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Factors Affecting The Status Of Mountain And Mountain Pastures Of Kashkadarya Basin

Uktam Eshtemirovich Khujanazarov

Candidate of biological sciences, associate professor, Tashkent state pedagogical university named after Nizami

Annotation

This article provides information on the degradation of 6-10% of pastures per unit area per year due to the impact of human factors on pastures, including man-made land reclamation, development of new lands, changes in farming species and diversity, depending on the characteristics of pasture ecosystems. In addition, due to the increase in the number of livestock and the system of irrational grazing, the pastures are in a state of disrepair, unusable and poor quality pastures, especially in the highlands of Kashkadarya region. Scientific research has been conducted on the increase in the share of species and criteria for the efficient use of pastures have been developed.

Keywords: pasture, degradation, urbanization, ecological peculiarities, association, ecosystem, types of pastures, weeds, livestock, juniper.

Introduction. Natural pastures consist of components of the ecosystem that are sensitive to human impact, the composition, structure, characteristics of which are constantly determined by the level of anthropogenic pressure [10; 8].

The impact of the human factor on pastures is particularly pronounced in densely populated areas, in areas under the influence of urbanization [10]. As a result of human discovery of protected lands, development of new lands, changes in the types and varieties of agriculture, 6-10% of pastures per unit area per year can be degraded due to the characteristics of pasture ecosystems [1; 6].

In addition, the increase in the number of livestock and the system of irrational feeding leads to the radical destruction of pastures, their unusability and the formation of poor quality pastures. [3; 7; 4].

One of the indicators of the negative characteristics of pastures is the presence of inedible, foreign and poisonous species in its composition [9]. Overgrazing in pastures results in an increase in the proportion of naturally occurring foreign species in the cover or their proliferation [5]. K.Sh. According to Tadjibayev et al. (2018), the share of inedible species such as Adonis turkestanica, Ligularia thomsonii and

Eremurus kaufmannii in the vegetation is increasing due to overgrazing in the highlands of Kashkadarya region. It should be noted that more than half of the 20 pasture species studied have a high content of weeds and weeds. It can be seen that the share of such species increases from the upper mountain region to the lower hill region **(Figure 1.1).** This, of course, is due to the fact that in recent years in the foothills of the mountains all kinds of farming and animal husbandry are developing.

METHODS

Field and chamber geobotanical research methods. Geobotanical research works from the manual "Explication and conditional description of the map of vegetation of Uzbekistan" (1965), "Methodological guidelines for geobotanical research of natural forage in Uzbekistan" (1980); Uzbek names of edible plants M.M. Nabiev's Atlas-Dictionary of Botany (1969) was used. In the monitoring areas (completed Figure 1), the current state of vegetation composition, structure density, surface fertility was determined in transects (10x2 m); the Drude scale was used to determine plant density [1907].

Surface phytomass structure, species composition, and productivity indicators in the excavated areas were determined by A.P. Geobotanical description of plants was carried out according to the method of Shennikov (1964).

Pasture digression condition O. It was analyzed according to the method of Chogniy (1977) and here the stages of pasture digression were considered:

1. Weak digression.
2. Moderate digression.
3. Strong digression.
4. Very strong digression.

Cameral and geobotanical field research was carried out using modern methods. In this case, Landsat 4-5 ETM and Landsat 8 OLI satellite data were used for in-camera assessment of the area. As a result of in-house and geobotanical field research, space photography (CFS), computer versions of satellite data, as well as ArcGIS 10 and ENVI 5.3 were used to create the map.

In the complex ecological assessment of the condition of pastures in the region, the share of the following factors was calculated on the basis of a scoring system:

1. Qualitative assessment of pastures (f^1)- the share of toxic and weeds in the pasture (factor, f^1_1)

Share, degree /%:

In this:

1 ball - 50-100%,

2 points - 30-50%

3 points - 0-30%.

