WEB OF SYNERGY:
International Interdisciplinary Research Journal
Volume 2, Issue 5 Year 2023 ISSN: 2835-3013
https://univerpubl.com/index.php/synergy

Use of Mineral Fertilizers for Wine Grapes

X.R.Tadjiboyev
Andijan Institute of Agriculture and Agrotechnology Andijan region, Andijan district, Kuyganyor town, Oliygoh street, 1 house Uzbekistan. Email: tadjboyevxasanboy@gmail.com

D.SH. Najmudinova
Andijan Institute of Agriculture and Agrotechnology Andijan region, Andijan district, Kuyganyor town, Oliygoh street, 1 house Uzbekistan. Email: najmuddinovadilfuza@gmail.com

Article Information

Received: March 23, 2023
Accepted: April 29, 2023
Published: May 23, 20223

Keywords
vine, vine, soil, mineral, fertilizer, root, plant, bud.

ABSTRACT

according to the experiment, the application rate of fertilizers: nitrogen, phosphorus and potassium kg/ha in typical irrigated gray soils depending on their productivity and the size of the harvested crop. It has been studied how these fertilizers can be used in light meadow soils.

The main tasks of the development of viticulture in the conditions of the current period are to create an effective organizational and economic mechanism aimed at ensuring its high profitability and profitability, regardless of the various forms of management of the field, its management, as well as the improvement of the system of production, research and development, and the training of qualified personnel to work in new conditions.

Solving this adaptation will help ensure the proper functioning of this sector and create opportunities.

The nutritional requirements of vine roots depend on the grape variety and yield. Varieties of vines that grow rapidly require more mineral fertilizers. Feeding the vine bush with mineral fertilizers helps to form normally developed grape heads and high-quality bunches, as well as to

form fruit buds for next year's harvest. Bayan Shirey and Morastel grapes were selected for the experiment. On the farm, grapes are planted in a 3x2.5 scheme, and they are grown in a palm-shaped shape in vertical vines.

Recently, urea, liquid fertilizers, slow-acting fertilizers (products of urea polymerization with aldehydes and encapsulation of fertilizers, or granular fertilizers slowly disintegrating in the soil), fully concentrated and multi-component fertilizers, that is, complex fertilizers, are increasingly widely used.

It is very important to increase the concentration of nitrogen, phosphorus and potassium in the development of the production technology of mineral fertilizers and their use.In the future, there is a need to create magnesium and sulfur fertilizers, as well as to produce more trace elements.

It is known that among mineral fertilizers, nitrogenous, phosphorous and potash fertilizers are especially widely used. Nitrogenous fertilizers used in production include: ammonium nitrate, urea, ammonium sulfate, amphos, etc.; to phosphorus fertilizers: ammoniated superphosphate, simple granulated superphosphate; to potassium fertilizers; include potassium chloride, potassium salt, potassium sulfate, and potassium magnesium sulfate. It is recommended to apply microfertilizers of boron, zinc, manganese, copper, magnesium, iron, etc. to fertile vineyards. The amount of fertilizer applied to 1 hectare of vineyard depends on the type of fertilizer and the availability of nutrients in the soil.

.

For the most complete absorption of mineral fertilizers, it is very important to correctly determine the rates of their application in accordance with specific conditions.

Different effects of mineral fertilizers on grape yield in irrigated typical gray soils and pale grassland soils indicate that these soils differ in their fertility. The rate of giving mineral fertilizers in these soils should be differentiated taking into account the soil fertility and the size of the harvested crop.

To address this issue, experiments were conducted on typical irrigated gray and pale grassland soils. In these experiments, nitrogenous, phosphorous and potassium fertilizers were used in the ratio of 4:3:1 in the following rates, that is (kg per hectare): nitrogen 120, phosphorus 90, potassium 30; nitrogen 180, phosphorus 135, potassium 45. Fertilizers were given in the following periods.

In the first experiment, irrigated gray soils:

1) 90 kg of phosphorus and 30 kg of potassium per hectare were applied under the main plowing in autumn;

2) Nitrogen was applied at the rate of 60 kg/ha before opening the vines;

3) Before flowering, the remaining 60 kg of nitrogen was applied.

Fertilizers were given in the following periods in light grassland soils:

1) In the fall, 90 kg of phosphorus and 30 kg of potassium per hectare were put under the plow;

2) Nitrogen was applied at the rate of 120 kg/ha before opening the vines.

In the second experiment, irrigated gray soils:

1) 90 kg of phosphorus and 30 kg of potassium per hectare under the main plowing in autumn;

2) Before opening the vine bushes - 90 kg of nitrogen, 45 kg of phosphorus and 15 kg of

potassium per hectare

put in;

3) Before flowering - nitrogen 90 kg/ha.

