EFFECTIVE UTILIZATION OF DEGRADED AND ERODED MOUNTAINOUS PASTURES

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Abstract. The given article is dedicated to identifying, assessing, and developing theoretical and methodological-practical approaches for the effective use of degraded and eroded pastures in the foothill regions, aimed at further developing and liberalizing the economy of our country. The main objective is to explore the existing problems related to the degradation and erosion of pastures in the foothill regions and to form solutions for these issues, based on theoretical and practical considerations.

Keywords: foothill pastures, degradation, erosion, economic liberalization, mechanism, land assessment, irrigated lands, water.

Introduction:

At present time about 6.0 million hectares of land worldwide are subjected to desertification each year, and more than 40% of the irrigated lands undergo degradation due to errors and shortcomings in irrigation and reclamation works, rendering them unsuitable for agriculture and the cultivation of crops. Land degradation refers to the long-term decline in ecological productivity or the reduction of biodiversity or the loss of resistance to external factors, negatively affecting the integrity of the ecosystem and leading to the deterioration of natural land potential. In simple terms, land degradation is the loss of previous fertility of the land.

According to the law of the Republic of Uzbekistan "On Pastures," dated May 20, 2019, pastures are lands with natural vegetation that serve as feed for livestock. Pastures are a national resource protected by the state. They are categorized into desert, semi-desert, foothill, mountain, and plains pastures, with some being irrigated and others non-irrigated. Mountain pastures are seasonal and can only be used during specific periods of the year. [1]

Research Object and Methods:

The research involves creating a list of areas subjected to degradation and erosion and mapping their locations on land planning maps, restoring degraded and eroded pastures, as well as developing mandatory guidelines for preventing degradation and erosion processes and mitigating their negative consequences.

Definitely, the research will also include the analysis of existing infrastructure objects in the areas where measures to restore degraded and eroded pastures will be implemented. A targeted list will be formed to identify the key factors involved. In the foothill regions, it is crucial to develop drought-resistant, climate-adapted, and nutritious perennial orchards in degraded pastures during the spring and autumn seasons. Additionally, the study will focus on land planning schemes for pastures, studying the technical and economic foundations of pasture improvement, and reviewing internal land planning project materials from agricultural enterprises. [2]

Research Results and Discussion:

The pastures affected by degradation and erosion are primarily the result of adverse weather conditions, such as a decrease in precipitation and extreme heat, leading to the thinning of vegetation and overall degradation and erosion of the pastures. Currently, the sharp increase in temperature and drought have become global issues. These factors contribute to the degradation of pastures, causing the deterioration of their soil quality and reducing their ability to support vegetation, which in turn exacerbates the negative effects of erosion.



Figure 1. Monitoring Activities in the Foothill Regions

The degradation, erosion, sand and dust storms, loss of hayfields, and soil salinization of land and pastures are not only caused by natural climatic factors but also by improper agronomic practices, overgrazing, and irrational use of natural resources in economic activities.

Surface improvement involves measures aimed at increasing the productivity of natural pastures without disturbing their natural vegetation cover. The surface improvement system, in turn, focuses on enhancing the water, air, and nutritional regimes of plants in natural grasslands, thereby enabling long-term forage use. These measures are particularly effective when grasslands are characterized by shallow roots and sparse soils.

If the grasslands are densely covered with grass, improving such forage areas by establishing hayfields and pastures is preferable. If 35-45% of the pasture vegetation is composed of high-quality forage grasses, surface improvement is recommended. If the forage quality of the grasses is low, surface improvement measures will have limited effectiveness, and more drastic measures will be needed to improve such lands. Fundamental improvements in low-yielding natural forage lands involve completely altering the existing species and creating perennial, high-nutrient, and high-quality grass cover. [3]

In some measures, both surface and fundamental improvements can be applied, such as leveling the dunes and depressions; these actions should be carried out to maintain plant productivity, develop forage plants, and increase livestock numbers. In the coming years, the increased number of livestock in steppe regions will lead to a rise in anthropogenic impacts on pasture ecotourism, resulting in a fourfold increase in human pressure on pastures, which will accelerate pasture degradation and reduce biodiversity.

In recent years, frequent droughts have created the necessity to move livestock to distant desert regions with better vegetation cover starting from the end of May, leading to significant expenditures for such measures and a sharp decline in sector efficiency. This clearly shows that even in regions with good vegetation cover, overgrazing leads to the destruction of pastures, reduced productivity, worsening forage quality, and the disruption of vegetation cover, which ultimately results in a decline in biodiversity.

According to the research findings the number of species in the vegetation cover of pastures has sharply decreased.

Moreover, the productivity of pastures and the quality of forage obtained from them are closely related to the soil-climatic conditions of the land. To a large extent, the condition of the pasture is less dependent on agricultural management but is drastically reduced due to improper usage. [4]

In conclusion, based on many years of scientific research, it is possible to increase the yield of forage from low-productivity natural forage lands by 5-7 times or more through improvement measures. In the foothill regions, improving the low-productivity natural pasture lands affected by degradation and erosion can be achieved through both surface and fundamental improvement measures, such as sowing seeds, fertilizing, leveling dunes, and deepening depressions. For ensuring rational use of pastures, the following conditions must be strictly adhered to:

- Implementing rotational grazing on pastures;
- Ensuring the digestibility and nutritional value of pasture forage;
- Adhering to the usage standards of pasture forage;
- Ensuring seasonal use and continuity of pastures;
- Monitoring the level of livestock provision with pasture forage;
- Developing a pasture rotation system;
- Increasing the water supply level for pastures;
- Developing measures to improve pastures and ensure rational use.

By summarizing it should be suggested that it is important to establish working groups in collaboration with specialists in the district to organize the rational use of pastures.

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