American Journal of Biomedicine and Pharmacy
https://biojournals.us/index.php/AJBP
ISSN: 2997-7177

Technology of Growing Citrus Fruit Plants in a Resource-Conserving Method

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Received: 2024 15, Oct
Accepted: 2024 21, Oct
Published: 2024 09, Nov

Annotation: The main seeds and species, botanical characteristics and biological characteristics of common citrus plants in the trenches were studied. According to the results of the study, the economic efficiency of new exportable varieties in the trenches was determined, and it was observed that the trenches were a small, fruitful tree growing in soil conditions.

Keywords: trench, citrus, characteristic, soil, biological, botanical, seed.

Introduction

Citrus plants occupy an important place in the world food industry. Not only fresh fruits, but also juices, jam, essential oils, and other products are produced from them. Citrus crops are resistant to drought, heat, and some pests, and it is more convenient to grow them in changing climates. 146,866,263 tons of citrus fruits are grown in the world per year. China is the largest producer of citrus fruits in the world, producing 38,392,847 tons per year, Brazil 19,591,623 tons, and India 12,043,000 tons. Turkey (31.6 t/ha), Brazil (25.7 t/ha), and China (14.6 t/ha) are the three countries that grow citrus fruits. Today, the issues of improving the technologies of growing citrus crops under closed conditions and increasing productivity are urgent.

In countries such as China, India, Brazil, Turkey, and the USA, which grow citrus fruits in the world industry, scientific research is being conducted to increase the assortment of citrus crops, to create cold-resistant varieties for open countries, and to increase productivity based on resource-efficient technologies. The weight of citrus fruits is increasing year by year as a result of the use of optimal planting schemes, shaping, economical watering and feeding methods in the cultivation of citrus plants based on the current modern technologies.

In the republic, special attention is paid to the cultivation of nutritious and medicinal fruits such as lemons, oranges, tangerines and grapefruits. In this regard, many studies on the cultivation of exportable, high-yielding citrus plants in the open field and in unheated greenhouses have been carried out and certain results have been achieved. Also, modern research on intensive cultivation of citrus plants and increasing productivity is insufficient. The 30th goal of the Development

Strategy of the Republic of Uzbekistan for the period of 2022-2026 concerning agriculture states "... growing exportable products and developing fruit and vegetable growing, increasing the area of intensive gardens by 3 times and greenhouses by 2 times, increasing the export potential to 1 billion US dollars" has been singled out as one of the priority tasks. Therefore, it is urgent to carry out several scientific and practical studies on the expansion of the variety of varieties, the research of their agrobiological properties, the production of breeding methods, the technology of intensive cultivation, and the determination of the biochemical composition of fruits.

These actions are in accordance with the Decree of the President of the Republic of Uzbekistan № PQ-3586 of March 6, 2018 "On measures to further develop the lemon industry in the Republic of Uzbekistan", № PQ-4610 of February 19, 2020 "On additional measures to further develop the lemon industry" serves to scientifically implement the tasks in the decree and normative-legal documents related to this activity [1].

METHODS OF GROWING CITRUS FRUIT PLANTS

1. The trench method. 2. Half trench method. 3. Thermos method.

Trench method.

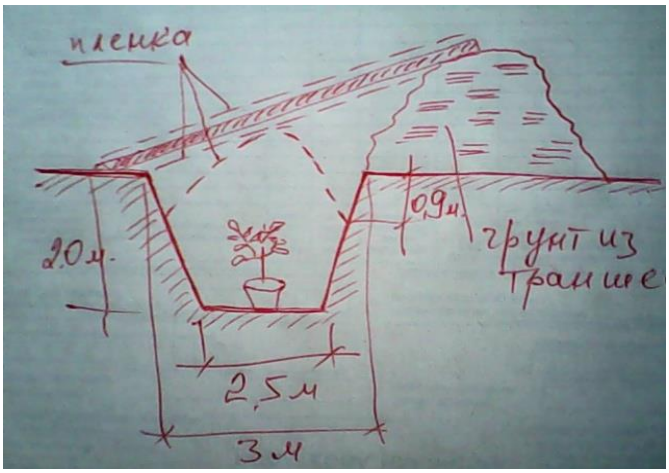
In the 1960s, the trench method of caring for citrus fruit plants was tested by the breeder, scientist, agronomist, and People's Academician Z. Fakhriddinov in the lemon farms of Kibrai district, Tashkent region [2]. A trench is a resource-efficient and reliable way to protect citrus plants from winter frosts. Ditches are prepared at a depth of 2 meters in the lands where the seepage water is 3 or 4 meters and deeper. If the structure of the land is hard gray soil, the walls of the two sides of the land are cut at a 90° slope. The width of the trench should not exceed 3 meters [3].

