

## DIVERSITY IN SIZE AND SHAPE OF THE SEEDS OF BULGARIAN COMMON BEAN GENOTYPES (*PHASEOLUS VULGARIS* L.)

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### INTRODUCTION

Seeds of common bean (*Phaseolus vulgaris* L.) possessed different shape, size and color. Ecological factors influenced very much those characteristics of the seeds (Genchev, 1989). Shape of the seeds is important systematic trait (Gradinaroff, 1939; Vishnevski, 1940; Hristoforov, 1973) for description of the diversity and market realization of the common bean. The main goal of that investigation was to establish the genetic diversity of 33 Bulgarian common bean genotypes.

### MATERIAL AND METHODS

Three-years investigations (2002-2004) on 33 Bulgarian common bean genotypes were conducted. Size - length, width and thickness of 50 seeds per each genotype were measured. The shape of common bean seeds was determined by the methods of Hristoforov (1973) and Genchev (1989).

### RESULTS AND DISCUSSIONS

As a result of conducted investigations was found (table 1), that genotypes Garmen and No 338 were with the biggest seed length and width for the three-years period of investigations, while the biggest thickness of the seeds possessed varieties Bisser and Samoranovo. Abritus, IZK-DK-4 and Prelom were genotypes with the smallest length of the seeds, while seeds of the genotypes Ludogorie, Oreol GP and 80-7-11-12 were with the smallest width and thickness. Seeds of the varieties Medkovetz 1 and Abritus were with the nearest to the sphere shape seeds and the most distant to that shape were the seeds of the genotypes No 338, DG 84-34-1, Garmen and DG 80-7-11-12. Coincidence between biometric methods of Hristoforov (1973) and Genchev (1989) for determination of the seed shape, in our study, was 67% and it is possible to maintain that suggested by Genchev (1989) method can be suitable for application in genetic investigations.

### CONCLUSION

Investigated Bulgarian common bean genotypes represented great genetic diversity by the seed shape and size. They are interesting by breeding point of view and can be used for hybridization and creation of new common bean varieties. Genotypes with contrast traits are suitable for application of genetic analysis where determination of the shape can be done by the method of Genchev (1989).

### REFERENCES

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Table 1. Size and shape of the seeds from investigated Bulgarian common bean genotypes

Genotypes		Size:			Ratio L/ t/ w	V.c.	Shape of the seeds by Genchev (1989)
		Length (L)	Width (t)	Thick- ness (w)			
1.	<i>Medkovetz 98-1</i>	10,26	7,51	5,81	1,37/1/0,77	9,25	Sphaericus-ellipticus
2.	<i>Plovdiv 15M</i>	11,64	7,51	5,58	1,55/1/0,74	12,52	Ellipticus-ubcompressus
3.	<i>No 1028</i>	14,16	8,92	5,82	1,59/1/0,65	14,59	Subcompressus
4.	<i>Plovdiv 10</i>	11,86	7,99	5,65	1,48/1/0,71	12,30	Ellipticus-subcompressus
5.	<i>Plovdiv 11M</i>	11,61	7,67	5,52	1,51/1/0,72	12,45	Ellipticus-subcompressus
6.	<i>Добруджански 2</i>	11,97	8,20	5,03	1,46/1/0,61	13,81	Subcompressus
7.	<i>Downav 1</i>	12,41	6,30	5,12	1,97/1/0,81	16,24	Subcompressus- compressus
8.	<i>A 195</i>	15,15	7,75	5,46	1,95/1/0,70	17,57	Compressus
9.	<i>Kristal 137</i>	12,41	8,43	5,93	1,47/1/0,70	12,17	Ellipticus-subcompressus
10.	<i>Bisser</i>	10,83	7,76	7,11	1,40/1/0,92	7,73	Sphaericus-ellipticus
11.	<i>Abritus</i>	9,12	6,18	5,34	1,48/1/0,86	9,62	Ellipticus
12.	<i>Dobroudjanski ran</i>	14,55	8,54	5,25	1,70/1/0,61	16,64	Subcompressus- compressus
13.	<i>No 1026</i>	14,24	8,63	5,46	1,65/1/0,63	16,09	Subcompressus- compressus
14.	<i>No 338</i>	15,94	9,04	4,67	1,76/1/0,52	19,16	Compressus
15.	<i>DG 84-34-1</i>	15,16	7,95	4,85	1,91/1/0,61	18,64	Compressus
16.	<i>IIRR-1426</i>	12,68	7,66	5,86	1,66/1/0,77	13,83	Subcompressus
17.	<i>Loudogorie</i>	10,91	5,99	4,55	1,82/1/0,76	15,55	Subcompressus
18.	<i>Troudovetz</i>	14,26	7,66	5,71	1,86/1/0,75	16,48	Subcompressus- compressus
19.	<i>Dobroudjanski7</i>	12,80	7,82	5,08	1,64/1/0,65	15,23	Subcompressus
20.	<i>IIRR-7585</i>	15,02	7,63	6,43	1,97/1/0,84	16,00	Subcompressus- compressus
21.	<i>Prissad</i>	13,81	8,49	5,84	1,63/1/0,69	14,42	Subcompressus
22.	<i>Bulgari</i>	14,17	8,82	5,67	1,61/1/0,64	14,99	Subcompressus
23.	<i>Hitovo 1</i>	11,33	7,27	6,25	1,56/1/0,86	10,81	Ellipticus
24.	<i>IZK-DK-4</i>	9,46	6,27	4,61	1,51/1/0,74	12,21	Ellipticus-subcompressus
25.	<i>Pokrovnik</i>	10,45	6,69	5,46	1,56/1/0,82	11,50	Ellipticus-subcompressus
26.	<i>Oreol GP</i>	10,01	5,57	4,38	1,80/1/0,79	14,87	Subcompressus
27.	<i>Garmen</i>	16,70	8,65	4,97	1,93/1/0,57	19,79	Compressus
28.	<i>Padesh 1</i>	11,21	7,58	5,73	1,48/1/0,76	11,37	Ellipticus
29.	<i>Prelom</i>	9,36	6,05	5,15	1,55/1/0,85	10,78	Ellipticus
30.	<i>Samoranovo</i>	12,21	8,21	7,08	1,49/1/0,86	9,80	Ellipticus
31.	<i>Dessislava</i>	14,76	8,34	5,43	1,77/1/0,65	16,73	Subcompressus- compressus
32.	<i>DG 80-7-11-12</i>	11,45	5,57	4,20	2,06/1/0,75	18,15	Compressus
33.	<i>Trakiiski</i>	11,55	8,16	5,72	1,42/1/0,70	11,82	Ellipticus-subcompressus