Modern Journal of Social Sciences and Humanities
ISSN: 2795-4846 Volume 11 (Dec-2022)
Available online: https://mjssh.academicjournal.io

The Essence of Creating Horticultural Arrays Based on Terracing

Ashurov Abdullo Fayzulloevich
Abdisamatov Otabek Saydamatovich

Akramov Shukrullo Inomjon o'g'li
Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, National Research University

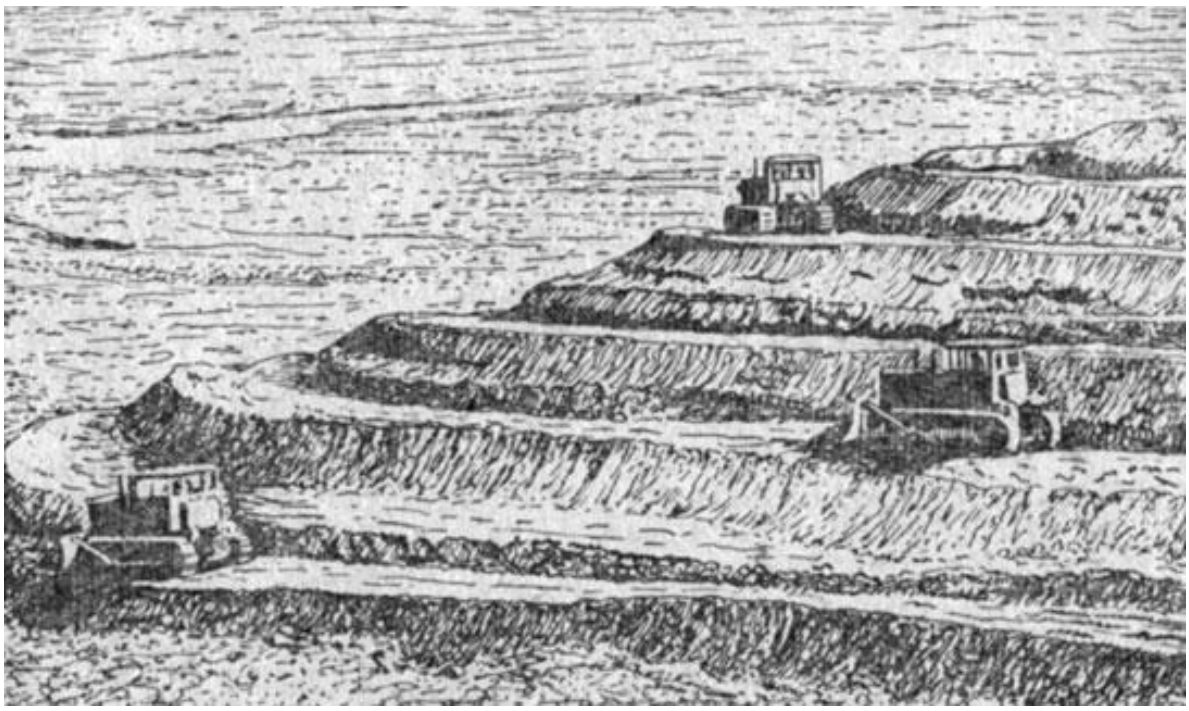
Abstract: The article highlights the issues of the possibility of developing foothill and mountain slopes in Uzbekistan with the construction of terraces, followed by the creation of orchards and vineyards, the advantages of such gardens and vineyards. The need for agro-climatic analysis and the study of the relief of territories for terracing in order to create orchards and vineyards and their water supply is discussed. The anti-erosion role of terraces and their importance in the economy of the Republic is given.

Keywords: the advantages, of developing, climatic analysis, anti-erosion role of terraces.

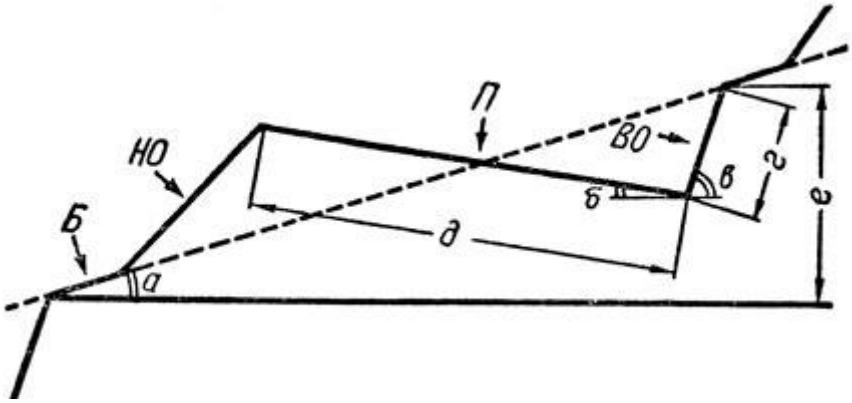
Terracing is carried out during the development of foothill (sloping) lands for perennial fruit plantations. The device of terraces is carried out in the process of periodic plowing of the slopes of the earth and the formation of strips (terraces). The soil layer is moved and form an embankment on part of the strips and accumulated along the outer border of the strip for the pass, subsequently on the canvas of the terrace under construction, starting from the lower part of the slope. Flattening to the horizontal of the subsoil is carried out, exposed as a result of periodic plowing with the movement of the soil layer into the bulk part of the strips, as well as its loosening. Fruit trees are planted on the soil layer. The use of terracing will make it possible to carry out terracing of mountain slopes with the preservation of the soil layer.

