SELECTION OF CUCUMBER HYBRIDS FOR GROWING IN SPRING GREENHOUSES

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It is given the estimation of the economic and biological indicators of seedless cucumber hybrids (Kurazh F_1, Marsel F_1, Rais F_1, Sharzh F_1) in terms of plastic ground greenhouses. It is defined the productivity per plant and average fruit weight. It is also shown the dynamics of cucumber hybrid harvest according to months. It is established cash and subsistence parts of harvest, and trade quality of fruits. According to the studied parameters it is identified the most precocious and productive hybrid Marsel F_1.

Key words: *cucumber, hybrid, productivity, trade quality*

Formulation of the problem. Cucumber is one of the most valuable fruit vegetables. The fruits of this crop are valuable raw material for the food industry; they are widely used in dietetic nutrition as a source to replenish the body with vitamins and minerals [1, 5, 7]. For cultivation in greenhouses cucumber hybrids must meet the following requirements: high productivity, taste and trade qualities; high photosynthetic and transpiration capacity of leaf apparatus; resistance to low temperature and lighting; ability of fruits to store biochemical and technological qualities, as well as marketable condition for nine days [4, 5, 6].

Recently, the domestic market receives a large number of foreign bred hybrids. Growing them in our environment does not always provide the desired result. Therefore, there is a need to study the economic and biological characteristics of foreign seedless cucumber hybrids and to select the best ones for production.

The aim of research. The aim of research was to pick seedless cucumber hybrids for growing in spring and summer in plastic greenhouses. In this regard they were set following goals: to identify the most early-season cucumber hybrids; to

compare the dynamics of fruit formation; to establish trade quality and productivity of cucumber fruits.

Methods of research. The study was conducted in 2009-2010 in plastic greenhouse of research and development economy "Horticultural Garden of NULES of Ukraine." They were used seedless hybrids of Russian breeding company "Havrysh": Kurazh F_1 (control), Marsel F_1, Rais F_1 and Sharzh F_1.

The study was conducted in accordance with "Methods of research in vegetable and melon growing" (2001), "Methods of experimental work in fruit and vegetable growing" (V. F. Moiseichenko, 1990) and "Methods of field experiment" (B. A. Dospehov, 1985) [2, 3, 8].

Variants were placed by method of full randomization with threefold repetition. Number of plants in repetition was 15 units. Planting scheme was 90 x 35 cm. Number of plants per 1 m^2 was 3.2 units. They were used the following basic research methods: experimental, computational, analysis and comparison.

Results. In our studies, the length of periods determining the short-seasoning was slightly different (Table 1).

1. Criteria of short-season cucumber hybrids, average for 2009-2010

Variant	Length of the period, days			
	seedlings-the beginning of flowering	seedlings – the beginning of fruiting	flowering - the beginning of fruiting	fruiting (the first-last harvesting)
Kurazh F_1 (C)	38	54	16	75
Marsel F_1	37	51	14	78
Rais F_1	38	53	15	76
Sharzh F_1	37	53	16	75

The phase of hybrid flowering started almost simultaneously, on the 37^{th}-38^{th} day after germination. However, the most short-season hybrid was Marsel F_1, the first

fruits of which were received on the 26th of May – the 51st day after germination, which was 3 days earlier than control. In this hybrid flowering period - the beginning of fruiting was also the shortest and lasted for 14 days. Hybrids Rais F_1 and Sharzh F_1 did not differ significantly from the control according to the beginning of different phases of cucumber vegetation. Last harvesting of cucumber fruits was conducted simultaneously in all variants – on the 12th of August, and different length of the fruiting period was due to time of fruit ripening in the studied variants.

During the research it was measured the average fruit weight of a cucumber and productivity per plant (Table 2).

2. The average weight of a fruit and cucumber plant productivity, average for 2009-2010

Variant	Average fruit mass		Productivity per plant	
	g	% according to control	kg/plant	% according to control
Kurazh F_1 (control)	142	100	3.9	100
Marsel F_1	180	127	4.6	118
Rais F_1	175	123	4.0	103
Sharzh F_1	154	108	3.7	95
HIP_{05}	34	–	0.5	–

The biggest appeared to be fruits for Marsel F_1 hybrid, their average weight was 27% higher when compared to control. This figure probably had a significant impact on plant productivity, which in the mentioned variant was higher by 18% in comparison to control and was 4.6 kg of fruits from one plant. The difference of productivity per plant of hybrids Rais F_1 and Sharzh F_1 when compared to the control was negligible and did not exceed 5%.

On average for two years of studies they were observed changes in the dynamics of getting cucumber fruits (Figure 1). Thus, the in the first month of

fruiting from plants of Marsel F_1 hybrid it was obtained the highest yield, the rate which exceeded the control by 0.7 kg/m^2.

