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Scientifically Grounded Approaches to Address Slope Land Erosion

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Abstract

430 mkn.ha of land has been damaged by erosion processes in different countries around the world. Surface, cleavage and irrigation erosion is also widespread throughout the country. 43.29% of the total area is subjected to varying degrees of erosion. In some regions, especially the Nakhchivan AR, erosion processes cover 70% of the area. 66.6 of the total area of the southern slope of the Greater Caucasus has been eroded. In some areas of the country, the percentage of eroded farms is high. This figure is 51% in Lachin-Kalbajar zone, 57.9% in Guba-Khajmaz zone and 72.4% in Sheki-Zagatala. The newly formed splinters break down the farmland into small parts and make them useless. The following erosion intensity scale is presented. 1) net wash-up to 0.5 t/ha, 2) poor wash-up to 0.5 t/ha, 3) moderate washing 1-5 t/ha, 4) severe washing-5-10 t/ha, 5) very severe washing-10 t/ha. Different geographical areas of the country have also been identified the possible distances between stripes on different slopes. Soil preparation should be carried out with a strip of 1-2 m in every 3-5 m in areas of 10-200 incidence, moderate to severe, and 1.5-3 m wide in each of the 2-3 m in severely washed areas of 20-300 m. trench to be dug. In large areas with more than 15-200 thick, thick soils and where the tractor can operate, deforestation should be carried out on terraces. On the slopes where heavily washed and often rigid rocks are exposed, soil preparation can be used to make yards and ditches.

Keywords: Inclination slopes; Forest-land reclamation; Terrace; Water erosion; Surface erosion; Erosion; Environmental conditions; Strips

Introduction

Significant increases in agricultural productivity and sustainability are required to meet the population's demand for food and agricultural raw materials. For this purpose, it is important to implement comprehensive measures to increase soil fertility, to apply intensive agricultural technology, and to carry out extensive anti-erosion control measures. The quantity and quality of agricultural products depends to a large extent on the availability of water in the fields. While irrigation water is not present in our country and in some cases droughts are observed, some of the rain and snow, as well as irrigation water, are lost from the areas [1].

As a result of erosion processes in various countries around the world, 430 mkn.ha of land has been destroyed. Surface, cleavage and irrigation erosion is also widespread throughout the country. 43.29% of the total area is subjected to varying degrees of erosion. In some regions, especially the Nakhchivan AR, erosion processes cover 70% of the area. 66.6 of the total area of the southern slope of the Greater Caucasus has been eroded. In some areas of the country, the percentage of eroded farms is high. For example, this figure is 51% in Lachin-Kalbajar zone, 57.9% in Guba-Khajmaz and 72.4% in Sheki-Zagatala. The newly formed splinters break down the farmland into small parts and make them useless. The material from the ravines covers valuable planting areas and pollutes the wetlands [2].

Amelioration measures against erosion provide for efficient regulation of surface runoff, improvement of soil water regime, maintenance of fertility level. The presented review examines the laws of soil washing, the formation of surface runoff, some theoretical and practical problems in erosion control. There are controversies in the issues under consideration. Therefore, these data are summarized for objective estimation. Irrigation erosion has not been addressed. The article uses the results of research conducted by the staff of the TAI "Soil Erosion" laboratory (former Institute of Erosion and Irrigation of the Academy of Sciences) [2].

Scientific bases of protection of soils from water erosion

Damages caused by the erosion process to the environment and agriculture: Under the concept of water erosion, soil degradation is understood as the process of soil erosion and depletion through streams, as well as the processes of landscape degradation. Water erosion is the main cause of degradation of soils and natural complexes. Water erosion in nature occurs in two ways: surface erosion and (linear Argan) erosion.

Surface erosion is not immediately apparent, especially at its initial stage. In fact, a 100-acre area of 100m, an average width of 5m and a depth of 2m is formed in the area of one hundred hectares, and it does not go unnoticed. However, when washing 1 cm of soil from the area, this is hardly noticeable, although as a result of the development of that ravine, 10,000m3 of valuable soil and soil are lost as a result of washing a 1-cm layer of 600-800 m3 and 100 ha. Therefore, surface erosion is much more dangerous [3].

Washed areas every year cost $ I million. Ha unused riparian areas increase by 100-150 thousand ha, and moving sands increase by 40-50 million ha. As a result of the erosion, the average annual soil incidence is 30-40 tons per hectare and sometimes more. 2-3 billion tons of crop and sowing areas annually.

Soil, including 100 million tons of humus and 43 million tons of soil. Nitrogen, aosaor, potassium washed. This is 1.5 times more than the nutrients given to the soil in the form of mineral fertilizers. 22.3% of the forest areas of the country are below erosion of the All-Union (4.5 ha) per capita area (0.2 ha) and are undergoing erosion. Substantial

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changes in the microclimate characteristics of such areas occur, forests do not play a role in soil and water management, and after heavy rains there is a huge destructive flood. As a result of the erosion, 118400 m3 of soil enters the Kishchai basin every year from the slopes [4].

Suffice it to say that, based on archival documents, as a result of heavy mudslides in the Kish River basin on July 15, 1988, $ 27 million was invested in the Sheki region's businesses and businesses. b. damaged. In the mountainous meadows, which are used as summer pastures of the Republic, there is a rapid development of erosion processes due to overgrazing and overgrazing. As a result, the vegetation is deteriorating, its composition deteriorates, the soil structure and structure are disturbed and strengthened, and the surface is absorbed by surface currents without absorbing the soil. 80-91.2% of summer pastures of Guba, Gadabay, Dashkesan, Khanlar and Sheki are affected by erosion and decreased productivity by 1.5-3.0 times. And changes in vegetation cover (deterioration of feed resources, etc.) will undoubtedly affect the wildlife, especially their migration, which is extremely sensitive to the environment. The foregoing proves that the intensive development of erosion affects agricultural production and the environment, and the development and implementation of effective anti-erosion measures are one of the most important areas of the day [5].