General view of growing lemons by the trench method

- Excavated soil is thrown into the trench on the sunset side. Then the right side of the trench will be 1 meter higher than the left wall. The trenches are covered with 30-40-diameter dry branches of poplar, willow, or mulberry, with a distance of 40 cm. These branches are tied with 3 mm wire and covered with film to keep the film straight and strong. In these single-scat trenches, the seedlings in the trench take full advantage of the sunlight during the first half of the day during the winter months. In the afternoon, the right wall of the trench heats up with solar energy and maintains the temperature of the trench [3,4.]
- Seedlings of citrus fruit plants are planted in trenches in a row, 2 meters between the bushes. Seedlings are planted every two meters in specially prepared pits. Pits were made 40 cm deep and 30 cm in diameter and composted at the rate of 1 bucket (10 kg) per pit, 120 gr. phosphorus

and 80gr. potassium fertilizer is applied. After the seedlings are placed in this hole, the roots are buried with clean soil and water is poured in the amount of 10 liters. The advantage of this method is that the lemons in the trenches are not hit by cold when the air temperature is -10°C in the winter months. It is very convenient to protect lemons from the sun even in the hot summer months [2,4,5.]

One-scat trench preparation plan



One-scat trench view

Costs of preparing trenches for citrus fruit plants in 3 and 4 meters of groundwater on 100m² Z.Fakhriddnov methods

Table 1

№	Work to be done and supplies needed	Unit of measure	Price, soum	Total expenses, soums
1	2 m. digging a trench 3x33 meters deep (100m²)	1m²	3000	3 000 000
2	4-meter 30-diameter tree branch (35 pieces)	-	-	-
3	3mm wire (30kg)	kg	2000	60000
4	100 micron polyethylene film (10kg)	kg	11000	110000
5	2 young lemon seedlings (16 pieces)	piece	20000	320000
6	Utility bills (gas, electricity, water)	-	-	-
7	Additional costs (fertilizer) biohumus	-	-	200000
	TOTAL			3 690 000

Economic efficiency of citrus fruit plant care technology using the Trench method on an area of 100m² Experiments by Z. Fakhriddinov

Table 2

№	Indicators	Unit of measure	Quantity	Price	Soum
1	Land preparation, digging a trench 3.0x33 m. scheme, depth 2 m.	acre	1	3 000 000	3 000 000
2	Chirindi (30t/ha) from internal possibility	-	-	-	
3	3 mm wire	kg	30	2 000	60 000
4	100 micron polyethylene	kg	10	11 000	110 000

	film				
5	2 young lemon seedlings	piece	16	20 000	320 000
6	Mineral fertilizers	kg	4	25 000	100 000
7	Electricity	-	-	-	-
8	Other expenses	-	-	-	100 000
	Total expenses				**3 690 000**