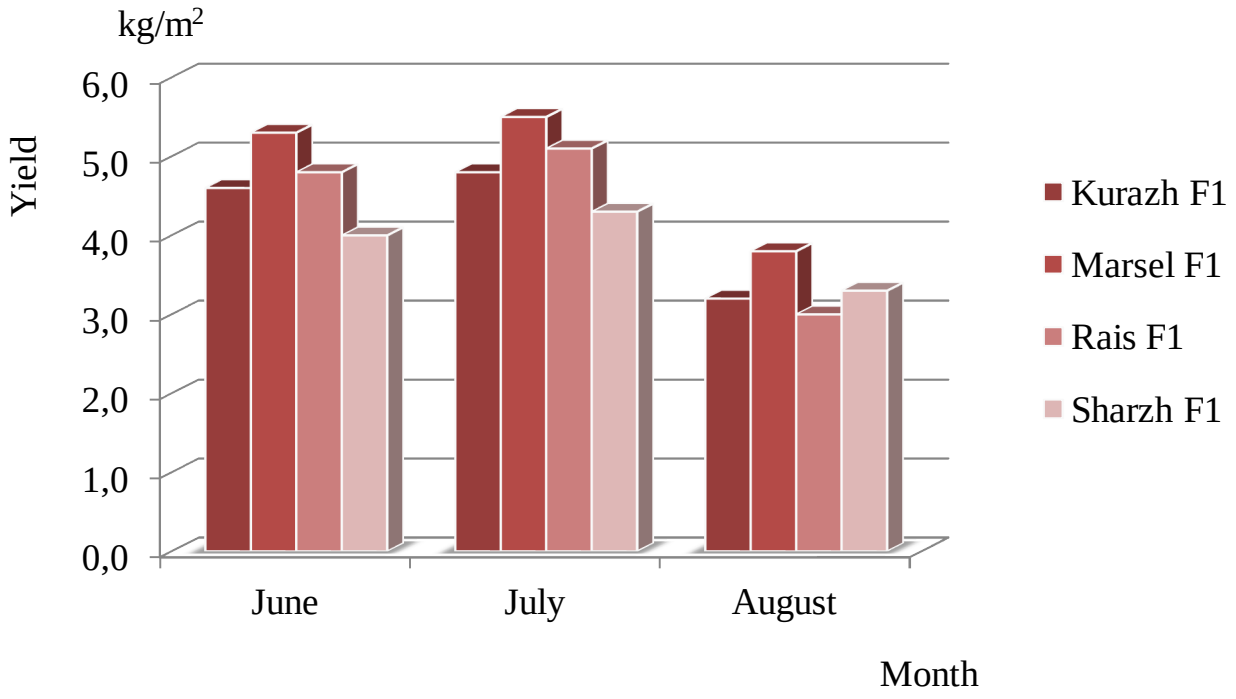

Figure 1 - Dynamics of getting yield of cucumber hybrids, average for 2009-2010

The most intensive was fruiting for the entire period of cucumber growing in July. In August it was observed a significant decrease in getting yields. Despite the decline in productivity and physiological aging of plants, the highest plant productivity of plants in a given month was also noted in Marsel F_1 hybrid.

During the whole growing season the most productive was Marsel F_1 hybrid. Indices of Rais F_1 hybrid were not significantly different from the control. The lowest yield had Sharzh F_1 hybrid, the indices of which for each growing month did not exceed 4.3 kg/m^2.

Experimental data show that a significant increase in total productivity of cucumber fruits when compared to the control variant had Marsel F_1 hybrid (Table 3). Index of this hybrid exceeded the control variant by 2.0 kg/m^2. Productivity of other hybrids was the same as control and had no significant difference when compared to it.

On the basis of research results, it is clear that the percentage of cash cucumber fruits in all investigated hybrids ranged from 92.5 to 95.7 %. Thus, the highest cash fruits were noted in Sharzh F_1 hybrid.

3. Productivity and marketable quality of cucumber fruits, average for 2009-2010

Variant	Yield od cucumber fruits, kg/m^2			Marketability, %
	total	including		
		cash	subsistence	
Kurazh F_1 (control)	12.6	11.8	0.8	93.6
Marsel F_1	14.6	13.5	1.1	92.5
Rais F_1	12.9	12.0	0.9	93.0
Sharzh F_1	11.7	11.2	0.5	95.7
HIP_{05}	1.4	1.1	0.7	–

In plants of all variants the index of subsistence harvest ranged from 0.5 to 1.1 kg/m^2 and had no significant difference when compared to the control. Despite the lowest percentage of marketability of 92.5, and the highest part of the subsistence harvest – 1.1 kg/m^2, the number of products for selling of Marsel F_1 hybrid was significantly higher than indices of all other hybrids and was 13.5 kg/m^2.

According to a complex of economic and biological indices, namely ripening, fruit weight, productivity per plant, yield and marketability, the most effective cucumber hybrid was Marsel F_1.

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ПОДБОР ГИБРИДОВ ОГУРЦА ДЛЯ ВЫРАЩИВАНИЯ В ВЕСЕННИХ ТЕПЛИЦАХ

И .Л. Гаврись

Проведена оценка хозяйственно-биологических показателей гибридов огурца партенокарпического типа (Кураж F_1, Марсель F_1, Раис F_1, Шарж F_1) в условиях пленочных грунтовых теплиц. Определена продуктивность одного растения и средняя масса плода. Показана динамика поступления урожая гибридов огурца по месяцам. Установлено товарную и нетоварную части урожая и товарное качество плодов. По исследуемым показателям выделен самый скороспелый и урожайный гибрид Марсель F_1.

Ключевые слова: *огурец, гибрид, продуктивность, товарное качество, урожайность*

ПІДБІР ГІБРИДІВ ОГІРКА ДЛЯ ВИРОЩУВАННЯ У ВЕСНЯНИХ ТЕПЛИЦЯХ

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Представлено оцінку господарсько-біологічних показників гібридів огірка партенокарпічного типу (Кураж F_1, Марсель F_1, Раїс F_1, Шарж F_1) в умовах плівкових ґрунтових теплиць. Визначено продуктивність однієї рослини та

середню масу плоду. Наведено динаміку надходження врожаю гібридів огірка за місяцями. Встановлено товарну і нетоварну частини врожаю та товарну якість плодів. За досліджуваними показниками виділено найскоростигліший та найурожайніший гібрид Марсель $F_{1.}$

Ключові слова: *огірок, гібрид, продуктивність, товарна якість, урожайність*