The benefits of terracing are numerous, which speaks to the benefits of this practice for humanity and the environment. In particular, the terrace system in agriculture: Increases the usability and productivity of fields located on slopes. Contributes to the conservation of water resources: slows down and reduces the intensity of water flows, retains rainwater; prevents the formation of streams and water erosion of soils; contributes to the conservation of land resources; minimizes silting and pollution of water bodies; The water stays on the terraces long enough for heavy particles to settle rather than being washed into nearby water bodies. At the same time, the period of flooding is not long enough to harm the crops. Increases food production through the use of hilly and mountainous regions for agricultural purposes.

Increases the biodiversity of ecosystems. Terracing slopes and creating platforms in the form of wide (steps) limited by rollers for growing fruit crops, grapes, etc. The use of terraces has long been common in countries with mountainous terrain (Japan, India, Sri Lanka, South African countries, Turkey, Greece, Italy, etc.), in the former Soviet Union - in the Caucasus, in Moldova, the republics of Central Asia, etc. Fruit crops will be placed at a height of up to 2-3 thousand meters above sea level, somewhat lower - grapes down the slope - citrus crops. The most common are stepped terraces, arranged on slopes from 100-120 to 400-500; on slopes up to 100, they usually produce contour planting of perennial fruit plantations.



Rice. - one. The process of construction of cut-and-fill terraces



Rice. - 2. Parts of the excavation - bulk terraces.

П- (cloths) of the terrace, BO - excavation (internal) slope, HO - bulk (outer) slope and Б - berm - untouched part of the slope between two terraces.

When constructing terraces with vertical slopes, there are no berms, and the excavation slope of the terrace below is the bulk slope of the upper terrace. Terraces can be horizontal or with a slope along the longitudinal or transverse profile.

The purpose of terracing is the efficient use of mountain slopes with the preservation of the soil layer, the expansion of plantation areas of orchards and vineyards and the growth of agricultural production. This goal is achieved by terracing on slopes, starting from gentle (4o-5o), is carried out by periodically plowing strips (terraces) with a unit with a four-body mounted plow, the multiplicity of which depends on the width of the strips, the thickness of the soil cover and the steepness of the slope with movement at each plowing of the soil layer to the outer border of the strip by 45-50 cm and planting fruit trees on them and subsequently obtaining up to two harvests of fruit products annually.

In Uzbekistan, mountains occupy about one third of the territory. In the agricultural development of the mountains and foothill zone, an important role belongs to horticulture. By their biological characteristics, fruit trees are more adapted to growing in mountainous conditions than other crops; they do better on coarse-skeletal slope soils than annuals. Growing on slopes of annuals, especially

row crops, is greatly complicated by soil washout. When cultivating perennial woody plants, including fruit trees, the soil is better protected from erosion, which makes it possible to develop slopes with a steepness of up to 30 °. With the right location and sufficient care, the productivity of mountain gardens is much higher than that of valleys. At the same time, the development of gardening in that foothill area should be based on terracing and drip irrigation. Almonds, walnuts, apple trees, pears, plums, apricots, grapes and other crops grow especially well here. The fruits are distinguished by high commercial qualities. The dignity of the apples and pears of the Sangardak and Khonzhizi massifs of the Sariasi and Uzun regions are very high. They have no competitors in Uzbekistan due to their graceful shape, absence of scab damage, very bright and beautiful integumentary color, high sugar and vitamin C content.

Big tasks are in the field of expansion and intensification of horticulture. In 2010, in the republic from 172 thousand hectares. orchards harvested 1542.8 thousand tons of fruits and the yield averaged 89.7 c / ha. from a vineyard area of 104 thousand hectares. 899.6 thousand tons of grapes were harvested, the yield was 86.5 c / ha.

The President of the Republic at a meeting of the Cabinet of Ministers dedicated to the results of the socio-economic development of the state and the economic .

