RESEARCH REGARDING THE POSSIBILITY OF STAGGERING THE GREEN ONION PRODUCTION ON THE ENTIRE YEAR PERIOD

CERCETĂRI PRIVIND POSIBILITATEA EŞALONĂRII PRODUCȚIEI DE CEAPĂ VERDE PE ÎNTREAGA PERIOADĂ A ANULUI

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Abstract. *The paper presents the results of the experiments made with the purpose of staggering the green onion production for the entire year by varying the species assortment belonging to this type. The following species have been used for the experiments: common onion (Allium cepa), winter onion (Allium fistulosum), echelon onion (Allium ascalonicum), onion for cutting (Allium schoenoprasum). In order to set up the experiments, bulbs, seedling and seeds have been used, being sowed both in field and protected areas in different time periods. This way, there have been achieved a production of green onion throughout the year.*

Key words: onion, cultivar, phasing

Rezumat. *Lucrarea prezintă rezultatele experimentelor efectuate cu scopul eşalonării producției de ceapă verde pe întreaga perioadă a anului prin diversificarea sortimentului de specii aparținând genului Allium şi prin înființarea culturilor în epoci diferite. Pentru experimente, au fost folosite speciile: ceapa comuna (Allium cepa), ceapa de iarnă (Allium fistulosum), ceapa eşalotă (Allium ascalonicum), ceapa de tuns (Allium schoenoprasum). Pentru înfiintarea experiențelor au fost folosiți bulbili, răsad şi sămânță, semănându-se în câmp şi în spații protejate în perioade diferite, reuşindu-se astfel obținerea de ceapă verde pe întreaga perioadă a anului.*

Cuvinte cheie: ceapa, cultivar, esalonare

INTRODUCTION

The fresh vegetable consumption is increasingly greater, being one of the parameter that proves the level of development and evolution of the concept regarding the rational dieting and its diversification. An increasingly accent is put upon the diversification of the assortment which should allow a phasing on a period as long as possible a year. As far as the onion in concerned, one of the most important vegetables, the bulbs are mainly consumed, but also the false stem and the leaves, when they are green, containing the greatest quantity of vitamins from the B group (Brewster J.L.,1994). The onion bulbs are obtained only in the field (Malcica P., 1986, Popandron N., 2003, Popandron N., 2007), while the green onion is obtained both in the field and in protected spaces, this being done is order to achieve a phasing during the entire year period, if possible (Radoi V.,1995, Popandron N.,2009). Many experiments have been made in order to phase the green

onion production, being used as biological material: seeds, bulbs, bulbils, seedlings. It has been obtained a conveer over the entire year period.

MATERIAL AND METHOD

The experiments have been carried out in the field and in protected spaces (solar and greenhouse).

In order to produce green onion during the cold period of the year, the following species have been cultivated in protected spaces: *Allium fistulosum* (winter onion – through seedling), *Allium fistulosum* (onion for binding produced directly from seed), *Allium cepa* (bulbils with width bigger than 22 cm.). For the experiments in the field the following species have been used: *Allium cepa* (the early hybrid Musica F1 and the variety Swift with passing through winter, bulbils from the Androna variety and seedling from the Briliant variety), *Allium fistulosum* (the Parade variety directly seeded), *Allium ascalonicum* (scallion bulbs form Ambition F1 hybrid) and *Allium schoenoprasum* (onion for cropping – local population).

The experimented variants have been added in three foundation schemes and three densities. The three foundation schemes have been as follows: 5 rows of bedding distanced at 20 cm, 4 rows of bedding distanced at 25 cm and 3 rows of bedding distanced at 33 cm, and the distance between the plants on the bedding has been of 3 cm, being obtained densities of: 1 million pl./ha, 1,25 million pl./ha and 1,5 million pl./ha. All the sustenance works have been performed, observations and biometrical determinations have been carried out during the vegetation period, the green onion production (t/ha) has been determined for all the variants.

RESULTS AND DISCUSSIONS

The effects regarding the green onion production obtained in protected spaces are described in table1.

Table 1

The green onion production obtained in protected spaces

Nr. crt.	Technology	Density	Density	Density
		1 mill.pl./ha	1,25 mill.pl./ha	1,5 mill.pl./ha
1	Winter onion- seedling	33,00	37,50	39,00
2	Onion for binding	25,00	28,75	31,50
3	Common onion- bulbils	30,00	38,75	42,00

As regarding the culture obtained from *Allium fistulosum* (winter onion), by means of seedling, the biggest production (39,0 t/ha) has been obtained at the highest density (1,5 mil/ha). The culture obtained in this way, being phased within October – November period, was cropped within December – February period. For the variant when the culture has come into being by dissemination directly in protected spaces the *Allium fistulosum* being used (Parade variety), dissemination phased at 30 days time distance, beginning with August and finishing with the late November, was obtained a staggering of production for the time period of the last decade of October – April. The plants are of good quality, have a dark green color, but they don't form bulbs. The third variant was established by the culture

set up with by the bulbils belonging to Androna variety (with its diameter bigger than 22 mm). The culture was set up at intervals in autumn beginning with the second part of September, until the end of the second decade of November. It was obtained a staggering of the onion production within December period and the first decade of February (for the culture coming into being in September - October) and within March – April period (for the culture coming into being in October – November). The best production (42,0 t/ha) has been obtained at the density of 1,5 mill. pl./ha. The phasing of the obtained production in protected spaces is described in fig. 1.

