

EFFECT OF DEEP LOOSENING OF THE SOIL OF PRODUCTIVE VINEYARDS ON ROOT REGENERATION AND PRODUCTIVITY

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Abstract: In deep loosening of the soil, higher order branched roots, new roots increase in total length, the absorption system of the rhizome is strengthened and it is closer to the trunk. As a result of the rejuvenation of the root system and the strengthening of the active part, as well as the improvement of the physical properties of soil and water, the vine develops well and its productivity increases.

Key word: Deep plowing is adopted as the main method of soil preparation before planting for the establishment of vineyards. This method helps the development, growth and productivity of young vines.

Introduction. We conducted our experiments in the Andijan branch of Akademik Makhmud Mirzaev horticultural viticultural experimental station and in the vineyards of the Koziboy ota seedling farm in Izboskan district. According to the researches, vine roots have a great regeneration ability in the conditions of Uzbekistan.

Observations show that as the diameter of the roots increases, their regeneration ability improves. Roots with a diameter of 30-44 mm have a good regeneration ability. The indicators of regeneration ability indicate the need to periodically cut old thick roots to rejuvenate the root system and increase their absorption surface. It can be seen from the given data that when the roots close to the trunk of the vine are cut, their regeneration ability improves by 17.3% on average. In addition, in this case, thicker roots are cut, which have a better ability to regenerate than thin roots. In deep loosening of the soil, branched roots of the higher order make up 70-81.4% of the total length of newly formed roots, that is, the absorption system of the rhizome is strengthened and closer to the trunk.

Table 1

In deep softening, the process of regeneration of roots cut at different distances from the vine trunk takes place differently.

The distance behind the trunk of the vine with deeply softened ground, cm	Cut roots diameter, mm		New roots total length, m	%
50	5		17,3	100
	11		27,8	
	17		33,6	
125	5		13,7	81.4
	11		22,3	
	17		28,2	

For example, in deep softening, the total length of branches increases by 3.9-14.4% in the first year, by 11.6-32.4% in the second year, and the leaf surface, respectively. It expands by 5.5-11.4 and 10.6-21.1%. Productivity data are shown in Table 3.

Table 2

Vine productivity in deep loosening between rows. (nimrang variety)

The distance between the trunk of the vine and the deep softening line, cm	Average weight of one head of grapes, g	Harvest	
		s/ga	Control relatively %
50	505,6	139,7	107,5
125	499,3	131,4	101,5
25-30 cm of soil Control in depth work	491,9	130,1	100

Table 3

In the first year after deep softening

50	505,6	139,7	107,5
125	499,3	131,4	101,5
25-30 cm of soil Control in depth work	491,9	130,1	100

Table 4

In the second year after deep softening

50	507,8	131,9	111,4
125	503,3,	134,2	103,3
25-30 cm of soil Control operation in depth	491,9	130,1	100

As it can be seen from the given data, when the soil is deeply softened near the vine bushes (0.5 m), it has a positive effect on productivity than when it is softened in the middle of the row. In the first year, productivity increases by 7.5% compared to the control, and in the second year by 22.4%.



Picture 1. Deep plowed and its appearance in the summer months.

Productivity increases due to an increase in the number of grape heads, as well as an increase in the average weight of a grape head. Due to deep softening, the productivity of Bayan Shirey variety increased by 17.2% in the first year and by 39% in the second year. Determining the best periods for deep loosening is one of the important issues. Deep loosening is associated with root damage, so it is necessary to study the ability of damaged roots to regenerate at different phases of the vegetative period (Table 4).

Digging and washing the roots showed that the roots regenerated better when cut in late September. Good regeneration of cut roots after harvest is explained by the fact that new roots start to grow in autumn under conditions of favorable soil moisture and temperature.

Damaged roots do not grow well in April and August. The data show that productivity is directly related to deep thinning periods at which roots are cut. When the soil is deeply softened in November and March, a good development of the above-ground part of the vine is observed. Deep loosening carried out during budding and fruit ripening has a negative effect on vine productivity. In deep loosening, the growth of active roots increases and their number increases in all layers of the soil. They are the most in the layer of 25-50 cm, which is 4 times more than in the case of normal tillage. As a result, the number of active roots in the 0-100 cm layer increases 3 times compared to the previous treatment.

References

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