2. Factors affecting pasture quality (f ^{2}), factors, f $^{2}n_{1-3}$

2.1. Livestock development, f $^{2}n_{1}$

2.2. Rainfed farming, f $^{2}n_{2}$

2.3. Irrigated agriculture, f $^{2}n_{3}$

Scale of impact, degree /%, $\sum$ f $^{2}n \leq 3$

In this:

1 category 50-100%, 0.25 points

2 categories 30-50%, 0.5 points

3 categories 0-30%, 1.0 points

3. Efficient use of pastures (f ^{3}), factors of use, f ^{3}a, b.

Proportions:

pasture utilization rate, f ^{3}a / pasture use rate, f ^{3}b.

Utilization factor, f ^{3}k, f ^{3}k=(f ^{3}b/ f ^{3}a)*3

In this:

f ^{3}k ≥1<2

f ^{3}k ≥2<3

f ^{3}k =3

Based on the sum of the above criteria, pasture species were evaluated on a 9-point scale, and on this basis they were divided into 3 groups:

1. High value pastures (7-9 points).
2. Medium-value pastures (4-6 points).
3. Low-value pastures (1-3 points).

The rate of change (vegetation, degradation) in plant communities was based on anthropodynamic series casting (Rabotnov, 1978). At the same time, areas with a high degree of plowing (50-75%) and moderately plowed (up to 25%) were calculated.

In order to determine the level of transformation of pasture types, permanent observation sites were selected in Chirakchi, Kitab, Yakkabag and Dehkanabad districts.

1. Chirakchi district, near Taragay village. 20x50 m = 1000 m^2 in mixed grassland agropyron community.
2. Chirakchi district, near Otchopar village. 20x50 = 1000 m^{2}in a tall grassy ephemeral community.
3. Kitob district, 3 km north-west of Varganza village, in the agropyron-bush community 20x50 = 1000 m^2.
4. Near Tolli pass of Dehkanabad district. 20x50 = 1000 m^2 in a tall grassy ephemeral community.

The environments of these listed observation sites were cordoned off and the dynamics of phytocenoses were observed and assessed throughout the year (2011-2016).

Biochemical methods. The amount of total antioxidants, vitamin C and flavonoids in plants (leaves) was determined in spring, summer, autumn.

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In the detection of common antioxidants in the leaves of medicinal plants used a solution of 1% triton X-100 in 96% alcohol. The method is based on the oxidation of antioxidants with iron III-chloride. In this case, Fe^{+3} to Fe^{+2} chloride is returned, the amount of which is determined by the color intensity formed by the addition of o-phenanthroline at a wavelength of 505 nm on a spectrophotometer-46 [22; -225 c.].

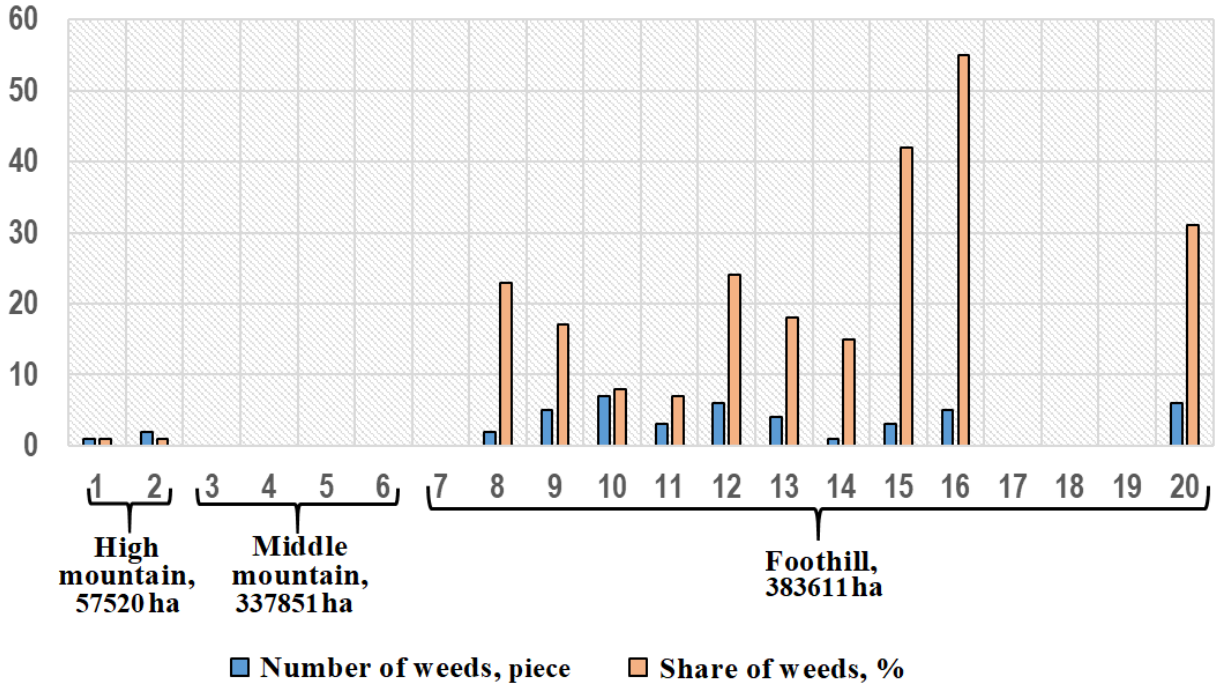
In the determination of flavonoids in plant materials used a solution of 1% triton X-100 in 96% alcohol. The reaction is based on the formation of a stable color complex under the influence of a solution of citric acid of flavonoids isolated from plant tissue. The resulting color complex was measured at 420 nm on a spectrophotometer-46 [22; -225 c.].

