STUDIES ON THE MAIN QUANTITATIVE TRAITS OF „ROŞIOARĂ"- MOON RADISH VARIETY

STUDII PRIVIND ÎNSUŞIRILE PRINCIPALELOR CARACTERE CANTITATIVE ALE SOIULUI DE RIDICHE DE LUNĂ „ROŞIOARĂ"

AMBĂRUŞ Silvica[1], BREZEANU P.M.[1], BREZEANU Creola[1], GENG SANSHENG[2]
e-mail: silvia_ambarus@yahoo.com

Abstract. *For judicious management of the selection process in order to maintain varietal characters and traits of „ROŞIOARĂ" variety, within the specificity and authenticity have been recruited within the limits $x \pm s$ for each character individually. Experimentation was conducted in 2008-2010 at Vegetable Research and Development Station Bacau, amid continuing selection of "ROŞIOARĂ" radishes variety. The main purpose of the research was to follow the variability of quantitative characters in field study of progenies of mother plants in order to maintain genetic integrity of the variety. For the study of variability measurements were made on a sample of 100 individuals (mother plants) taken at random on the diagonals of the field. The effectuated measurements were made on: the root height (cm); the root diameter (cm); the index form; the root weight (g).*

Key words: seed production, variability, study of descendants, typical plants

Rezumat. *Pentru conducerea judicioasă a procesului de selecţie în vederea menţinerii variabilităţii caracterelor şi însuşirilor soiului "ROŞIOARĂ", în limitele de specificitate şi autenticitate, selecţia s-a făcut în limitele $x \pm s$ stabilite pentru fiecare caracter în parte. Experimentarea s-a realizat în perioada 2008-2010, la Staţiunea de Cercetare - Dezvoltare pentru Legumicultură Bacău, pe fondul selecţiei de menţinere la ridiche de lună soiul "ROŞIOARĂ". Pentru realizarea studiului variabilităţii la soiul de ridichi de lună "ROŞIOARĂ", au fost efectuate măsurători la un număr de 100 indivizi (plante-mamă) luaţi la întâmplare pe diagonalele câmpului. Măsuratorile effectuate au vizat: înălţimea rădăcinii(cm); diametrul rădăcinii(cm);indexul de formă;greutatea rădăcinii(g)*

Cuvinte cheie: producere de seminţe, variabilitate, studiu descendenţi, plante tipice

INTRODUCTION

Due to the practical importance of seed value, it must deepen the nature of links between synthetic and seed quality as the main factors that attribute to influence. Using statistical and mathematical methods in experimental research, in addition to the role it plays in the development and improvement of breeding and selection work, offers comprehensive knowledge of the characteristics of biological material subjected to experiments and theoretical obtaining

[1] Vegetable Reasearch and Development Station Bacau, Romania
[2] National Engineering Research Centre for Vegetables Beijing Republic of China

information essential for improving the practical work. (Potlog A.S., Velican V., 1971, Săulescu N., 1968)

Although the comments were ascertained production elements, depending on their anatomical and morphological features, it was found that in many cases, a single element of the production contribute differently to its quality, its been a characteristic of purely related to the variety or hybrid.

In this regard, we illustrate the correlation between the size or specific weight of seeds and their quality expressed by germination energy, germination and vigor.

MATERIAL AND METHOD

The biological material used was **Roşioară** month radish variety created at VRDS Bacau. Vegetation period: 28 - 30 days, the root is slightly globular, shiny red coloured. It doesn't become woody and yeast, the pulp is juicy, crispy (Brezeanu, 2010).

During the growing season, observations were made on completing the main phenophase (sow-rising, rising - rosette leaf formation, forming the rosette of leaves - beginning of root thickening, starting root's thicken - the end of root development.

Measurements were conducted on 100 families on the following characters: the root height (cm); the root diameter (cm); the index form; the weight (g)

For the study of variability measurements were made on a sample of 100 individuals (mother plants) taken at random on the diagonals of the field.

The experimental field has been placed on an alluvial soil medium developed, and sandy loam texture, pH = 6.2 to 6.5 and 2.5 to 2.7% humus content.

We performed specific tasks selection, the biological purification being made in the fields mother plants in sprouting stage, leaves rosette formation, technological maturity.

In case of seeds fields the biological purification was made at planting time, in floriferous stems stage, flowering and physiological maturity of seeds (Korzenievska, 2008).

