INDIAN

INTERNATIONAL SCIENTIFIC ONLINE CONFERENCE

THE THEORY OF RECENT SCIENTIFIC RESEARCH IN THE FIELD OF PEDAGOGY

2023 YEAR

INDIAN, NEW DELHI

THE THEORY OF RECENT SCIENTIFIC RESEARCH IN THE FIELD OF PEDAGOGY

International scientific-online conference

Part 7

March 21st

COLLETIONS OF SCIENTIFIC WORKS

NEW DELHI 2023

THE THEORY OF RECENT SCIENTIFIC RESEARCH IN THE FIELD OF PEDAGOGY: a collection scientific works of the International scientific online conference (21st March, 2023) –INDIA, New Delhi : "CESS", 2023. Part 7 – 91p.

Languages of publication: русский, india, english, казақша, oʻzbek, limba română, кыргыз тили, Հայերեն….

The collection consists of scientific research of scientists, graduate students and students who took part in the International Scientific online conference "**THE THEORY OF RECENT SCIENTIFIC RESEARCH IN THE FIELD OF PEDAGOGY**". Which took place in New Delhi on March 21, 2023.

Conference proceedings are recomanded for scientits and teachers in higher education esteblishments. They can be used in education, including the process of post - graduate teaching, preparation for obtain bachelors' and masters' degrees. The review of all articles was accomplished by experts, materials are according to authors copyright. The authors are responsible for content, researches results and errors.

TABLE OF CONTENTS:

UDC: 631.319.06

TECHNOLOGICAL PROCESSES OF OPENING A DITCH AND MANUFACTURING A GARDEN-BED AND PRINCIPLES OF FORMING A GARDEN-BED

Murtazayeva Gulnoza Rakhmatovna
"Tashkent Institute of Irrigation and Agricultural Mechanization Engineers"
National Research University, doctoral student (PhD), Tashkent, Uzbekistan

Annotation: *In this article, information is given on the results of ditch opening and garden-bed forming processes to prevent water erosion in bound soils placed on sloping fields.*

Keywords: *Slope, garden, fruit tree, erosion, ditch, sheared soil, garden-bed.*

Introduction: Briefly speaking about water erosion, water flows downslope of a slope. As a result, the fertile layer of the soil is washed away, and as a result of the soil being washed away, the roots of the trees are exposed. This process leads to negative consequences on sloping land with a large amount of soil leaching compared to flat land. One of the measures to eliminate such negative consequences is to ensure perpendicular direction of the water flowing on the downhill side of the slope. Then the intensity and quantity of the water flowing towards the landing will be reduced, and the soil will be prevented from flowing together with the water.

The main part. There are many ways and solutions to reduce the speed and direction of water flowing rapidly downslope in sloping fields. In this work, the authors also used the well-known method of opening a transverse ditch. The difference between the opened ditch and the existing ones is that the garden-bed was placed only on the right, that is, on the downhill side of the slope, instead of on both sides of the ditch.

The opening of the ditch and the size of the garden-bed depend on whether the year is wet or dry. From this point of view, it was considered appropriate to choose the dimensions of the ditch and the garden-bed on the basis of the results obtained from the experiments conducted in field conditions.

It was found out from the field experiments that the slope of the sloping fields where the gardens were established in our republic, especially in the Tashkent region, is in the range of 7-12°. Prevention of water erosion on such slopes depends on the dimensions of the opening ditch, that is, the width and height of the garden-bed formed from the soil removed from it.

In order to determine the dimensions of garden-bed, garden-bed of different cross-sectional surface shapes and sizes were formed using hand tools in the autumn months of 2021-2022.

1 – picture. In sloping gardens, the shape and size are different the process of forming garden-bed with the help of hand tools.

The created ditches and garden-bed were kept in their natural state until the garden was ready for inter-row planting in the spring. Data were collected on garden-bed that had maintained their initial state despite being affected by rainwater, and the figures were subjected to static processing to determine the shape of the garden-bed and its cross-sectional surface (Fig. 2).