RESULTS

One of the signs of improving the quality of pasture varieties is the presence of resource-rich species of economic importance and their high share. This is because, from the point of view of production, pastures themselves are economic objects, and the orientation of other plants in its development to the development of economic sectors ensures the efficient use of pastures [2].

Accordingly, 20 pasture species identified in the mountainous and foothill areas of the Kashkadarya Basin were assessed on a 9-point scale on the basis of criteria based on the impact of livestock and agriculture on pastures, the share of weeds and the effective use of pastures and were divided into 3 groups:

1. High value pastures (7-9 points).
2. Medium-value pastures (4-6 points).
3. Low-value pastures (1-3 points).



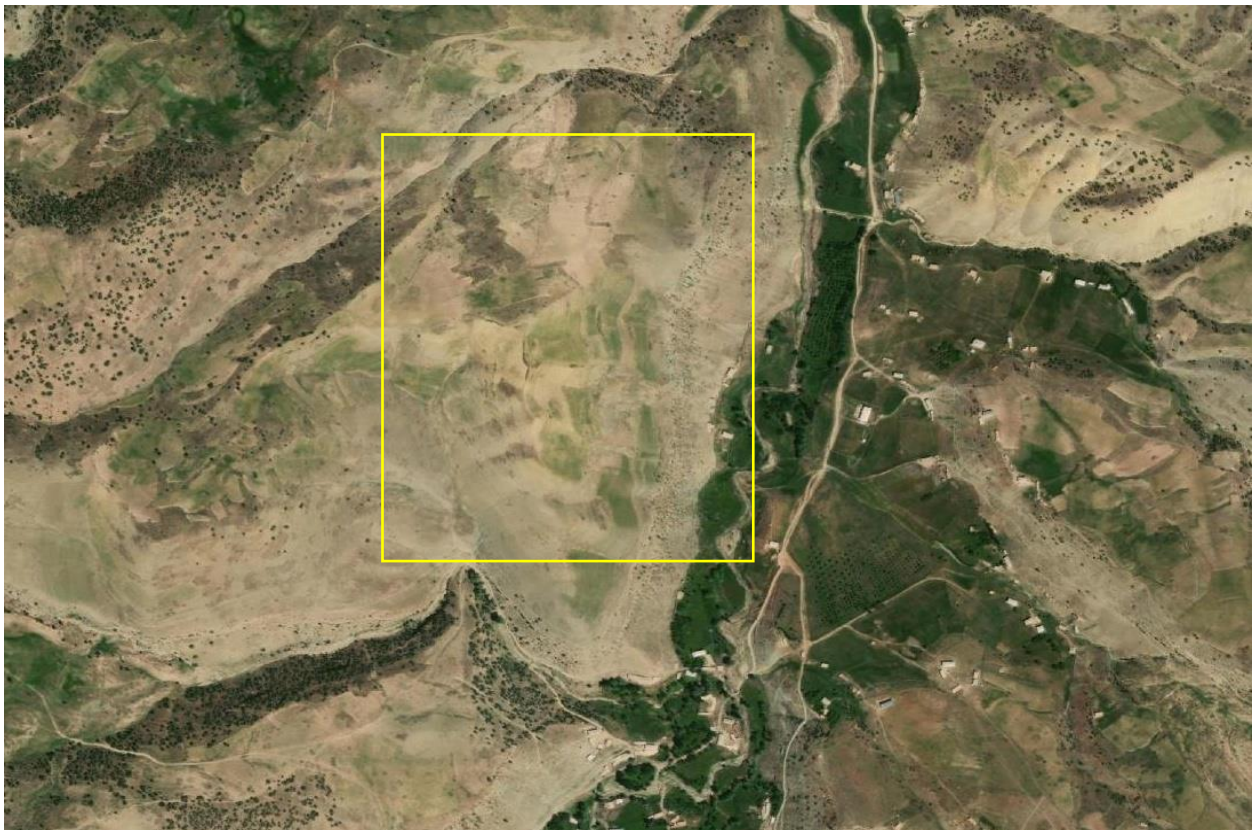
1.1-picture. Changes in the number and share of weeds in the composition of mountain and foothill slopes of the Kashkadarya Basin