RESULTS AND DISCUSSIONS

The methods of correlations utilized, in analyze of characters variability, revealed interesting results in what concerns the resistance and direction of interactions between genotype and environment (Ambarus, 2005).

In the radish culture, phenologycal observations were made, establishing the total perriod of phenophases (in days), the total amount of temperature degrees, and prezipitations per each phenophase (table 1).

The correct and efficient application of selection, in the process of seeds production of moon radish variety ROŞIOARĂ involved the accomplishment of a large number of observation and determinations over the main characters (Ambarus, 2010). In order to have more accurate dates, was necessary to have a large number of individuals.

Main phenophase of "ROŞIOARĂ" moon radish variety are presented in table 2.

Table 1

Main phenophase of "ROŞIOARĂ" moon radish variety

- **Field parent plants-**

No.	Phenophase	Period	Phenophase duration (number of days)	The amount of temperature degrees (^{0}C)	Precipitation (mm)
1.	Sowing - seed emergence	10.04-24.04	15	172,7	32,4
2.	Seed emergence - rosette leaf formation	25.04-10.05	16	227,0	18,6
3.	Rosette leaf formation – root's thicken	11.05-23.05	14	181,8	54,5
4.	Root's thicken - the end of root development.	24.05-07.06	15	266,6	50,7
Total vegetation period		25.04-07.06	45	675,4	123,8

Table 2

Main phenophase of "ROŞIOARĂ" moon radish variety

- **Seed production field** —

No.	Phenophase	Period	Duration of phenophase (number of days)	The amount of temperature degrees (^{0}C)	Precipitation (mm)
1.	Planting – Starting vegetation process	08.06-14.06	7	84,8	6,4
2.	Starting vegetation process - floriferous stems	14.06-21.06	7	137,8	69,5
3.	Floriferous stems - blooming	21.06-15.07	24	518,1	34,4
4.	Blooming - physiological maturity	16.07-15.08	31	680,3	26,5
Total: from - starting-vegetation period -to physiological maturity of seed		12.06-15.08	65	1336,2	130,4

The statistical and mathematical processing of data obtained from measurements taken (sample survey) in each link in the selection of variation were calculated within the variety of radishes "ROŞIOARĂ" (table 3).

Table 3

The study of some characters of "ROŞIOARĂ" moon radish variety

a. - Mother plants -

No	Character	Link Selection	X	s	s%	Limits of variation	Significance s%
1.	Root height (cm)	Field for choosing mother plants	3,79	0,67	17,68	3,12-4,46	medium variability
		Field study descendants	3,64	0,65	17,86	2,99-4,29	medium variability
2.	Root diameter (cm)	Field for choosing mother plants	3,86	0,37	9,59	3,53-4,27	small variability
		Field study descendants mother plants	3,82	0,38	9,95	3,44-4,20	small variability
3.	The index form	Field for choosing mother plants	0,99	0,097	9,80	0,893-1,087	small variability
		Field study descendants mother plants	0,99	0,099	10,00	0,891-1,089	small variability
4.	Root weight (g)	Field for choosing mother plants	32,59	8,03	24,64	24,56-40,62	high variability
		Field study descendants mother plants	34,10	7,98	23,40	26,12-42,08	high variability

b. - Seedy plants

5.	Floriferous stem height (cm)	Field for choosing mother plants	72,20	12,99	17,99	59,21-85,19	medium variability
6.	Weight of seeds/plant. (g)	Field for choosing mother plants	22,21	4,68	21,07	17,53-26,89	high variability

The data presented in table 3 shows that variability varies by character:

- small in case of the index shape and root's diameter;
- medium at root's height;
- high at the index shape and seeds per plant.

In the same character but in different fields, the coefficient of variability values is close:

- 9,59 in field for choosing mother plants and 9,95 in field study descendants mother plants at the root diameter;
- 9,80 in field for choosing mother plants and 10,00 in field study descendants mother plants at the index shape;
- 24,64 in field for choosing mother plants and 23,40 in field study descendants mother plants at the root height.

Histograms variations were drawn for each studied character (figure 1-6).