Month decade Technology	I			II			III			IV			V			VI		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Winter onion																		
Onion for binding																		
Common onion																		
Month decade Technology	VII			VIII			IX			X			XI			XII		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Winter onion																		
Onion for binding																		
Common onion																		

Seeding/ Planting Cropping

Fig. 1. The phasing of the green onion production in protected spaces

Analyzing the production data, it is recorded that at all the studied varieties, the production is growing according to the density. The cultures set up in autumn with the purpose of obtaining green onion in the cold period during the winter time, in certain periods with energy consumption, also being necessary the heating up of the protected spaces, had results.

As a result to the experiments carried out in the field (table 2) with the purpose of staggering the green onion production for a period of time as long as possible, a production from March to November can be obtained (figure 2).

If the production obtained in protected spaces are added, a conveer on the entire year period is obtained. The biggest green onion production obtained in the field have been at the variants where the cultures come into being directly with the early hybrid Musica F1 (57,0 t/ha at the density of l1,5 mill. pl./ha) and with the Swift variety (52,5 t/ha – seeded in autumn, the density of 1,5 mill.pl./ha).

Good production has been obtained at the variants where seeding has been used from the Briliant variety (38,10 t/ha), scallion from the Androna variety (30,0 t/ha) and bulbs of echelon onion from the Ambition F1 hybrid (28,5 t/ha).

Table 2

Green onion production obtained in the field

Nr. crt.	Culture system	Production t/ha		
		1 mill.pl./ha	1.25 mill. pl./ha	1,5 mill.pl./ha
1	Onion from bulbils	20,0o	25,00	30,00
2	Onion from seed with passing through winter	35,00	43,75	52,50
3	Onion from seed – very early hybrid	38,00	47,00	57,00
4	Onion from seedling	25,40	31,75	38,10
5	Onion for cutting	15,00	20,00	25,00
6	Onion for binding from seed	17,00	21,25	25,50
7	Onion from bulbs – echelon	19,00	23,75	28,50

In order to provide the consumers with green onion in July – September period, onion for biding has been obtained from seed (Parade variety) and green onion from a local population belonging to *Allium schoenoprasum* variety (onion for cutting). The phasing of the obtained production in the field is described in fig. 2.

