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COMPARATIVE EVALUATION OF THE CORIANDER SEED VARIETIES IN THE CONDITIONS OF THE FOREST-STEPPE AREA OF UKRAINE

The results of the researches on studying of the coriander seed varieties yield-capacity during cultivation in the open ground in conditions of the Forest-Steppe area of Ukraine were presented. The influence of the variety on the biometric, chemical indicators of plants and their yield-capacity was determined.

Keywords: *variety, coriander, yields, research*

Introduction. Vegetable growing is an important branch of agriculture, which occupies an important place in the provision of dietary products and canned vegetables throughout the year. Dynamics and the rate of vegetables production, the level of provision of population with vegetable production and processing industry with raw materials is determined by the development and location of vegetable growing in the Forest-Steppe area of Ukraine [1, 2].

In cultivation of flavouring vegetable plants the selection of the assortment for specific climatic conditions plays a decisive role in the production of highly valuable vitaminized products. That is why the correct selection is one of the factors for the increase of its production, that allows not only to increase the yield-capacity but also to improve the quality and prolong the terms of the receipt of green products to consumers, to increase its total output per area unit. The potential productivity of the variety is determined by the genetic information, which is embedded in the plant cell and growing conditions [3, 4].

A variety as one of the most effective mean of technology, the part of which is constantly growing and its contribution to the yield-capacity increases is estimated in recent years in 30–50 %. That is why the problem of increasing of coriander seed productivity and improving of the quality of its green mass can be solved by a selection of new high-yielding varieties that are adapted to cultivation in the Forest-Steppe area of Ukraine [5].

Materials and methods. In 2012-2013 on the black sod-podzol soil in the right-bank Forest-Steppe area of Ukraine the investigations on studying of the efficacy of the coriander seed varieties in the forest-Steppe area of Ukraine were conducted: Nectar (a controlled variety), Medun, Yantar, Oksanit, Ranniy listed in the Register of plant varieties are applicable for cultivation in Ukraine. The seeds were sown in the first decade of April according to the scheme 45x8 sm and plant density 280 thousand pcs./ha.

Results and discussion. Biometric measurements of plants, in particular, their height and number of leaves in the rosette have an important value for the determination of the efficiency of the varieties cultivation near phenological observations (*Table 1*).

The plants for the period of technical ripeness of greens were higher in 2011. This fact testifies about favorable weather conditions of this year of investigation. The height of the plants of the controlled variety Nectar was 26,1 sm. That is the best result. The variety Ranniy had lower height – 19,8 sm. It is 6,3 sm less than in conrolled variety, and that significantly reduces the output of vegetative mass. In 2012 in the period of technical ripeness of greens the plants of Nectar (the controlled variety) were the highest ones. Their height amounted to 22,8 sm. The plants of the variety Ranniy were lower – 19.4 sm, which is 3,4 sm less in comparison with the controlled variety.

The increase in the output of the vegetative mass of coriander seed depends not only on the height of plants, but also on the number of leaves which formed in the phase of rosette. The intensity of green mass growth of the coriander seed plants varied over the investigated years –the coriander seed plants formed larger quantity of leaves in 2012. At the initial stages of growth and

development the best result for this indicator were observed in the plants of variety Yantar – 4,8 pcs./plants, which is 0,4 pcs./plants more than in the controlled variety. The variety Ranniy had less leaves, and in 2012 this indicator was 4,3 pcs./plants. If we analyze the number of leaves in the phase of technical ripeness of the greens, we can see that in 2012 it was the same in Yantar and Oksanit varieties and amounted to 8.9 pcs./plants. The variety Ranniy had lower number of leaves – 8,0 pcs./plants.

Table 1

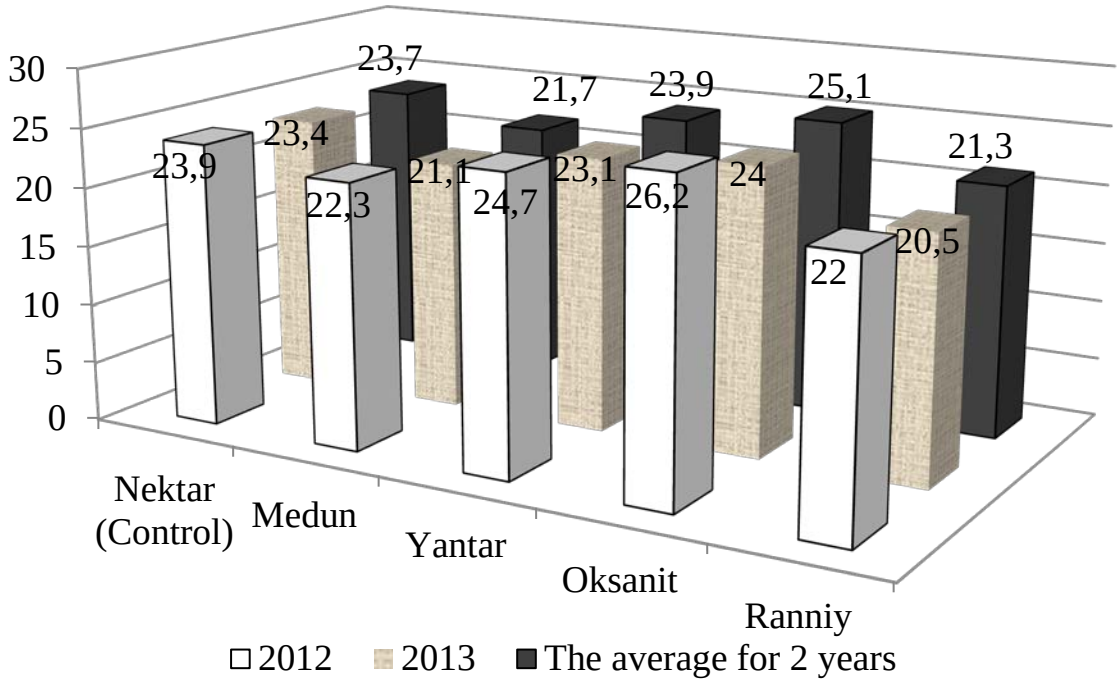
Biometric indicators of coriander seed, depending on the variety