Among the studied pastures, the types of pastures belonging to the type of pastures between cereals and various grasses are distinguished by a higher value than other types of pastures. The share of species that affect the quality of pastures is extremely small. Among the lined with fir-trees there are various grass-betagali-lined with oats and various herbaceous-sulibosh-betagazor meadows, which contain essential oil (Ferula hissarica, F.ovina, P.hissaricum), medicinal and food (Prunus bucharica, Rosa fedtschenkoana, R. kokanica) rich in species, shrubs are considered valuable as valuable ornamental plants. Accordingly, the level of practical use of pastures for other purposes is extremely high. Due to the richness of pasture composition food and medicinal species, they are constantly harvested by the population.

Different grassland-betagali-suliboshzor pastures among fir-trees pose a greater threat to land development than livestock. The perimeter of the pasture contour is affected by areas occupied by the population on all sides, and the pasture contour has been reduced by 45% compared to the 1975 rapper map. In addition, deforestation by the population has led to landslides on mountain slopes in recent years, leading to a reduction in pastures **(Figure 1.2).**

Due to the development of irrigated agriculture and dry farming, the area of various grassland-grassland-grassland pastures is also declining. Livestock is grazed in the upper areas of the pasture contour due to the protection of hayfields near settlements. This results in the upper areas of the pasture being grazed by livestock and the lower areas by humans.

A



B

Figure 1.2. Areas of arable farming between pine forests, 2100 m (a); landslide in the right tributary of the Kizil-Say river (2011) (Kamashi district, Kizil-Say village) as a result of felling of spruce trees by the population.

Varieties of pastures located in the upper mountainous zone of the Kashkadarya basin are among the pastures of medium value.

For example, wormwood-betagazor pastures are rich in forage species that are considered valuable in terms of nutrition. In addition to beta species, Onobrychis echidna and Astragalus lasiosemius can be cited as examples. However, in the pasture there are many species of medicinal (Artemisia lehmanniana, A.rutifolia, Polygonum coriarium), honeysuckle (Polygonum coriarium), honeysuckle (Polygonum coriarium, Onobrychis echidna) used in other sectors of the economy, such as folk medicine and scientific medicine.

One of the disadvantages of the pasture species is the presence of Ligularia thomsonii (1%), which is poisonous and weedy. Agriculture and animal husbandry are not well developed in the pastures. However, it should be noted that the nearest settlements are located 5-8 km away and livestock and dry farming are developing rapidly in the region. The type of pasture is located in a high mountainous area and on slopes, which limits its ability to be used effectively for purposes other than livestock.