The smallest amount of atmospheric precipitation (less than 100 mm per year) falls in the northwestern flat part of the republic (the lower reaches of the Amu Darya, the western Kyzyl kum, the south of the Kvrakalpakstan Ustyurt). To the east and southeast of this driest zone in Uzbekistan, precipitation program for 2015 noted that “in 2010-2014. planted 50 thousand hectares. new gardens, of which over 14 thousand hectares. intensive orchards, created on 23 thousand hectares of new vineyards. The intensive orchards created have already begun to bear fruit; an average of 300 centners per hectare has been harvested per hectare. in 2014 and year after year, their yield increases, and this proves that today such gardens have a number of advantages. "The rise in horticulture is especially important because Uzbekistan, in addition to providing the country's population with fresh fruits, can become a supplier of them to other countries.

One of the aspects of improving the living standards of the population in rural areas of Uzbekistan and sources of income generation is the rational use of land resources located in the unproductive foothill slopes of the republic. The second source of income is the rational organization of the use of pastures and the development of animal husbandry.

The Republic of Uzbekistan is characterized by extreme variegation of physical and geographic conditions, clearly expressed in the uniqueness of a combination of plain (80%) and mountainous (20%) relief. Moreover, the mountains border the plains from the south, southeast and east.

The assessment of the degree of favorableness of the climate for agricultural production is given as part of the general scientific physical and geographical zoning of the territory. The territory of Uzbekistan is almost entirely included in the Turan climatic province, homogeneous in terms of the climatic regime. The differences between the provinces lie primarily in the peculiarities of atmospheric circulation.

Uzbekistan, as part of the Turan province, is divided into flat and foothill-mountainous sub-provinces.

The smallest amount of atmospheric precipitation (less than 100 mm per year) falls in the northwestern flat part of the republic (the lower reaches of the Amu Darya, the western Kyzyl kum, the south of the Karakalpakstan Ustyurt). To the east and southeast of this driest zone of Uzbekistan, the amount of precipitation

as it approaches the mountain ranges, it increases, reaching in the high-mountain zone in some places 1000 mm per year or more. The highest annual precipitation amounts are characteristic of the high-mountainous part of the basins of the Chirchik, Akhangaran, Kashkadarya and Surkhandarya rivers.

In studies on the qualitative characteristics of the natural environment of physical and geographical regions for agriculture, it is necessary, first of all, an agroclimatic analysis of the territory. Areas

should be delineated where, from the point of view of climatic possibilities, it is advisable to spread leading agricultural crops. Latitudinal and altitude boundaries must be found, within which the ripening (or achievement of technical ripeness) of fruits and other horticultural products should be ensured to one degree or another.

At this time, in many regions of the republic, the foothills, where it is possible to grow high-quality fruits, are actually empty. On these lands, with appropriate investments, it is advisable to build stepped terraces for growing gardens, which will give an effect of both anti-erosion, environmental and economic nature, which can serve as a source of significant income. Additional jobs are being created, a network of small businesses for the storage and processing of fruits can be developed. To a certain extent, the income of the population is formed, and its standard of living rises.

In the foothill regions of the republic, the development of mountain fruit growing is of great importance due to the fact that there is a lack of water in the foothill plains and in a smaller amount they will provide gardens, since an increase in the amount of precipitation and relative humidity of air to a certain height improves the water supply of trees. In the mountains, fruit plants need less water, and at altitudes of 1000-1300 m they can be cultivated without irrigation. Particular attention should be paid to spring waters, often flowing in temporary flow channels - say, they can viticulture and melon growing as a source of water for drip irrigation.

Terracing is one of the important means of protecting soil from erosion on mountain slopes. At the same time, these lands are a reserve for increasing agricultural production, it is possible to transform unproductive agricultural lands (pastures) into more productive ones - gardens. In the foothill zone, there are areas that are provided with precipitation and do not require irrigation. Terraces are powerful moisture concentrates. At the same time, they play an anti-erosion role by intercepting the amount of precipitation that does not have time to be absorbed and flows down the slope. The significant steepness of the slopes prevents the development of lands for contour planting, and here terracing with subsequent drip irrigation due to insignificant water resources will allow unproductive lands to be drawn into agricultural circulation.

When terracing slopes, the following tasks should be solved:

a) Thematic mapping, foothill and mountain zones, the proposed placement of horticulture based on GIS technology (mapping by relief, by soils, by precipitation, along mountain slopes, by temperature, etc.)

b) prevention of land erosion (soil washout);

c) stopping soil washout;

d) retention of surface runoff and its circulation into the internal runoff;

e) maximum mechanization of work on the construction of terraces;

f) creation of favorable conditions for the growth of perennial crops (the presence of humus horizons of soils on the terrace canvas);

g) maximum use of the area on the terraced slopes;

h) The construction of terraces should be economically feasible.

