

THE MAIN QUANTITATIVE AND QUALITATIVE TRAITS OF EARLY WHITE CABBAGE VARIETY 'DE BUZĂU'

PRINCIPALELE ÎNSUȘIRI CANTITATIVE ȘI CALITATIVE LA VARZA ALBĂ TIMPURIE SOIUL 'DE BUZĂU'

TODERICĂ I.¹, BEJAN Olga

e-mail: olgaionbejan@gmail.com

Abstract. *It was found that the half-seed method by setting the control field in spring and then the wintering field in rosette stage (15-20 well-developed leaves) can maintain the variety in the allowable variability. Starting from the wintering plants in the rosette stage, the average seed quantity was 50.7 g/plant, while plants that overwinter in the head stage was only 28.8 g/plant. In the first case, floral stems are more vigorous, showing an average height of 127.6 cm to 118cm average height of floral stem in the second case. In 2014 was achieved an average production/ha of 1 574.5 kg conditional seed, to 1008 kg in 2015. Under the program for the conservative selection, by applying rigorous selection methods, this variety has been maintained within the allowable variability.*

Key words: selection, seed, production, variety De Buzau

Rezumat. *S-a observat că metoda jumătății de sămânță prin înființarea câmpului de control în primăvară și apoi a câmpului care ierneză în stadiul de rozetă (15-20 de frunze bine dezvoltate) poate menține soiul în limitele de variabilitate admisibile. Pornind de la plante care ierneză în stadiul de rozetă, cantitatea medie de sămânță a fost de 50.7 g/plantă, pe când la plantele care ierneză în stadiul de căpătână a fost numai de 28.8 g/plantă. În primul caz, tijele florale sunt mai viguroase, prezentând o înălțime medie de 127.6 cm față de 118 cm media, înălțimii tijeii florale în al doilea caz. În anul 2014 s-a obținut o producție medie /ha de 1 574.5 kg sămânță condiționată, față de 1 008 kg în anul 2015. În cadrul programului de selecție conservativă, prin aplicarea riguroasă a metodelor de selecție, acest soi a fost menținut în limitele de variabilitate admisibile.*

Cuvinte cheie: selecție, sămânță, producție, soiul De Buzău

INTRODUCTION

Scientific community, based on an extensive analysis of events in recent years, notes that the economic and socio-political situation of the country was aggravated and could be appreciated as an extremely difficult one.

Only under conditions in which science and innovation will enjoy support from the state and society can be ensured the development of economy, creation of advanced technologies, production of new multifunctional materials, including a Center for olericulture, developing new biotechnology for production with a increased efficiency, developing new pure ecological products and methods of treatment, enhancement of alternative vegetable production, ultimately

¹Research and Practical Institute for Horticulture and Food Technology, Chișinău, Republic of Moldova

overcoming the economic crisis, management of the olericultural sphere of research and innovation, technological transfers, highly appreciated by international scientific bodies and solving pressing socio-economic problems of the country (Bălașa, 1973; Ceapoiu, 1976; Dumitrescu, 1988).

MATERIAL AND METHOD

Researchers of this paper we propose to present the recorded results at the Scientific - Practical Institute of Horticulture and Food Technologies on method of producing of elite seeds of early white cabbage variety De Buzau, in the years 2014 and 2015.

Cabbage is one of the most common vegetable species, is widespread in all regions of our country.

Early cabbage occupies 20-30% of the vegetable cultivated area (cabbage, red cabbage, kale High content of minerals, carbohydrates, vitamins (A, B, C) as well as obtaining high revenues from production valorisation are elements that define economic and food value.

White cabbages for head (*Brassica oleracea* L - variety *capitata* L - white form, Cruciferae family) is a biennial plant, allogamous used both fresh in a wide range of culinary products and as raw material for canning industry, ensuring consumption throughout the year.

It is one of vegetable species that has a high biological plasticity, what really gives a peculiarity to adapt to various environmental conditions, which is why it can be cultivated on a very large geographical area.

Early cabbage varieties grown in our country presents some difficulties in seed production caused by biological traits and applied technology.

To maintain production at a higher level both quantitatively and qualitatively, a first and essential condition is to start from an elite planting of high biological value.

