suceava cultivar is also a rye cultivar with good behaviour in the area, as its yield of over 4,500 kg per hectare proved to be 6% higher than the yield of the Gloria cultivar.

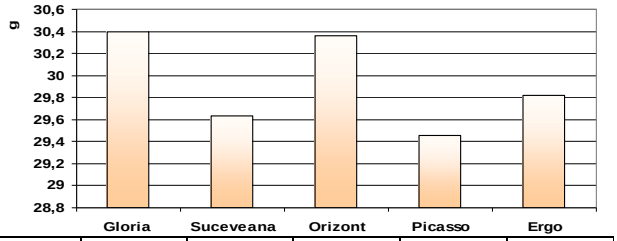
Very significantly negative yields compared to the control were in the Picasso and Ergo cultivars.

Figure 2 shows the variation of the mass of thousand grains that was, in all the cultivars, within specific limits. Variation amplitude was lower, i.e. between 29.46 g and 30.40 g.

Figure 3 shows the variation of the hectolitric mass which was, in the field under study, between 65.5 kg per hectolitre in the Picasso cultivar and 68.6 kg per hectolitre in the Orizont and Gloria cultivars.

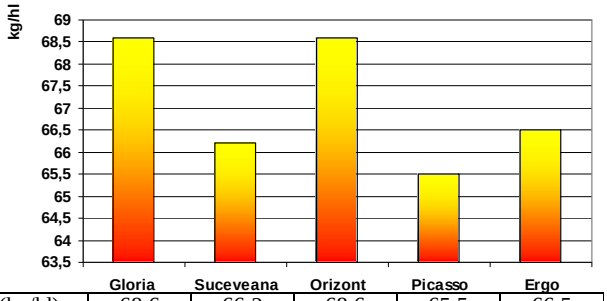
Figure 4 shows protein substances content. Results point out the amplitude between 11.9% in the Gloria cultivar and 12.28% in the Picasso cultivar.

Protein content calculated depending on raw protein content and on grain yield is shown in Table 2 and Figure 5. The highest yield was in the Orizont and Suceava cultivars that overrun the yield in the Gloria cultivar with very significant differences.



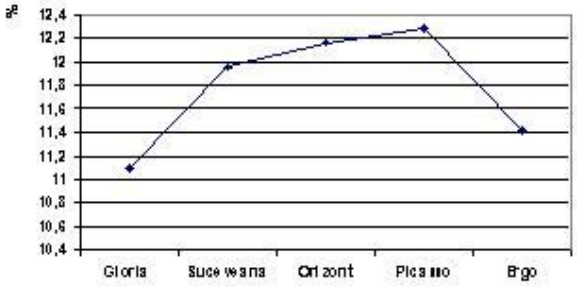
MMB (g)	30,40	29,63	30,36	29,46	29,82
%	100	97	100	97	98
Difference		-0,77	0,04	0,94	0,58

Figure 2 Variations mass of 1000 grain depending of cultivar in the Horezu area



MH (kg/hl)	68.6	66.2	68.6	65.5	66.5
%	100	96	100	95	97
Difference		2.4	0.0	3.1	2.1

Figure 3 Variations of hectolitric mass depending of cultivar in the Horezu area



Protein content (%)	11.09	11.96	12.16	12.28	11.41
Difference	100	0.87	1.07	1.19	0.32
Significance		x	xx	xx	

Dl 5% = 0.70; Dl 1%= 1.0; Dl 0.1%= 1.45.

Figure 4 Protein content

Table 2

Protein yield depending of cultivar

Cultivar	Crop kg/ha	%	Difference Kg/ha	Significance
Gloria	477	100		
Suceveana	547	115	70	xxx
Orizont	636	133	159	xxx
Picasso	457	96	-20	
Ergo	421	88	-56	00

Dl 5% = 33 kg/ha ;
Dl 1%= 47 kg/ha;
Dl 0.1%= 68 kg/ha.

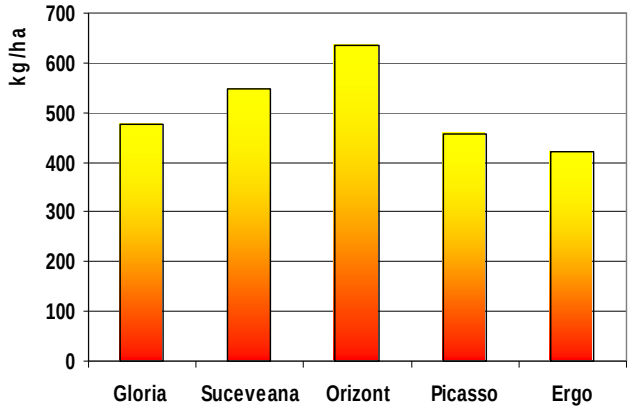


Figure 5 Protein yield depending of cultivar in the Horezu area

CONCLUSIONS

Research carried out pointed out that winter rye can represent a solution for the sub-mountain area of the Meridional Carpathian Mountains.

Seed yield in the Orizont cultivar (over 5,200 kg per hectare) and in the Suceava and Gloria cultivars (over 4,000 kg per hectare each) are efficient economically and they plead in favour of introducing rye into cultivation in the area under study.

Protein content in all the cultivars were higher than 11%, while in the Picasso and Orizont cultivars it was above 12%.

LITERATURE

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