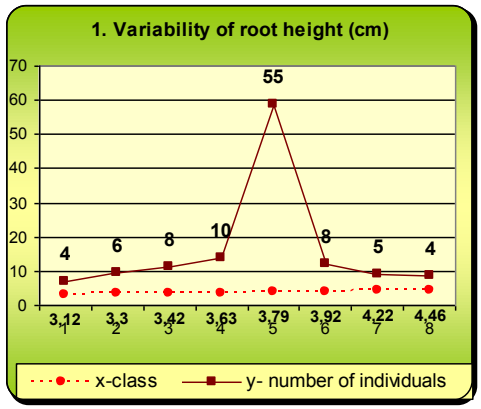

Fig. 1 - Variability character – the root height

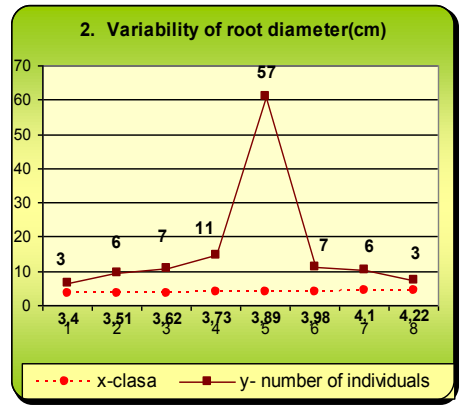

Fig. 2 - Variability character – the root diameter

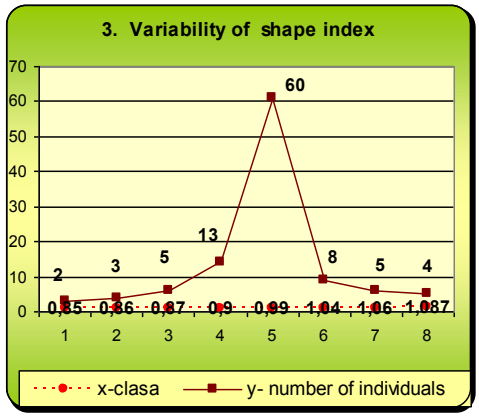

Fig. 3 - Variability character - shape index

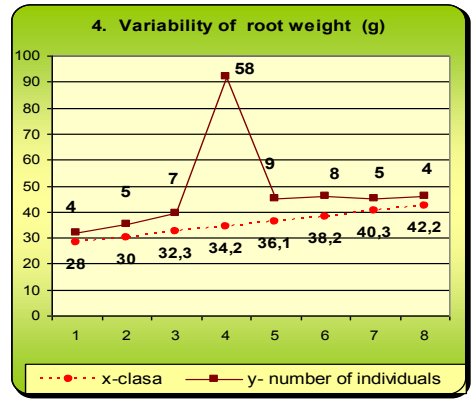

Fig. 4 - Variability character the root weight

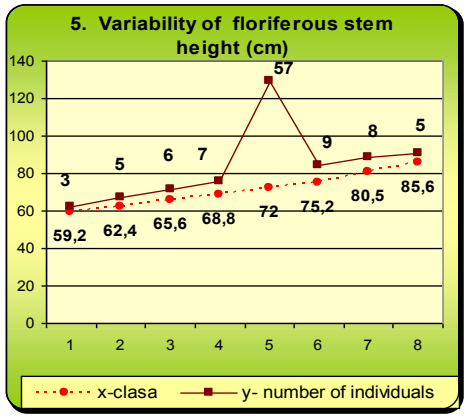

Fig. 5 - Variability character – floriferous steam height

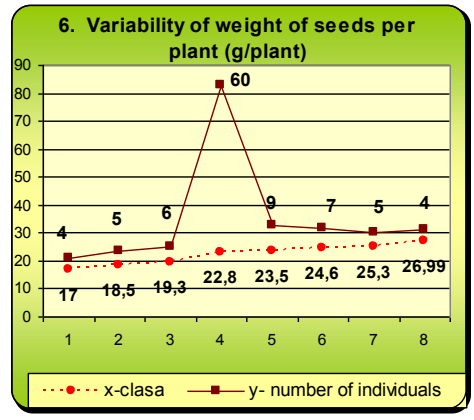

Fig. 6 - Variability character – weight of seeds per plant

CONCLUSIONS

1. The correct and efficient application of selection, in the process of seeds production of moon radish variety ”ROŞIOARĂ” involved the accomplishment of a large number of observation and determinations over the main characters of families that compose the population.

2. In order to have more accurate dates, was necessary to have a large number of individuals from each family.

3. "Roşioară" moon radish variety was within the normal range of variation.

4. The calculation and analyses of variability of this genotype revealed:

- lower in case of shape form and root diameter,
- medium in case of root height;
- high at root weight and seed weight per plant.

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