CHARACTERISTICS OF GROWTH AND DEVELOPMENT OF CLONE GRAFTED PLANTS OF CHERRY IN THE CONDITIONS OF SURKHANDARYA REGION

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Abstract: The article presents the results of research conducted to study the characteristics of growth and development of clone grafted plants of cherry in the conditions of Surkhandarya region. Also, the article provides valuable information about the end of the period of deep dormancy, the beginning of buds and the length of the vegetation period in the bushes of cherry rootstocks.

Key words: cherry, cherry, cambush, grafting, morpho-biological characteristics, bud, vegetation period.

Introduction

Today, intensive gardening is unthinkable without clone grafts. Clone grafts not only limit the growth power of trees, but orchards established on the basis of such grafts have a quick harvest, high quality and quantity of crops, ease of carrying out any agrotechnical activities in orchards (pruning, disease and pest control, harvesting, etc.) and with others it is preferable to extensive gardens.

Interest in the use of clonal grafts in the cherry plant has increased since the 60s of the last century. F 12/1, Colt, FR-1, FR-8, Mu-VO-14, S-VO-1, GM-8, GM-9, GM propagated vegetatively in foreign countries from this period for the cultivation of cherries and cherries. -61/1, GM-79, Santa Lucia 64, and an antibody clone selected from the collection in Segled, as well as clone grafts such as IPS-1, are widely used [1, 5].

Surkhandarya region is distinguished by its warm climate. To date, cherry and low-growing cherry have been used as rootstocks for cherries in the region. However, these grafts do not allow the establishment of intensive cherry orchards. It is worth noting that today in foreign countries, many weakly growing clone grafts for cherry (Colt, Maxma Delbard series, Gizella series grafts, PIKU, CAB 6P, VSL series grafts, VP-1, VS-13, etc.) have been created.

In-depth scientific research is required to study the morpho-biological characteristics of their growth and development in the conditions of the soil climate of Uzbekistan, in particular, Surkhandarya region, and to scientifically substantiate the possibilities of establishing intensive type cherry orchards on this basis.

Materials and Methods

Based on the above, during the years 2021-2022, in the experimental field of the Surkhandarya Scientific Experimental Station of the Plant Genetic Resources Research Institute (Zharkurgan District), the vegetative propagation of cherry Colt, VSL-2 (Krimsky-5), Gizella-5, Makhma Delbard- We conducted studies on the study of morpho-biological characteristics of growth and development in clone grafted plants such as 14.

The mother plants of cherry grafts were planted in the fields of the Surkhandarya Scientific Experimental Station of the Research Institute of Plant Genetic Resources of Uzbekistan (Zharqorgan district) in the late autumn of 2013, in single rows of 15 meters long, on beds of 150 x 70 cm layout.

The total number of plants in the experiment was 100, and the number of plants to be counted was 20. The soil of the experimental area allocated to grafts was enriched with organic and mineral fertilizers according to the standards generally accepted in horticulture and planting before autumn plowing. About 25-30 t of manure, 80 kg of phosphorus and 15 kg of potash fertilizers were added as an active ingredient. Nitrogen feeding was carried out on the basis of generally accepted standards during the growing season.

Phenological observations, biometric calculations and laboratory theoretical and practical analyzes carried out during the research were based on Kh.Ch. Buriev and others' "Methodology of calculations and phenological observations during experiments with fruit and berry-fruit plants" [6], mathematical-statistical processing of experimental data B It was conducted according to the method recommended by A. Dospekhov [4].

Results and discussion

In this experiment, biometric indicators such as the annual growth rate of the mother graft species in the collective nursery, the transition rate of each vegetation phase, the total height and branching of the plants were studied. The data of phenological observation during the transition of vegetation phases in these grafts of cherries showed that the budding phase of the plants began almost at the same time as the ordinary sour cherry planted with seeds, with a difference of one or two days.

It was observed that the recording of buds started almost at the same time in the maternal grafts - in the first ten days of March with a difference of 2-3 days (Table 1).

Table data shows that the earliest awakening of buds was observed in the control - low-stress cherry in all years of the study, the first initiation of buds in this local graft was recorded at the beginning of March. The remaining grafts woke up 3-6 days later than him.

The latest awakening of buds was observed in Gizella-5 graft. In them, the difference of the beginning of bud formation compared to the control variants was 6 days. The rest of the grafts took an intermediate place in terms of the date of the beginning of the buds, and it was observed that the awakening of the buds coincided with the date of March 4-5.

The data in the table shows that in the conditions of the experimental field of the Surkhandarya Scientific Experimental Station of the Research Institute of Plant Genetic Resources (Zharkurgan district), the symptoms of khazonism in the mother bushes of grafts were observed at almost the same time. It was noted that Khazonrezgi started in the middle of November and ended at the end of it.

In the grafted species, the vegetation period was slightly different due to the difference between the early spring awakening of the buds and the beginning of the plant's preparation for the winter dormancy period. In this case, the longest duration of the vegetation period was observed in low-growing cherry (control). The duration of this period in the studied grafts differed by 4-7 days compared to the 1st control.