However, in addition to large grasses such as Onobrychis echidna, Prangos pabularia, Ferula ovina, which provide its value in the composition of small herbaceous, spike-like herbaceous pasture species distributed among thorny and cushioned mountain xerophytes, Artemisia dracunculus, Ligularia thomsonii. It should be noted that the proportion of Ligularia thomsonii is high.

Pasture species are not rich in species that can be widely used in other sectors of the economy. Some of them (Ferula ovina, Artemisia dracunculus) can be described as a source of medicine, food, essential oil, but in practice they are not used in terms of production scale or almost by the local population. Only Polygonum hissaricum is widely used by local doctors as a means of relieving abdominal pain, and by the locals as a stand in dyeing woolen fabrics. Due to the fact that this type of pasture is located around settlements, it poses a serious threat, especially to the development of land and the development of dry farming. The 1975 rapper map data show that the pasture-type contour has shrunk by 33% today. At the same time, it should be noted that pastures are overgrazed.

Among the medium-value pastures of the Kashkadarya basin are representatives of the Betagali-Suliboshzor pasture type in the combination of thin-leaved wormwood, distributed in the middle mountain region. The share of poisonous and weeds in the composition of pasture varieties is extremely small. It is negatively affected by the growing number of livestock in the areas where they are located, the rapid development of dry farming in the areas adjacent to the Foothill region, and the expansion of settlements. The prospects for the use of pasture hills are extremely high. Its composition includes trees and shrubs of ornamental, medicinal and food value (Crataegus korolkowii, C.pontica, Acer turkestanicum, Prunus

bucharica, P. spinosissima, Rosa kuhitangi, Rosa fedtschenkoana, Rosa canina). However, the population uses hawthorn and peppermint only in part as food and medicine.

Representatives of wheat, brown-brown, large grass-ephemeral pasture types located in the lower mountain and hill regions of the Kashkadarya basin are located in the most widely used and anthropogenic areas in the region, but among them there are also middle-class pastures. Among them are mixed grass-wheat, bush-mixed grass-worm-wheat and ephemeral-brown-ryegrass, and in some places, ryegrass-ryegrass.

They contain rare and poisonous species, or they are characterized by a low proportion. Due to the fact that these pastures are surrounded by settlements, all types of livestock and agriculture are actively developing in their areas. The area is rich in shrubs such as Rosa maracandica, Prunus spinosissima, Crataegus korolkowii, Prunus erythrocarpa, but the population rarely uses them.

Weeds rich in weed species are important among the group of medium-value pastures due to the effective use of mixed grass-ephemeral-almond-mixed-fescue and sorghum-fescue-barley-grass pastures. This is the proportion of weeds in the composition of pasture varieties

Reaches 33-52%. However, these types of pastures are in the forefront in terms of their use in beekeeping in the Foothill zone.

Among the honey-succulent species, Alhagi pseudalhagi, Psoralea drupaceae, Lagonichium farctum occupy a large massif, and now the population produces steppe honey from them. In addition, Lagonichium farctum is another valuable cultivar. Its roots are still used by the locals in raising skins. The roots contain 7-11% of nutrients and the fruits contain up to 31% of nutrients.

In the Kashkadarya basin, low-value pastures are distributed in the adyr region, which are based on representatives of wheat-growing, large-grass-ephemeral and especially brown-colored pastures.

Mixed grass-ephemeral-ephemeral-wheat-wheat and ephemeral-weed-bush mixed-wheat varieties of wheat-type type are located in the areas of over-developed dry farming and animal husbandry. Accordingly, Strigosella turkestanica, Roemeria refracta, Taeniatherum caput-medusae, Heteranthelium piliferum, Bromus danthoniae, Trichodesma incanum, Centaurea virgate are the most common annual and poisonous species with low nutritional value in these pasture varieties. Both types of pastures do not contain species that can be used in other sectors of the economy.