Discussion

Integrated anti-erosion measures include economic, organizational, agro technical, meadow, forest and hydro meliorative measures. Implementation of these measures should at the same time prevent the negative impacts of all natural and economic activities and provide an opportunity to increase the productivity of their lands.

Organizing the area as an important part of erosion control

Anti-erosion of the area, composition and proportions of agricultural sector, measures for its productivity increase, types and types of crop rotation, number of farmland, alternate plantings, hydro technical constructions, forest strips, boundary and settlement, volume of agricultural works. Identifies issues. For this purpose, a general scheme of anti-erosion management of individual farms, administrative regions, provinces and the country is being developed [6].

Land use projects designed for individual farms have greater practical significance. Such projects in our country are designed for a maximum of 1: 10 000 and partly 1: 25 000. While drafting an erosion control area for the area. First of all, natural conditions are analyzed. To this end, the Agroecological Science Center has carried out relevant research in almost all mountainous and foothill areas of the country, and maps of soil-erosion maps and cartograms, erosion factors and anti-erosion measures.

Intermediate cultivation should be preferable on slopes with 5-60 slopes prevailing on untreated and poorly washed soils, and cereal crops on 6-120 slopes. At the end, inter-row vegetation should be 20-25%, perennial grasses 30-40% [7].

Soil protection should be widely used on moderate to moderately severely sloping 12-150 slopes (in moderately washed soils), and in areas with heavy washes should not be used as natural cuttings. The low efficiency of anti-erosion organization of the area is mainly due to the poor location of road and forest strips within the boundaries of arable land. In most cases, the linear elements shown are arranged in such a way that they move up and down the slope. This results in the accumulation of surface currents along slopes, roads and other structures and the rapid development of erosion processes. The longest sides of the cultivated areas must be in the direction of the slope to effectively prevent surface currents [8].

Project development begins with the identification of more feasible areas of specialization of the farm, taking into account soil erosion protection. Based on a detailed study of natural conditions, alternate plantings, crop erosion technology, fertilizer system development, sloping and other useless areas, development of erosion forest planting and hydraulic engineering structures, roads, etc. are developed. A number of farms in the country have begun to use contour-reclamation systems to prevent erosion and increase productivity by regulating surface flows [9]. This system assumes that all plowing and cultivation works are carried out in accordance with relief horizons, creation of water-retaining and retaining pillars and dams on erosion-prone areas and on the outskirts of farms, laying of wood strips on the edges, special agro technical measures [10].

Conclusion

In conclusion, combatting slope land erosion requires a multidimensional, science-based strategy. Incorporating vegetation for stabilization, employing terracing and contouring to reduce runoff, implementing erosion control blankets, and utilizing bioengineering techniques are crucial. Additionally, sediment basins, soil conservation practices, hydroseeding, and effective water management contribute to erosion prevention. Ongoing monitoring and adaptive management ensure the success of these measures. Collaboration between scientists, engineers, and communities is imperative for tailored solutions, emphasizing the need for a holistic and site-specific approach to mitigate slope erosion and promote sustainable land management.

Conflict of Interest

None

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References

1. Delaquis PJ, Stanich K, Girard B, Mazza G (2002) Antimicrobial activity of individual and mixed fractions of dill, cilantro, coriander and eucalyptus essential oils. Int J Food Microbiol 74: 101-109.
2. Pino JA, Rosado A, Fuentes V (1996) Chemical composition of the seed oil of Coriandrum sativum L. from Cuba. J Essent Oil Res 8: 97-97.
3. Diedrichsen A, Hammer K (2003) The intraspecific taxa coriander (Coriandrum sativum L.). Genet. Resour Crop Evol 50: 33-63
4. Kurkcuoglu M, Sargin N, Baser KHC (2003) Composition of volatiles obtained from spices by micro distillation. Chem Nat Compd 4: 355-357.
5. Lopez PA, Widrlechner MP, Simon PW, Rai S, Bailey TB, et al. (2006) Assessing phenotypic and molecular diversity in coriander (Coriandrum sativum L.) germplasm Paper to be submitted to Genetic Resources and Crop Evolution.
6. Mengesha B (2008) Phenotypic characterization and evaluation of coriander (Corianderum sativum L.) accessions for seed yield, essential and fatty oil contents at Delbo watershed and Wondo genet southern Ethiopia. M.Sc. Thesis, Awassa College of Agriculture, School of Graduate Studies, University of Hawassa, Hawassa, Ethiopia.
7. Mengesha B, Alemaw G, Tesfaye B (2011) Genetic divergence in Ethiopian coriander accessions and its implication in breeding of desired plant types. Afr Crop Sci J 19: 39-47.
8. Awas G, Ferew M, Amsalu A (2015) Variability, Heritability and Genetic Advance for Some Yield and Yield Related Traits and Oil Content in Ethiopian Coriander (Coriandrum sativum L.) Genotypes. Int J Plant Breed Genet 9: 116-125.

9. Mandal S, Mandal M (2015) Coriander (Coriandrum sativum L.) essential oil: Chemistry and biological activity. Asian Pac J Trop Biomed 5: 421-428.

10. Beemnet M, Getinet A (2010) Variability in Ethiopian coriander accessions for agronomic and quality traits. Afr Crop Sci J 18: 43-49.