Table 1

The end of the period of deep dormancy in the bushes of cherry rootstocks, the beginning of the budding and the duration of the vegetation period (2021-2022 year)

№	Varieties	Buds begin to spread, date	Leaf fall, date		Duration of the vegetation period, days
			begin	end	
1.	Colt	5/ III	19/ XI	30 XI	235
2.	Maxma Delbard-14	5/ III	15/ XI	28/ XI	233
3.	VSL-2 (Krimskiy-5)	4/ III	19/ XI	30/ XI	236
4.	Gizella-5	7/ III	14 XI	29/ XI	232
5.	Kamkhastak cherry - control 1	1/ III	18/ XI	30/ XI	239
6.	Common cherry - control 2	4/ III	17/ XI	29/ XII	235

However, it should be noted that in intensive horticulture, grafting material is one of the most important indicators, not the duration of the vegetation period, but its growth strength. Therefore, in the experiments, the growth force of the main branch was also studied dynamically. The strongest growth was observed in the Maxma Delbard-14 graft of cherry. In it, the length of the main branch at the end of the growing season was 143.5 cm.

The weakest growth of the main stem was noted in the Gizella-5 graft. At the end of vegetation, the length of the main stem in this graft was 112 cm, which was 10.9 cm less than control 1 and 23.8 cm less than control 2. The study of the strength of growth of the main branch of the remaining types of grafts showed that they had an intermediate indicator between the above-mentioned grafts and Maxma Delbard-14 grafts in terms of the height of the main branch and varied in the range of 125.3-133.6 cm.

The property of forming the rod is also an important indicator in determining the growth strength of the welds. The slower the growth of the plant, the less side branches it produces. Cherry grafts also differed sharply from each other in terms of stem-forming properties. The lowest number of side branches was recorded in Colt and Gizella-5 welds. The highest number of branches was produced in graft VSL-2 (Krimsky-5), which produced 2 more lateral branches than control 2, that is, up to 8 lateral branches (Table 2).

Table data show that the remaining grafts had an intermediate expression, having an index of stem formation lower than or equal to the control. In these grafts, the total number of second-generation branches formed during the growing season was 5-6 pieces. However, it is worth noting that the rate of growth of cuttings is an important indicator in the establishment of an intensive type of garden. Accordingly, in our experiments, we also studied the growth rate of cherry grafts in dynamics.

Table 2

Main stem length and stem yield characteristics of cherry grafts, 2021-2022

№	Varieties	The length of the main rod, cm	The number of lateral branches, pcs	Average length of lateral branches, cm	Total length of lateral branches, m
1.	Colt	125,3	4	42	1,68
2.	Maxma Delbard-14	143,5	6	47	2,82
3.	VSL-2 (Krimskiy-5)	133,6	8	45	3,65

4.	Gizella-5	112,0	4	41	1,64
5.	Kamkhastak cherry - control 1	122,9	5	44	2,20
6.	Common cherry - control 2	135,8	6	41	2,46

Monitoring the growth dynamics of cherry grafts showed that a rapid increase in the total length of side branches, although the number of these side branches was small, was noted in Maxma Delbard-14 grafts. In this graft type, the rapid increase in the total average length of the side branches continued until the third ten days of September. The growth of branches in the remaining grafts was completed in the first ten days of September.

From the first months of the growing season, the monthly rapid growth rate of lateral branches was the slowest in the Gizella-5 graft. In this plant, it was noted that even in September, the growth stopped completely (Table 3).

Table data shows that in all studied grafts, the rapid growth of branches generally coincided mainly in April-May. By the end of the summer season, it was noted that the growth rate of the grafts has slowed down somewhat. The complete cessation of growth processes was observed in September in all grafts.

Table 3

Growth dynamics of the first-order side branches on mother bushes of cherry grafts, cm 2021-2022

№	Varieties	Average monthly growth rate of lateral branches					
		IV	V	VI	VII	VIII	IX
1.	Colt	38	32	25	14	12	2
2.	Maxma Delbard-14	45	46	28	16	14	4
3.	VSL-2 (Krimskiy-5)	43	38	21	15	18	3
4.	Gizella-5	20	22	8	7	6	-
5.	Kamkhastak cherry - control 1	42	38	19	17	15	2
6.	Common cherry - control 2	37	31	22	13	16	2

Taking into account the morpho-biological characteristics of the growth and development of the grafted plants studied in the study, i.e., their ability to form a branch, and the growth power of the main and secondary branches, these grafts can be conditionally divided into the following groups:

- - strongly growing grafts: low-growing cherry (control) and ordinary sour cherry (control);
- - medium growth welds: Maxma Delbard-14, Colt, VSL-2 (Krimsky-5);
- - weak growing grafts: Gizella-5.

Conclusion

In the conditions of the Surkhandarya region, cherry grafts such as Colt, Maxma Delbard-14, VSL-2 (Krimsky-5) and Gizella-5 wake up in the first ten days of March. The latest awakening is observed in the Gizella-5 graft. In them, the difference between the beginning of bud formation compared to the control options is 6 days.

The duration of the vegetation period in the graft species is in the range of 232-239 days in the conditions of the Surkhandarya region.

The studied types of grafts also differ in the strength of growth of the main stem. The strongest growth was observed in cherry grafting Maxma Delbard-14, the weakest in Gizella-5. In it, the length of the main stem was 143.5 cm and 112.0 cm, respectively, at the end of the growing season.

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