Current conditions and improvement of pastures soils of South-Western Tajikistan

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According to large-scale soil mapping data in south -western region of Tajikistan, where the irrigated land is limited, more than 1 million in hectares used as the natural pastures and haymaking areas for livestock development,

Pastures are located at heights from 350-500 to 1600-1800 m above sea level in Vahshsky natural-economic area and from 600 900 to 3000-3500 m in Kizilsu-Yakhsu area. A steepness of pasture areas varies from 2-5^0 to 30-45^0 with prevalence of slopes of 5-15-30 degrees which are considered optimum, especially in Vahshsky region.

Climatic conditions of region depending on vertical belts is characterized from very dry-extra arid with daily summer temperature 28-30^o and annual precipitation 208 mm to moderately-dry with in daily temperature 18-20^o and annual rainfall from 569 - 741 mm in low mountain areas to 1011мм in high-mountainous belt.

The vegetative cover of pastures of characterized regions are various, as botanical structure, and biological efficiency. On river terraces and plains vegetation it is presented meadow with productivity 4-5 c/ha, desert formation with productivity 1,5- 5 t/ha. Results of numerous experiments with different types and dozes of fertilizer applications on various types of mountainous pastures of Tajikistan shows the high efficiency of fertilization. Application 45-60 kg of nitrogen and 30 kg per 1 ha phosphorus (P_2O_5) –in spring at the start of vegetation increases pasture productivity 2-3 times. On average out of 53 experiments performed on grass stands of grass-of-short-grass and tall grass of semi savanna and meadow pastures and hayfields on piedmont area with a norm of $N_{60}P_{30}$ kg/ha the growth of yield per 1 kg NP active material of fertilizers made 26.3 kg of dry matter.

Unsystematic grazing, over loadings, de forestation, wrong receptions of economic activities and other anthropogenesis negative influences led to degradation of pastures, deterioration of botanical structure and to sharp decrease in efficiency of grasses. The results of last large-scale soil mapping showed, that a considerable part of soils of pastures here (60 %) are subject by erosion. This problem can be solved or mitigated with the better organization of pasture rotation and wide application of a complex of anti erosion and a pasture - ameliorative measures.

Proceeding from it, we developed some scheme for sustainable use of pastures.

I. Water harvesting measures

1. To keep snow by creation of snow platens and creation of wood strips;
2. Rationing the number of livestock for grazing;
3. Pasture rotation;
4. Stop grazing in degraded pastures;

II. Superficial improvement of pastures.

1. Reseeding of degraded pastures.
2. Protect pastures from weed and poisonous plants
3. Stone harvesting;
4. Application of mineral fertilizers;