Terracing should be carried out on a scientific basis, since it requires a deep theoretical and practical study of the nature of erosion processes and the use of a complex of anti-erosion measures.

References:

1. Decree of the President of the Republic of Uzbekistan of December 15, 2021 N PP-52 "On measures for state support of the horticultural sector, further development of the cluster system and cooperation in the industry"

2. Decree of the President of the Republic of Uzbekistan of February 19, 2020 N PP-4610 "On additional measures for the further development of lemon growing"
3. Bakuev Zh.Kh., Kuchmezov Kh.I., Bishenov Kh.Z. innovation in the construction of stepped terraces for intensive gardens. Eurasian Union of Scientists (ESU) 6(75),2020.
4. Bakuev Zh.Kh. Intensification of horticulture in the foothills of Kabardino-Balkaria // Print Center Publishing House - Nalchik, 2012. - 360 p.
5. Berbekov V.N., Bakuev Zh.Kh., Gagloeva L.Ch. Intensive gardening on the slopes of the Central part of the North Caucasus. Monograph // Print Center Publishing House - Nalchik, 2016. - 146 p.
6. Effects of terracing practices on water erosion control in China: A meta-analysis Earth-Science ReviewsVolume // Die Chen, Wei Wei, Liding Chen. -173 October 2017. - P. 109-121.
7. Berbekov V.N., Kuchmezov Kh.I., Karmov S.T., Bakuev Zh.Kh., Temirzhanov I.O. A method for arranging terraces with an increase in the humus layer on the excavation part of the canvas for intensive gardening // Patent of the Russian Federation for the invention No. 2646232. - 2018.
8. Kuchmezov Kh.I., Berbekov V.N., Shomakhov L.A. and others. Method for removing and moving the humus layer when terracing mountain slopes // Patent of the Russian Federation for the invention No. 2697006. -2019.
9. Evaluation of biological absorption of micro - elements and heavy metals for buckwheat phytomass. Ilyinsky Andrey Valerievich Candidate of Agricultural Sciences, Associate Professor, VNIIGiMim..N. Kostyakov", Ryazan
10. Estimatcon of biological absorption coefficients of buckwheat, Ilinskiy Andrey can-didate of agricultural sciences, associate professor Federal State Scientific Institution "All-Russian research institute for hydraulic engineering and reclamation of A.N. Kostyakov, Ryazan DOI: 10.31618/ESU.2413-9335.2020.6.75.866.
11. Transfer equation for the strain rate tensor and description of an incompressible dispersed mixture (incompressible fluid) by a system of equations of dynamic type

    Yuldashov, A., Abdisamatov, O., Abdullaev, B., Dustova, S. E3S Web of Conferences, 2021, 264, 03025.
12. Modeling of heat exchange processes in the Metanetka bioenergy plant for individual use Sharipov, L.A., Imomov, S.J., Majitov, J.A., ...Pulatova, F., Abdisamatov, O.S.

    IOP Conference Series: Earth and Environmental Science, 2020, 614(1), 012035
13. Numerical solution of nonlinear integro-differential equations

    Shodmonova, G., Islomov, U., Abdisamatov, O., ...Kholiyorov, U., Khamraeva, S.

    IOP Conference Series: Materials Science and Engineering, 2020, 896(1), 012117
14. Optimization of agricultural lands in land equipment projects

    Khamidov, F.R., Imomov, S.J., Abdisamatov, O.S., ...Ibragimova, G.Kh., Kurbonova, K.I. Journal of Critical Reviews, 2020, 7(11), pp. 1021–1023
15. Усмонов,М.Т. (2021). Метод касательных. «Science and Education» Scientific Journal, Tom-2, 25-34.
16. Усмонов,М.Т. (2021). Вычисление предела функции с помощью ряда. «Science and Education» Scientific Journal, Tom-2, 92-96.
17. Усмонов,М.Т. (2021). Примеры решений произвольных тройных интегралов. Физические приложения тройного интеграла. «Science and Education» Scientific Journal, Tom-2, 39-51.

18. Усмонов,М.Т. (2021). Вычисление двойного интеграла в полярной системе координат. «Science and Education» Scientific Journal, Tom-2, 97-108.
19. Усмонов,М.Т. (2021). Криволинейный интеграл по замкнутому контуру. Формула Грина. Работа векторного поля. «Science and Education» Scientific Journal, Tom-2, 72-80.
20. *Усмонов, М. Т. (2021). Правило Крамера. Метод обратной матрицы. «Science and Education» Scientific Journal, Tom-2, 249-255.*