To obtain a good quality seeds with high biological purity of seeds that do not pass through the stage of loaf is necessary to establish a control field. The experience was conducted in the years 2014 - 2015 at the Scientific - Practical Institute of Horticulture and Food Technologies, in field research, using the seeds and plants from biological mother of early white cabbage variety De Buzau.

Typable plants percentage increases by applying the technology of seed production plant wintering in the open field in the rosette stage (for verification typicality parent plant).

The removal was done by applying the method of "half-seed". So, from the first half of seeds of the elite and of the families at this stage were set up a control field during optimal culture for early cabbage (5.III - 5.IV).

During the growing season have been made observations and measurements that are used to establish typicality of the variety.

In the other half of the elites and families arrested during analysis of variance for some character were established in 2015 in a field where plants wintering rosette stage (15-20 well-developed leaves) and also in that field, where plants spent the winter phase physiologically matured head.

In order to obtain elite seed it has been done according to selection scheme specific to the species, using the individual method of selection in C. A. and Selection method on families in C. S. mother plants and C.S.E. mother plants.

Through the analysis of variance was calculated arithmetic mean (\bar{x}), standard deviation s , coefficient of variability % and the limits of variability ($\bar{x} + s$) for each character included in the study.

Experience has been placed on the moldsoil with a neutral reaction ($\text{pH} = 7.0 - 7.1$), well stocked nitrogen ($\text{N} - \text{NO}_3$: 70.0 to 94.2 ppm), phosphorus (PAL: 107 - 189 ppm) and the environment supplied with potassium (KAL 246 ppm).

RESULTS AND DISCUSSIONS

Results achieved through the statistical processing of the data recorded in 2014 and 2015 for certain quantitative characters of early cabbage seeds which were wintering in the open field or in the rosette stage (15-20 well-developed leaves) or in the stage of physiologically matured head, they are shown in table 2. Quantitative variability of the main characters of early cabbage seeds variety De Buzau, seeding phase.

Table 1

Quantitative variability of the main characters early cabbage variety De Buzau

Phase	Specification	Height rod Floral (cm)	The average amount of seed per plant (g)
Wintering plants in rosette stage	X	127.6	50.7
	s	14.8	9.8
	s%	11.6	19.36
	x+s	142.4-112.8	60.5-40.9
Plants wintering in Headstage	X	118.0	28.8
	s	13	8.27
	s%	11.0	26.15
	x+s	131.0-105.0	37.07-20.53

x = arithmetic average

s = standard deviation

s%= coefficient of variation

x+s= range of variability

In both cases, by setting the control field during the optimal period of early cabbage culture can be certainly set compliance with the limits of allowable variability of this variety.

From this table it follows that cabbage seeds are more vigorous in the case of the plants that are in the case of plants that spent the winter in the stage of heads matured physiologically issued floral stems are less vigorous ($\bar{x} = 118\text{cm}$) presenting also a middle variability.

Regarding the average amount of seed per plant, there is a difference of 56.8% between the average obtained on plants that have wintered the rosette stage ($\bar{x} = 50.7\text{g}$) and plants spent the winter in the stage of physiologically mature head (average 28.8g).



Fig.1 Seed harvesting was done manually and separately for each elite and family apart

CONCLUSIONS

After the study performed on methods for the production of elite seed of early cabbage variety De Buzau, we can say that through the half-seed method by setting the control field in the spring and then the field that is wintering in the rosette stage (15-20 leaves well developed) can be determined the classification of the variety within the allowable variation.

Starting from the plants that winters in the rosette stage average amount of was 50.7 g seeds and plants that winters in the stage of physiologically matured head of 28.8 g which are less vigorous, reaching an average height of 118cm.

Under the program of conservative selection, applying rigorous selection methods, this variety has been maintained within the allowable variability.

REFERENCES

1. **Bălașa M., 1973** – *Legumicultură*, Ed. didactică și pedagogică, București.
2. **.Ceapoiu N., 1976** - *Genetica și evoluția populațiilor biologice*, Ed. Academiei R.S.R., București .
3. **Dumitrescu M., 1988** – *Tehnologia producerii semințelor și a materialului săditor la plantele legumicole*, Ed. Ceres, București.