



Features of Grafting Cucumber to Pumpkin Plant Species

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Abstract: the article presents the results of research conducted to study the properties of grafting cucumber to pumpkin plant species. Also, the article presents indicators of the germination of cucumber and pumpkin seeds and the diameter and height of the stem before grafting.

Keywords: features, grafting, cucumber, pumpkin, species, germination, pumpkin seed.

Introduction

Currently, tasks related to increasing the yield and improving the quality of vegetable crops are being determined in our republic. Vegetative grafting is one of the promising methods for increasing the yield of vegetable crops and improving the quality of fruits. This scientific work is relevant for the efficient production of vegetable crops.

In recent years, interest in this method, widely used at the initiative of Western European, Southeast Asian and American vegetable growers, is increasing. As a result, the use of grafting leads to an increase in the yield of crops by 30-90% and an increase in the average weight of the fruit and the nutritional value of its composition. In developed countries, the grafting method is used in the standard production of vegetable seedlings for the local market and export. Production of grafted watermelon seedlings in Israel - 70%, in Japan, Korea and Spain – 93, 98%, in Greece - 100%. The production of grafted seedlings of cucumber and melon is 95% in South Korea, 72% of cucumber in Japan, and 30% of melon. The production of grafted tomato seedlings is 75% in Morocco, 50% in the Netherlands and Japan, and 25% in Turkey. Grafted eggplant accounts for 65% in Japan and 25% for sweet pepper in Korea.

Materials and Methods

The experiments were carried out at the Department of Fruit and Vegetable and Viticulture of Tashkent State Agrarian University. Field experiments were conducted in the territory of the Extension Center of Tashkent State Agrarian University located in Oybek neighborhood of Salar town of Qibray district of Tashkent region. A greenhouse with an area of 200 m² was used to carry out the grafting technique. At the same time, a greenhouse was prepared for adjusting the microclimatic conditions, preparing soil mixture and growing seedlings. In our experiment, we used Lagenaria, Luffa, pumpkin "Grechisky" and Patisso "Colntse" F1 hybrid from local squash crops as a graft to the Streder F1 cucumber hybrid. The seeds of payvantag, i.e. pumpkin crops, were planted in 8x8 and 10x10 cm pots on March 31, and other payvantag vegetables were planted on April 2. On April 5, 250 cucumber seeds were planted in 5x5 cm cassettes. 50 pieces of each graft sample were planted.

Results and discussion

10 and 75% seed germination, 1-2 leaf emergence periods, and the length and diameter of the seedling stems were determined (Table 1). 25 cucumber seeds germinated on April 7, 186 on April 12. 9 pumpkin seeds germinated on April 10, 35 on April 13. 8 patisson seeds germinated on April 9, 37 on April 13. 5 of Lagenaria seeds germinated on April 9, 25 on April 13, 6 of Luffa seeds germinated on April 5, and 30 on April 10.

The observations made show that among the grafts selected for cucumber production in our experiment, the best fertility rate was found to be 92% in the patison "Colntse" F1 hybrid, and the lowest fertility rate was 78% in the Lagenaria plant. After the seeds germinated, before grafting the seedlings, observations were made on stem diameter and stem length in the seed leaf phase. It should be noted that when grafting cucumbers to representatives of the pumpkin family, the diameter of the stems of the seedlings differs from each other. The stems of technical pumpkin crops are stronger and fatter than cucumbers. Therefore, it is difficult to ensure the same diameter of the stem when grafting cucumber and pumpkin seedlings. In this case, the stem diameter was 2.3 mm in cucumber, 2.4-2.5 mm in lagenaria and patisson, 2.3 mm in "Colntse" F1 hybrid of patisson and "Grechisky" variety of zucchini.

Table 1 Indicators of germination of cucumber and pumpkin seeds and stem diameter and height before grafting (2022).

Sample number	The date of sowing the seeds	The number of seeds sown		Germination of seeds, day		In the seed-leaf phase	
		total	germinated	10%	75 %	stem diameter, mm	stem height, cm
StrederF1 (control, non-grafted)	5.04	250	240	2	7	2,3	3,10
Lagenariya (№ 1) graft	31.03	50	38	10	5	2,4	3,45
Patisson (№ 2) graft	2.04	50	46	4	8	2,3	3,40
Qovoqcha (№ 3) graft	2.04	50	45	5	8	2,3	3,20
Lyuffa (№ 4) graft	31.03	50	41	6	11	2,5	3,10

It is known that the height of the stem of the seedlings is 3.10 cm in cucumber, the height of the stem in lagenaria is 3.45 cm, the height of the stem is 3.40 cm in the "Colntse" F1 hybrid of patisson, 3.20 cm in the "Grechisky" variety of zucchini, and the height of the luffa stem is 3.10 cm. It's done. The technique and duration of grafting seedlings requires strict conditions of air soil temperature and humidity, as well as full adherence to the time limits for sprouting. In the experiment, the place and equipment were prepared for grafting, the necessary tools and equipment were disinfected. Cutting the stems of cucumbers (grafts) and related crops (grafts), joining the cut areas and fixing the stems with a special clamp is carried out. In the experiment, mainly 3 different methods of grafting were used (Table 2).

Table 2 Grafting methods and retention rate (2022-2023).

Grafting methods	Number of seedlings, pcs	Graft samples	Retention level		Resistance to external influences after grafting
			number	%	
Cutting stems at a slope of 30°	40	№1	18	45,0	Good
		№2	16	40,0	
		№3	17	42,0	
		№4	29	72,5	
In the form of a Iskana	40	№1	32	80,0	Very good
		№2	28	70,0	
		№3	15	37,5	
		№4	33	82,5	
Grafting in the form of a peg	40	№1	2	5,0	Flimsy
		№2	9	22,5	
		№3	4	10,0	
		№4	4	10,0	

During the conducted research, when cucumbers were grafted to luffa by the method of "Cutting the stems at a 30° angle, the rate of retention was 72.5%, 45% in seedlings grafted to lagenaria, 40% when grafted to patison, and 42% in pumpkin. . It was relatively better when the cucumber was grafted in the form of a graft, 82.5%, when grafted to a lagenaria, 80%, patisson-70%, and zucchini 37.5%. It was 1% when grafting cucumber to luffa and zucchini by the method of "Connecting in the form of a peg", 30% when grafting to lagenaria, and 22.5% when grafting to patisserie.

Conclusion

Summarizing the results obtained from the experiment, when we grafted cucumbers to pumpkin crops, it was found that the grafts were more resistant to the external environment and diseases compared to non-grafted seedlings. Luffa and Lagenaria grafts provide the highest grafting strength and productivity, and these grafts showed the highest indicators in the methods of cutting stems at an angle of 30° and needle-shaped grafting.

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