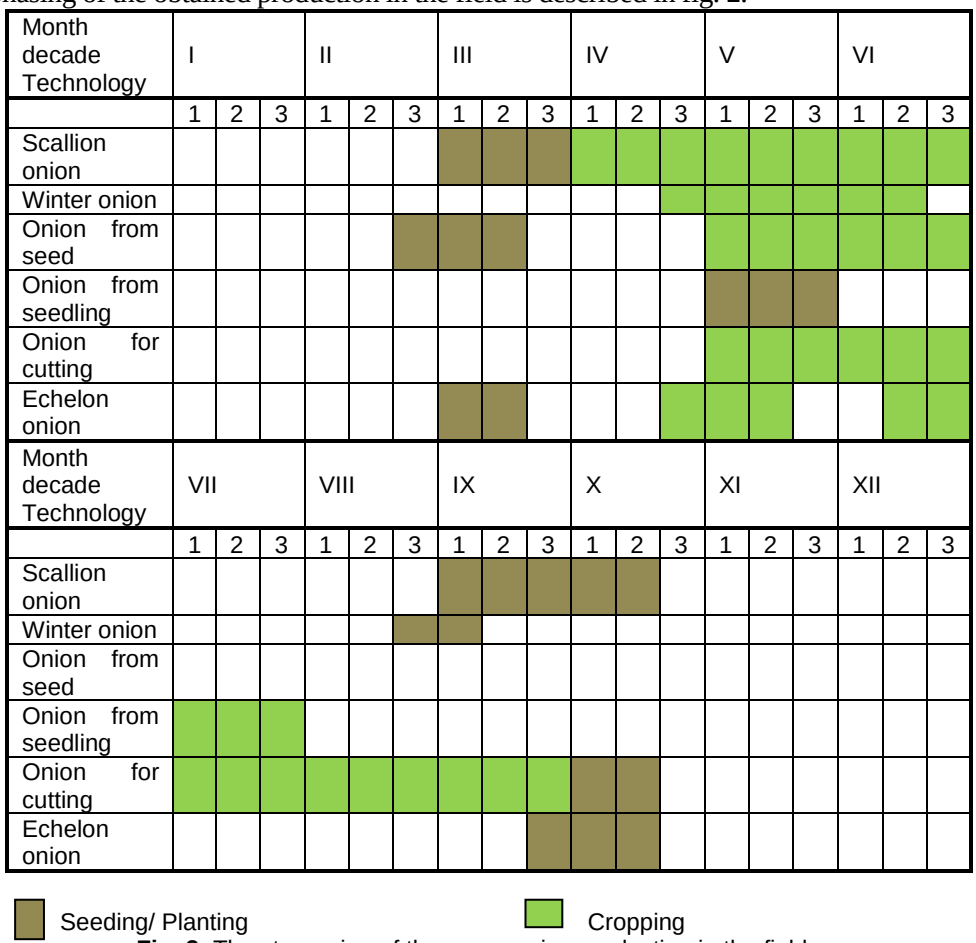

Fig. 2. The staggering of the green onion production in the field

The green onion production obtained in protected spaces and in the field are presented in the fig. 3 and 4.

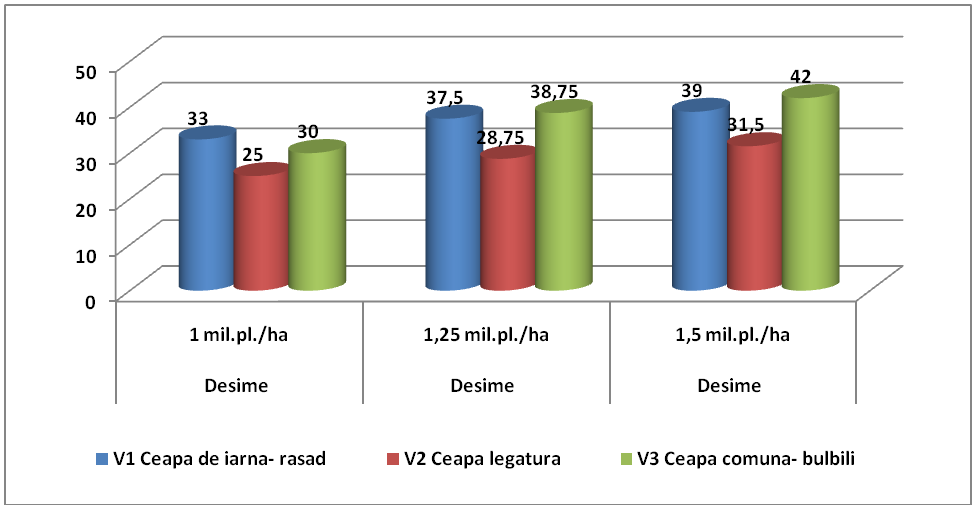

Fig. 3. The green onion production obtained in protected spaces according to the applied technology

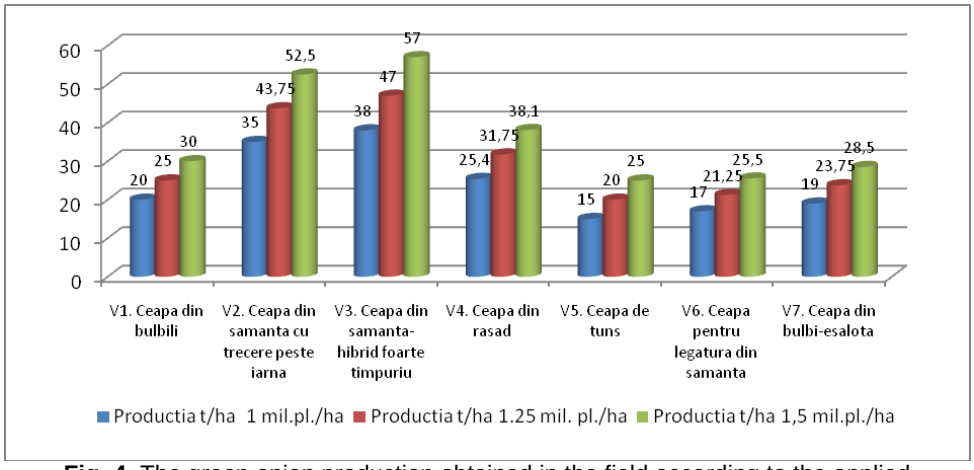

Fig. 4. The green onion production obtained in the field according to the applied technology

CONCLUSIONS

1. By testing the three technologies of obtaining green onion in protected spaces and seven technologies of obtaining green onion in the field, it has been obtained a production staggering for the entire year period.

2. In protected spaces, the best production has been obtained from bulbils (Androna variety) at the highest density (1,5 mill.pl./ha).

3. In the field a green onion production phasing on a eight month period (March - October) was a success, the biggest production being obtained by the

variants that came into being by seeding directly in the field in the spring (the beginning of March – the very early hybrid Musica F1) and in autumn (in August – September period, Swift variety).

4. For obtaining green onion in the warmest period of the year (July - September) onion for cutting (*Allium schoenoprasum*) and onion for binding (*Allium fistulosum* – Parade variety) have been used.

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