In light-colored meadow soils:

) 120 kg of nitrogen, 90 kg of phosphorus and 30 kg of potassium per hectare were applied under the plow in autumn;
2) 60 kg of nitrogen, 45 kg of phosphorus and 15 kg of potassium per hectare before opening the vine bushes

was put

The results of this experiment showed that the combined use of nitrogenous, phosphorous and potash fertilizers, as well as the separate application of nitrogenous and phosphorous fertilizers, are more effective than all of them (Table 1). In gray and light-colored grassland soils, the effectiveness of these fertilizers at different rates was different.

Increasing nitrogen rates from 120 to 180 kg/ha, correspondingly increasing phosphorus from 90 to 135 kg and potassium from 30 to 45 kg in irrigated typical gray soils provided further increases in grape yield. When 120 kg of nitrogen, 90 kg of phosphorus and 30 kg of potassium per hectare were given, the maximum yield of 14.4 tons was obtained, and at the highest rate of fertilizers, this figure was 16.0 tons.

Table 1

Effect of mineral fertilizer application rates on the yield of wine grape varieties in different types of soil conditions.

Food Elements	Irrigated gray soils (Des Shirey variety)				Pale grassland soils (variety Morastel)			
	$N120+P_2O_5$ 90 + K_2O30 кг/га		$N180+P_2O_5$135 +K_2O450 кг/га		$N120+P_2O_5$ 90+K_2 O30 кг/га		$N180+P_2$ $O_5$135 +K_2O450 кг/га	
	in generaly harvest	extraa	in generaly harvest	extraa	in generaly harvest	extraa	in generaly harvest	extraa
Without fertilizer	20.6	-	21.8	-	16.0	-	13.2	-
N	29.0	8.4	32.8	11.0	23.3	7.3	16.6	3.4
P	24.6	4.0	31.6	9.8	21.3	5.3	14.0	0.8
K	19.8	-0.8	20.6	-0.2	15.3	-0.7	10.0	-3.2
NPK	35.0	14.4	37.8	16.0	23.9	7.9	16.6	3.4

When nitrogen 120, phosphorus 90 and potassium 30 kg/ha were applied to light-colored meadow soils, the additional yield was 7.9 tons, that is, it was almost twice less than when fertilizers were applied at the same rates to gray soils.

Increasing the rate of mineral fertilizers on light-colored grassland soils did not lead to an increase in grape yield.

The combined use of nitrogenous, phosphorous and potash fertilizers in irrigated gray soils made it possible to obtain a much higher additional yield compared to the separate application of these fertilizers.

In this case, if only nitrogen was given, the additional yield was 8.4 t, phosphorus was 4.0 t, and potassium, on the contrary, the yield was slightly less compared to the option where no fertilizer was applied, then when nitrogen, phosphorus and potassium were applied together, the additional yield was 14.4 t did

The yield was higher when nitrogen, phosphorus, and potassium were applied together in light-colored grassland soils than when these fertilizers were applied separately.

The different effects of mineral fertilizers on grape yield in irrigated typical gray soils and pale grassland soils indicate that these soils differ in their fertility. It can be assumed that the typical gray soils are not rich in nutrients, and therefore the rate of application of mineral fertilizers should be higher in them than in light-colored meadow soils.

Summary

Thus, according to the information we received, on typical gray soils irrigated, depending on their productivity and the size of the crop, it is necessary to give fertilizers in the following amounts: nitrogen 120-180, phosphorus 90-135 and potassium 30-45 kg/ha. In light-colored meadow soils, the application rate of these fertilizers can be slightly lower: nitrogen 120, phosphorus 90 and potassium 30 kg/ha.

The highest efficiency is achieved when these fertilizers are used together in the specified ratio. Taking into account the soil fertility, it is possible to differentiate the rate of mineral fertilizers and get the maximum high yield of grapes.

List of references

1. Abdullaev R.M, Mirzaev M.M, NabievU.Ya, Abrorov Sh.M, Bekchanov U.A. Makhmudov G'.G'-Modern technology of growing grapes and drying raisins. "Sharq" publishing house, editor-in-chief of the joint-stock company, Tashkent-2013. - p. 101-111
2. Mirzaev M., Javakyants Yu.M. Tomorka vineyard. - Tashkent, 1991. - 30 p.
3. Mirzaev M.M, Temurov Sh. Fruit growing and viticulture. - T.: Mekhnat, 1977. - p. 26-35
4. Mirzaev M.M., Sobirov M.K., Pashchenko V.Z., Kurtov I.A., Koshnazarov H.K.,
5. Kh.R.Tadjiboev. THE GROWTH AND DEVELOPMENT OF RASPBERRY CULTIVARS IN THE CONDITION OF UZBEKISTAN. NOVATEUR PUBLICATIONS JournalNX- A Multidisciplinary Peer Reviewed Journal 40-43-b