GROWTH OF LOW APPLE AND PEAR GROWTH PLANT TREES IN SALTY SOILS AND EFFECTS OF GROUNDWATER SOILS

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Abstract: *The article highlights the problems of selection of planting schemes and the impact of soil water when growing seedlings dwarf rootstocks of apple and pear, in saline soils in the conditions of the Khorezm region.*

Key words: *apple-tree, budding, sapling, salted balls, lock, result, recnt, mother garden.*

Introduction

In Khorezm, the establishment of orchards in the field of orchards and the planting of seedlings is based on the aquatic-soil environment, which has aggressive properties, and the scientific justification of groundwater mineralization and the amount of water-soluble salts in the soil. In the field of orchards, some research has been conducted by previous researchers on the aquatic-soil environment, which has the property of underground aggression in the establishment of orchards and planting of seedlings in them, but their data are not given in any scientific sources. We would like to put forward for the first time that the mineralization of groundwater and the amount of water-soluble salts in the soil have a significant impact on the roots of cultivated seedlings, as well as on the retention of varieties.

Based on this scientific idea and its results, it is planned to make preliminary observations. To do this, we analyze the aquatic-soil environment, mineralization of groundwater, the properties of the dependence on the amount of water-soluble salts in the soil, and some factors affecting the aquatic-soil environment for varieties grown on the basis of grafts for low-growing apples and pears.

Due to the fact that this experiment was not previously used for low-growing apple and pear grafts in the fruit industry, and given the first application of this method, we can divide water soils with different properties into four groups. It is shown that welds suitable for each group are recommended because of their suitability for this environment. The generalized data are given in Table 1.

The first group. Water-soil environment with low aggressiveness. The mineralization of groundwater is less than 1200 mg / l, the amount of water-soluble salts in the groundwater is less than 0.20%. The total amount of sulfate and chloride ions is less than 500 mg / l in water and less than 0.06% in soil.

The following are recommended for such conditions:

1. It is recommended to use seedling varieties with light protective measures. Soils scattered in these areas are washed away by infiltration water. Furthermore, the process of evaporation and salinization is underdeveloped and the saturation of groundwater exceeds the amount spent on evaporation. Under such conditions, sulfate-resistant welds were observed to be compatible with M-9 welds, on the basis of which new varieties can be created.

The second group. Water-ground environment with moderate aggression. Water-soil environment has a weak effect on the roots of sulfate-resistant varieties. The mineralization of this type of water is up to 5000 mg / l, up to 0.70% of water-soluble salts in soils. The total amount of sulfate and chloride ions is up to 3000 mg / l in water and up to 0.50% in soils. The following are recommended for these conditions:

2. In such conditions it is necessary to take into account the use of sulphate-resistant welds and in the zone of formation of groundwater in such areas, in river valleys, soils are seasonally washed, not salted, salt does not accumulate, moderate alkaline melting process prevails. Sulfate-resistant welds can be compatible with MM-102 welds and a new grade can be created on its basis.

The third group. Strong aggression is a water-ground environment, for which strongly protected roots, it is necessary to choose sulphate-resistant welds. The mineralization of groundwater distributed in this type of environment is up to 1.50% of the water-soluble salts in soils of 9000 mg / l. The sum of sulfate and chloride ions is up to 6000 mg / l in water and up to 1.0% in soils. In areas where this medium is prevalent, evaporation predominates over absorption, and a continental salinization process is observed.

3. The following is recommended for this condition: Welders can be used in the selection practice with strong protection of the roots, or using moderate protective measures that are resistant to sulfate. Sulfate-resistant welds for this environment can be matched to MM-106 welds and a new variety can be created on its basis.

The fourth group. This is a water-ground environment with very strong aggressive properties, in which case any weld root should be recommended welders that provide a certain protection against sulfate resistance. Because the mineralization of groundwater is more than 10,000 mg / l, the water-soluble salts in the soil are more than 1.5%. The sum of sulfate and chloride ions is more than 7000 mg / l in water and more than 1.0% in soils.

In areas where this type of environment is prevalent, soils are highly saline, with evaporation, alkaline melting, and continental salinization. Only sulphate-resistant welds should be recommended with strong protection.

None of the six welders selected for the M-7, M-9, MM-102, MM-104, MM-105, MM-106 studies selected for this group were able to withstand. Planted seedlings died in the first year.

Table 1.

Mineralization of groundwater and soluble salts and the distribution of ions into groups

Group	Groundwater mineralization mg / l	Water soluble salts in soils %	The sum of sulfate and chloride ions in groundwater, mg / l	The sum of sulfate and chloride ions in soils,%
First	< 1200	< 0,20	< 500	< 0,06
The second	≈ 5000	≈ 0,70	≈ 3000	≈ 0,50%
Third	≈ 9000	≈ 1,5	≈ 6000	≈ 1,0
Fourth	10000	> 1,5	> 7000	> 1,0

Based on the data in the table above, the scientific approach of the new method is discussed. will need to be taken into account.

1. The effect of aquifers with a certain aggressiveness. 2. Mineralization of groundwater and the amount of water-soluble salts in the soil. 3. The amount of sulfate and chloride ions in total water and soil.

Groundwater with a mineralization of less than 1.5-2.0 g / liter should not be lowered to a depth of 1 m to 2 m, especially in years when irrigation water is scarce. Strong mineralization is a large reserve of groundwater [1].

Taking into account the above requirements, the data of scientific research and articles published in scientific periodicals, taking into account the salinity gradation of the soil in low-lying apple and pear grafts in saline soils, new seedlings resistant to salt water and its effect on soil PN condition and overall growth conditions Given in Table 2.