According to Demurina (1976), the yield of this type reaches 20-39 quintals per hectare. However, the yield of wheat fields in the studied foothills is only 4.0-5.6 quintals, depending on changes in natural conditions. Decreased productivity, an increase in weeds in the composition of plant communities, a decrease in humus in the soil, leads to a deterioration of granularity. This set of indicators leads to the disruption of the historically established balance of the ecological environment. In Chirakchi, Kamashi and Dehkanabad districts, the increase in the composition of pasture types of hooves, kakra, kampirchopon, white kakra, spinach, jinjak, silt and other weeds is an indicator of the level of their anthropogenic factors.

On average, the grazing rate of all types of pastures reaches 25-30%. Since the process of anesthesia under the influence of anthropogenic factors is still ongoing, it is necessary to take an inventory of them in the mapping method and recommend them to the law enforcement agencies.

Ephemeral-brown-mushroom and carrak mixed-colored, brown-grass mixed in some places; carrakli-wormwood-rangzor, mixed with weeds in some places; Toxic and foreign species (Vulpia myuros, Cousinia resinosa, Aphanopleura capillifolia, Trichodesma incanum, Euclidum syriacum, Peganum harmala, Acroptilon repens, Centaurea bruguierana, C.virgate, Lagonichium farctum, Taeniatherum caput-medusae), which are found in abandoned areas as a factor in reducing the quality of almond-wormwood-wormwood-wheat mixed-color varieties they are abundant and their share in communities is 15-42%. In areas where pasture species are widespread, all forms of human activity related to production are strongly developed. Such a negative situation in the foothill pastures of the Kashkadarya basin is also observed in the mixed grass-saline-ephemeral-swamp and mixed-white-mushroom-mushroom-glazed varieties.

We rely on the fundamental state of ecology for the restoration of degraded pasture agrolandscapes, based on the floristic, cenotic principles of these pastures, the principle of ecological-cenotic interdependence of pasture ecosystems based on regional types of biogeocenotic structure, adaptive strategies of plants and complementary ecosystems. The process of formation of pasture phytocenoses is scientifically based on plant species.

It is important to create phytocenoses where there is a potential opportunity as a result of grazing large numbers of cattle on pastures. In this regard, there is a need to use pasture shrubs, shrubs and grasses as a semi-crop. The use of these mixed plants creates new ecological niches for other plants.

Principles of compatibility of ecological-cenotic constructions and adaptive strategies of plants. Regional types of biogeocenotic structures are based on the life forms of plants. The main builders of the natural pasture biogeocenotic structure in semi-desert and dry steppes are semi-shrubs (Artemisia family species, Kochia, perennial plant species of Camphorosma family, etc.) and perennial grasses (Agropyron, Stipa, Elymus, etc.).

Principle of ecological niche and differentiation of complementary species in phytocenoses. Ecological niche differentiation in the process of restoration of degraded pasture ecosystems is carried out during different rhythmic seasonal development due to the provision of different organs of plant species in the soil and the surface of the earth with mineral nutrients and light. An important task in determining the methods and directions of ecological restoration in this process is the joint study of life forms, species, ecotypes of forage plants.

In the Central Asian republics, including Uzbekistan, the main part of the number of sheep and goats are grazed on four-fifths of the total area of all pastures of the republic, ie in the natural pastures of deserts and semi-deserts. If the number of karakul sheep is predominant in the desert region, the number of meat-wool sheep breeds and small-wool goats in the foothills or hills and mountains is growing every year. Sheep

as pastures in the Foothill region of the country, “about 3.8 million hectares of land used for goats can not meet the needs of sheep and goats, which are currently growing.

According to the experience of phytomelioration in the desert conditions of the Central Asian republics for more than twenty years (1968-1990), the staff of the Institute of Botany of the Academy of Sciences of Uzbekistan developed a scientific basis for the creation of artificial pastures in this zone. This is done by replacing low-yielding and foreign plants with fertile and economically valuable plants, by conducting local phytomelioration. To do this, it is necessary to choose drought-resistant forage and fertile plants. This work can be done only by botanists-ecologists, pastoralists, those who are familiar with the natural vegetation of Uzbekistan and the whole of Central Asia, because only wild plants - among them can be found species that meet the above requirements. Indeed, scientists have used wild plant flora to selectively plant forage plants. However, in nature, these valuable plants in terms of forage are often found as a single specimen. In arable lands, they should be distinguished by an important aspect of drought adaptation. Because those "cultured" plants may not be able to produce high yields. The methods developed as a result of our research on pasture improvement include 3 steps.