Variety	The height of the plant, sm			The quantity of the leaves, pcs./plants		
	2012	2013	The average for 2 years	2012	2013	The average for 2 years
The beginning of intensive growth						
Nektar (Control)	6,9	6,6	6,8	4,4	4,0	4,2
Medun	7,3	7,1	7,2	4,6	4,5	4,6
Yantar	8,0	7,9	7,9	4,8	4,0	4,4
Oksanit	8,4	8,2	8,3	4,6	4,4	4,5
Ranniy	8,3	8,0	8,2	4,3	4,2	4,2
HIP_{05}	*0,5*	*0,3*		*0,2*	*0,2*	
Technical ripeness of greens						
Nektar (Control)	26,1	22,8	24,5	8,2	8,2	8,2
Medun	20,4	19,7	20,1	8,3	8,1	8,2
Yantar	20,7	20,0	20,4	8,9	8,6	8,8
Oksanit	20,0	19,7	19,9	8,9	8,5	8,7
Ranniy	19,8	19,4	19,6	8,0	7,7	7,9
HIP_{05}	*1,3*	*1,0*		*0,8*	*0,4*	

The pace of the leaves area growth of the plants of different varieties during the vegetation period clearly define the varietal peculiarities of growth and development of coriander seed and determine its yield-capacity, because the green mass of plants is the final product of consumption (*pic. 1*).

The analysis of dynamics of the leaves area growth separately for the years of investigation have shown that the year of 2013 was less favourable for the growth and development of coriander seed, which affected the level of growth of the leaves area. The low level of precipitation during the vegetation period of the investigated year has not contributed to the enhanced plant growth.

In average for the years of investigation the plants of Oksanit variety formed larger leaves areas – 25,1 thousand m^2/ha, which is 1,4 thousand m^2/ha less compared with the controlled variety. The variety Ranniy in the years of investigation had smaller area of the leaves – 21,3 thousand m^2/ha, which is 2.4 thousand m^2/ha less than the controlled variety. The variety Yantar did not significantly differ from the controlled one and amounted to 23.9 thousand m^2/ha.



Pic. 1. The area of the coriander seed leaves in the phase of technical ripeness of greens depending on the variety, thousand m^2/ha

It was determined that the pecularities of the variety have an influence on crop yields. So in 2013 the varieties Yantar – 3,3 tons/ha and and Oksanit – 3,5 tons/ha had larger yield-capacity. That exceeds the controlled variety 0,6 and 0,8 tons/ha, accordingly. The variety Ranniy gave the lowest yield-capacity of marketable greens of coriander seed, it amounted to 2,6 tons/ha. The analysis of the yield-capacity of green mass in average for the years of investigation shows that it was higher in the varieties Yantar and Oksanit and amounted to 3,4 and 3,6 tons/ha, accordingly. The variety Ranniy had lower yield-capacity – 2.7 tons/ha (*Table 2*).

Table 2

The yield-capacity of green mass of coriander seed, depending on the variety, tons/ha

Variety	2012	2013	The average for 2 years	± before control
Nektar (Control)	2,8	2,7	2,8	0
Medun	3,0	2,8	2,9	+0,1
Yantar	3,5	3,3	3,4	+0,6
Oksanit	3,6	3,5	3,6	+0,8
Ranniy	2,8	2,6	2,7	–0,1
HIP_{05}	0,4	0,1		

Conclusions. It is proved that the pecularities of the variety have an influence on the yield-capacity of the coriander seed plants. The analysis of this indicator in average for the years of investigation shows that it was higher in the varieties of Yantar and Oksanit and amounted to 3,4 and 3,6 tons/ha, accordingly. The Variety Ranniy had lower yield-capacity – 2.7 tons/ha.

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Анотація

Філонова О.М.

Порівняльна оцінка сортів коріандру посівного в умовах Лісостепу України

Наведено результати дослідження з вивчення урожайності сортів коріандру посівного за вирощування у відкритому ґрунті в умовах Лісостепу України. Встановлено вплив сорту на проходження фенологічних фаз росту і розвитку, біометричні показники рослин та їх урожайність.

Ключові слова*: сорт, коріандр посівний, урожайність, дослідження*

Аннотация

Филонова О.М.

Сравнительная оценка сортов кориандра посевного в условиях Лесостепи Украины

Изложены теоретические и практические итоги исследования по изучению сортов кориандра посевного. Установлено, что в среднем за годы исследований больший результат отмечен у сортов Янтарь и Оксанит, где отмечен существенный прирост к контролю – 0,6 и 0,8 т/га. низкую урожайность получено за выращивания сорта Ранний 2,7 т/га.

Ключевые слова: *сорт, кориандр посевной, урожайность, исследование*