Table 2

New seedling varieties resistant to salt water and its effect on the PN condition of the soil and the growing conditions of the common

PN	Problems	Effect on seedling root retention
< 5,5	Lack of Cl or Mg in the soil. Lime addition is required.	The reasons for the low growth of plants are: 1. Low volume of cation exchange 2. Poisoning (Al3 +) 3. Evidence of low phosphorus content
5,5 – 6,5	Insufficient lime in the soil.	For many plants, such conditions are satisfactory, there is a tendency to a lack of forfor.
6,5 – 7,5	RN range of soil is optimal.	Percentage of alkaline cations. (% VS) close to 100%.
7,5 – 8,4	Lime in the soil participates in the free state.	The soil has good filtration and circulation properties.Phosphorus and microelements are adequately absorbed.
>8,4	Sodium of the soil testifies that.	The physical condition is very bad, the filtration is very complicated. The soil is organic (humus) organic matter solubility options are available. RN is dangerous for plant growth.

It can be concluded from Table 2 that a pH of 6.5 -7.0 is optimal for the cultivation of fruit trees considered in the study. If in this case the RN is increased, various problems can be observed. As a result of the research, the RN optimality of the soil in apple and pear low-growing graft seedlings is calculated and it is recommended that they be in the range of the data given below. Here the acidity and alkalinity of the soil are taken into account.

Given the above negative effects, the requirements for the quality of planting material will increase due to the transition of horticulture to intensive and super-intensive garden type where trees are planted at high density and very high density. To this end, the creation of varieties that are particularly adaptable to saline soils remains the most pressing issue.

In the experimental lands, the chemical composition of the soil does not contain much nitrogen, it is 0.04-0.05% and phosphorus 0.15-0.20%, as well as the amount of humus is 0.5- due to the adequate supply of potassium mineral fertilizers. It was found to be around 1.5%. There is also a small amount of mobile nitrates and phosphoric acid in the topsoil, which is characterized by a decrease in soil fertility and the need for fertilization. Therefore, we analyze the qualification of the soil according to salinity, mainly the ratio of the amount of salts to the weight of the soil. The main reason for our analysis is to determine the resilience of our varieties grown on these lands.

According to the salinity of the soil, V.M. According to Legostaeva, the amount of salts up to one meter thick is given in Table 3 as a percentage of soil weight.

Table 3

Classification of soil according to salinity level (V.M. Legostaeva)

Soil salinity degree	The amount of salt in 1 meter thick (in% of soil weight)			
	with respect to sulfates when chlorides are abundant		relative to chlorides when sulfates are abundant	
	all salts	chlorine	all salts	chlorine
Unsalted	0,5 <	0,01 <	0,3 <	0,01 <
low salinity	0,25-0,50	0,01-0,04	0,30-1,0	0,01-0,4
Strongly salted	0,50-1,0	0,04-0,20	1,0-2,0	0,04-0,2
Brine	1,0 >	0,20 >	2,0 >	0,20 >

According to the above data, the salt resistance of fruit seedlings largely depends on their type, variety, individual characteristics and grafting. Experiments have shown that the salinity of the soil area is 0.032% at 0-30 cm and the sulfur salinity is around 0.056%. Compared with Table 3, the salinity of the soil, i.e., the amount of chlorine relative to the sulphate salt, is around 0.01–0.04%, while the salinity of the experimental land area is 0.038%. This means that the land is composed of low-salinity soils.

For this purpose, the data obtained in relation to the retention and drying of seedlings observed in the experiment with respect to the salinity level of the soil, their condition depends on the amount of salts in the soil and mineralized water soils.

Table 4

The degree of salinity of the soil	The amount of chlorides relative to sulfate		RN	Payvantag type	Apple variety	Pear variety
	Chlorine	All salts				
Low salinity	0,01-0,04	0,25-0,5	6,5-7	M-9 MM102, MM106	Summer Khazarasp, Karvak	Xon nashfatisi, Almurt
Strongly salted	0,04-0,20	0,5-1,0	7,5 – 8,4	MM102, MM106	Barorab, Winter Khazorasp	Country nashfatisi
Shurkhok	0,2 >	1,0 >	8,4>	-	-	-

This is consistent with the experimental data obtained for low and strongly saline soils with the resistance of Summer Khazorasp and Bararab varieties from newly created apple seedling varieties. Also for pears Yurt nashfatisi and Khan nashfatisi varieties are resistant to salinity. Almost all seedlings planted in saline soils died.

Based on the results of many experiments, it is observed that the results of our experiments are also close to the experiments conducted before us [2].

According to the results of research and recommendations of the Ministry of Agriculture and Water Resources, when grafting imported grafts on local apple and pear seedlings, experiments were carried out on high-yielding summer Khazorasp and Bararab apple varieties, as well as on Yurt nashfatis and Khan navshfats. in the 2nd field of the nursery, experimental observations were made on three different different scheme options compared to the selected schemes in the Mother nursery and the 1st field nursery.

When the cultivars of Yurt nashfat and Khan nashfat were studied in different planting schemes, their catch was 388 (77.6%) in 90x25 scheme and 518 (78.4%) in 50x25 scheme. It can be seen that the variant planted in the 50x25 scheme was 65.4% higher than the control variant, and in the 90x25 scheme it was 23.9% higher. In the khan nashfatis, 387 (77.4%) was caught in the 90x25 scheme, which was 20.5% higher, 521 (78.9%) in the 50x25 scheme, and 62.3% higher than in the control [3].

Conclusion

Based on the results of the above experimental observations, it can be concluded that in Khorezm conditions for apple varieties in 50x25 and 90x25 schemes of summer Khazorasp and Bararab varieties, in pear varieties 50x25, 90x25 schemes are selected, in Yurt nashfatisi and Khan nashchati varieties. It has been observed that more than 75% of the retention is observed, and good results can be obtained in the harvest from them for the newly created gardens in the future.

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