In the first phase, improved natural pastures will be explored. Proper identification of promising species for plant growth, as well as the composition of future agrophytocenoses is required. In determining the compositional characteristics of the created agrophytocenoses, scientists often copy from nature, because natural communities are characterized by maximum adaptation to existing conditions. If natural communities include semi-shrubs, semi-shrubs, herbaceous plants, more valuable forage species are collected from their life forms. As a result of the study of natural meadows, a map of pastures and plants is created. The highlighted arrays are highlighted. In addition, promising species of forage plants are identified, as well as their ecology, community composition, soil and climatic conditions of the place are studied.

The second stage is completed by testing them to study the ecological-biological and physiological properties of plants in the collection nursery and in the allotted experimental areas in order to select promising species and forage plant forms. The selected promising plants are then tested for selection of phytomeliorants with high adaptability properties and economic-valuable characteristics in semi-productive arable lands in different farms of some districts of the republic. In total, more than 200 species and edible plant forms were tested in the Adir region. These are mainly representatives of the local wild flora.

This scientific research has shown that for the cultivation of promising species in different soil and climatic conditions, ie in the plains, semi-deserts and foothills of the republic, first of all, to determine the ecological groups of plants. These hyperxerophytes are more drought-resistant xerophytes (black saxaul, keyreuk, chogon); eukserophytes-true xerophytes (izen, teresken); teroiremoxerophytes - xerophytes of the summer flowering period (wormwood species); hemixerophytes-semi-xerophytes (species of oysters);

xeromesophytes-, xerophilized mesophytes (species of esparto, kashkarbeda) and mesophytes-plants adapted to moderate humidity conditions (glazed, brownish, etc.).

The choice of representatives of this or that plant ecological group for phytomelioration is determined by studying the conditions in the area. Naturally, the hill region is not the same, and the cultivation of plants on arable lands requires the selection of species, taking into account the requirements of these environmental conditions. In the third stage of scientific research, agrotechnical methods of these plants will be developed. In this case, the selection of the grass mixture is developed and the optimal composition of the forage plants to be planted is determined. This requires a deep knowledge of biology and plant ecology, ie the species composition of plants in the cultivated areas, as well as the high density of the plant also play a key role.

The grass mixture was selected using phytomeliorants for hay, pasture and complex pasture-hay. In the created fodder reserves, in the spring the cattle eat the wet annual grasses. Because among the semi-shrubs and perennial forage plants, the cattle themselves migrate. As a result, the area where the crops are spread in the spring is cleared of weeds. In isolated areas, no grassland is used for seed production from May to November. After sowing and harvesting, these crop fields will be used as pastures until next spring. Most forage semi-shrubs (izen, wormwood) grow from autumn and retain their green twigs almost all winter.

It should be noted that shrubs (black saxaul), semi-shrubs (teresken, chagon), semi-shrubs (izen, keyreuk, wormwood species) created on different farms are dry edible fodder in the range of 10-25 ts / ha from the second and third years of vegetation. gives a stable yield of mass. In the first year of vegetation, the yield of perennial grasses is 6-15 ts / h.

CONCLUSION. In summary, there are some medium and mostly low-value pastures in the region, which is an indicator of irrational use of pastures. The fact that this type of pasture is spread in the hilly zone of the region, where livestock, drought and agriculture are developed, indicates that the ecological situation in this region is unsatisfactory. The main factor that reduces the quality of pastures is the high proportion of weeds in the composition of pastures. The predominance of weeds in some pasture species means a complete crisis of pastures.

In conclusion, it can be said that the dry pastures created in the Adir region are suitable not only for sheep and goats, but also for cattle and horses. Also, in the autumn, when there is the least supply of fodder, sheep and goats graze with onion barley, sparsely hairy wheat when they come down from mountain and high mountain pastures.

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