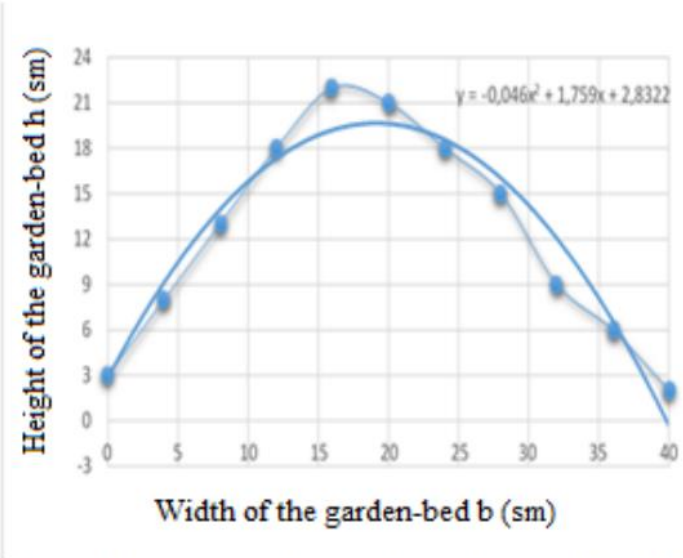

Figure 2. The shape and dimensions of the garden-bed proposed to be formed between the rows of a sloped garden

Based on the average values, the garden-bed shape was determined based on the computer Excel program, and its empirical expression was obtained.

$$h_{\tilde{y}} = -0{,}046 b_{\tilde{y}}^{\ 2} + 1{,}759 b_{\tilde{y}} + 2{,}832 \qquad (1)$$

To determine the surface $S_{\tilde{y}}$ of the proposed garden-bed cross-section, an exact integral with lower limit b_0 and upper limit b_1 was used [1].

$$S_{\tilde{y}} = \int_{b_0}^{b_1} y dx = \int_{b_0}^{b_1} \left(-0{,}046\, b_{\tilde{y}}^{\ 2} + 1{,}759\, b_{\tilde{y}} + 2{,}832\right) db_{\tilde{y}} \qquad (2)$$

$$S_{\tilde{y}} = -0{,}046 \int_0^{40} b_{\tilde{y}}^{\ 2} \cdot db_{\tilde{y}} + 1{,}759 \int_0^{40} b_{\tilde{y}} \cdot d_{\tilde{y}} + 2{,}832 \int_0^{40} db_{\tilde{y}} =$$

$$= -0{,}046 \frac{b_{\tilde{y}}^3}{3}\Bigg|_0^{40} + 1{,}759 \frac{b_{\tilde{y}}^2}{2}\Bigg|_0^{40} + 2{,}832 \cdot b_{\tilde{y}}\Bigg|_0^{40} =$$

$$= -0{,}046 \frac{(40)^3}{3} + 1{,}759 \frac{(40)^2}{2} + 2{,}832 \cdot 40 =$$

$$= -981{,}3 + 1407{,}2 + 113{,}3 = 539{,}2 \text{ см}^2$$

It was found that the surface of the garden-bed is 539.2 cm^2 when calculated according to the expression (2) according to the values of the lower b_0=0 and upper b_1=40 cm limits. In the process of formation of the garden-bed, taking into account the scattering of soil removed from the ditch, if we reduce this number of 539 cm^2 to an average of k = 1.3-1.4 (k is the volume expansion coefficient), the cross-sectional surface of the opening ditch is obtained [2]. According to it, the surface of the ditch cross-section should be 415 cm^2 on average.

Summary. The cross-sectional surface of the ditch can have various geometric shapes. Choosing the shape of the groove is the basis for determining the type of working part convenient for opening it. Above, it was determined that the cross-sectional surface of the ditch opened based on the dimensions of the garden-bed is 415 cm^2, and in practice, that of the ditch opened by hand is 350 cm^2. The surface of the cross-section of the opening ditch is at most 415 cm^2, it makes it possible to drain rainwater and melted snow without overflowing.

REFERENCES:

1. Mardonov Sh.H. Basing the parameters of the softener spherical disc used in the cultivation of sloping fields. Ph.D.dis. - TIKXMMI, 2019.

2. Development of the mechanical-technological basis of the process of soil deformation and decomposition with low energy consumption. Report on scientific research work. - Gulbahor, 2008. - B.47

3. Murtazaeva G.R. Factors causing soil erosion in intensive orchards located on sloping fields. Agro science. 2022, 6 - appendix (85) - number.

4. Murtazaeva G.R. Agro-technologies of working between garden rows. Agro science. 2021, 4 - appendix (74) - number.

5. Positive decision of the application. Soil breaking machine for working on slopes. FAP No. 20200318. 09.09.2022.