Income of citrus fruit plants in the first year

Table 3

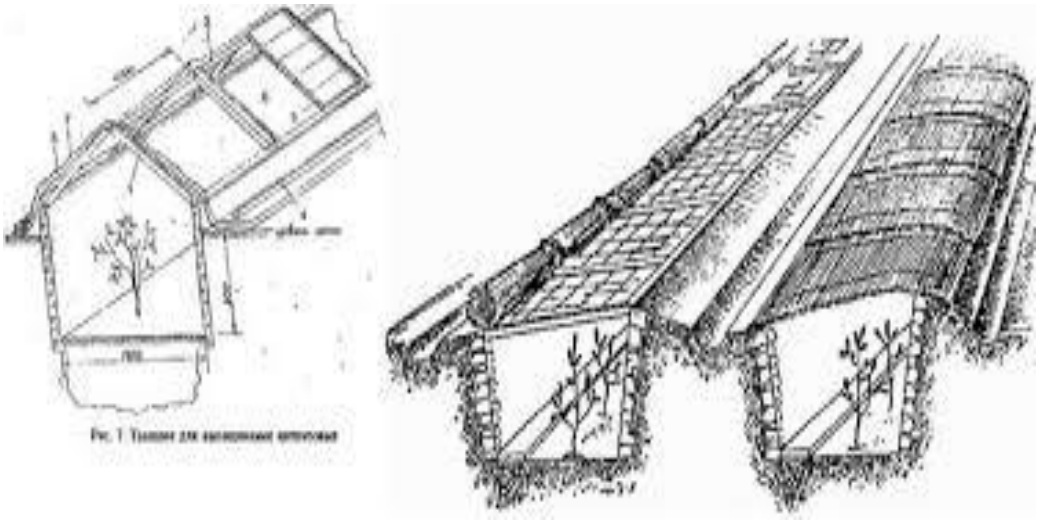
№	Indicators	Unit of measure	Quantity	Price, soum	Soum
1	**5000x640 (40x16) when the selling price of a sprout seedling is 5000 soums**	**piece**	**640**	**5000**	**3 200 000**
2	**Fresh lemon harvest**	-	-	-	**-**
3	**Estimated income from vegetables**				**300 000**
4	**Total income in the first year**				**3 500 000**

Second year income of citrus fruit plants

Table 4

№	Indicators	Unit of measure	Quantity	Price, soum	Soum
1	5000 x 320 (20kg x 16) when the citrus fruit is 5000 soums	kg	320	5000	1 600 000
2	5000 x 800 (50 x 16) when the selling price of sprout seedling is 5000 soums	piece	800	5000	4 000 000
3	Estimated income from vegetables				100 000
4	Total income in the second year				5 700 000
5	Rate of rentabel, %				154,4

Preparation of two-scat (right) and one-scat (left) trenches on hard soil



preparation of trenches with one scat (on the left).

preparation of trenches with two scats (on the right).

It is of great importance to test the application of any methods in the cultivation of citrus plants. Therefore, it is important to grow any famous citrus plants for specific purposes. Therefore, it is important to grow any types of citrus plants in trenches [2,4,5.].

By creating new methods, scientists effectively use this type of citrus plant to meet their needs. Varieties of new fruit crops are fast-harvesting, regularly high-yielding, have high taste and marketability, are resistant to winter, cold, diseases, and pests, and are grown for certain purposes [2,3,4,5.].

CONCLUSIONS

Based on the methods used by Z. Fakhruddinov in greenhouse trench laboratory conditions and selection works, citrus plant varieties were prepared in trenches, adapted to climatic conditions, and improved methods were developed, and high-yielding, stress-resistant, new varieties were created in trenches. and it was made possible to select forms through artificial breeding and to create competitive new disease-resistant varieties rich in sweet vitamins in the trenches based on them.

The main seeds and species, botanical characteristics, and biological characteristics of citrus plants, which are common in the trenches, were studied.

The study's results determined the economic effectiveness of new varieties for export in the trenches, and a small, fruitful tree was observed growing in the soil conditions in the trenches.

Based on the analysis of citrus cultivars in trenches under different greenhouse climatic conditions, resistance to cold and disease was determined in the water deficit regime compared to the optimal regime.

The works of trench methods started by the scientist Z. Fakhruddinov are being continued.

A high-yielding, stress-resistant, exportable local promising variety was created from citrus plants in trenches and carried out under optimal conditions on the basis of the developed technology.

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