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WAYS TO IMPROVE SOIL FERTILITY IN KAZAKHSTAN

S.Kurmanseyit, M.Anuarova, S.Bisekeeva, A.Dosmagambetova,
1st year students of the speciality Land Management,
Scientific supervisor: Master of Foreign Philology, A.E. Berikhanova
S.Seifullin Kazakh Agrotechnical Research University, Astana

Introduction.Land is the main natural resource. It is the source of all life and living environment. Now people get 88% of the food they need from fields, 10% from forests and pastures, and 2% from sea and ocean waters. That is why the safe and effective use of land resources is the most basic and urgent problem that will never lose its importance.

Kazakhstan is the ninth country in the world in terms of land area. Its total land area is 271.7 million hectares. Looking at these data, we can see that Kazakhstan has a lot of land wealth. Among them, agricultural land is 222.23 million hectares. Looking at the directions of land use: agricultural land, settlements, production, communication, communication, defense, nature protection, health care, holiday resorts, reserves, recreational complexes, lands of historical and cultural significance, forest reserve lands, water reserve lands, and state reserve lands. Although the land area of Kazakhstan is large, there are not many lands suitable for agriculture, the land suitable for cultivation is 34.9 million hectares. It is only 12.8% of all lands. The quality of a significant part of the land stock is low: 77 million hectares of land are subject to erosion; 75 million hectares of saline land; most of the arable land is not sufficiently supplied with moisture, more than 58% is located in the dangerous zone; 69% of the pasture is in the desert and desert zone, of which 60% of the fodder supply has deteriorated, 22% is covered with thorns and other plants unsuitable for livestock grazing, 15% is subject to erosion. Due to poor irrigation systems, 23% of irrigated lands have become swampy, 3% have become swampy, and 5% have lost their soil fertility. As a result of plowing, changing river channels, and other measures, the area of natural meadows decreased by 30%.

The territory of Kazakhstan is distinguished by a variety of relief, uneven age and complexity of the geological structure. Thus, within Kazakhstan, all altitudinal relief levels are observed - from lowlands, some of which have negative surface elevations, to highlands with modern glaciers. Plain and low-mountain regions prevail, occupying the west, north and central part of Kazakhstan. Highlands occupy a small area and are located in the east and southeast countries [1].

All the diversity of the relief was created over a long history by the same

mainly by the processes of relief formation that are currently operating time.

The youngest lowland in Kazakhstan is the Caspian. Its coastal part has been freed from sea waters only in recent decades.Here the lowland is 28 m below the ocean level, and on its more ancient northern outskirts, at the foot of the Common Syrt upland, it rises up to 70 m. The relief is almost flat, only in places it is interspersed with small domed hills. These are salt domes formed when salt layers swell during tectonic movements of the earth's crust in the Mesozoic and Cenozoic. Oil fields are associated with salt domes,gypsum, rock salt, potassium chloride. Ancient valleys, dry deltas, numerous closed hollows, often filled with salt lakes, and hilly-ridged sands, weakly planted. Where there is no grass cover, sands they were turned into loose hills - dunes.

A somewhat different type is the West Siberian and Turan plains. Seф left their territory in the Paleogene, that is, much earlier than the Caspian lowland. Yes, and they experienced somewhat larger uplifts, reaching a height of 100 to 200 m above sea level.

The surface of the West Siberian Plain is very uniform, only on parallel flat manes appear in the south, between which there are many lakes. Of all the plains of Kazakhstan, the West Siberian is the richest in water.

Through the Turgai trough, the West Siberian Plain connects with the Turan Plain, which is composed mainly of sands. Wandering the lowlands of the river deposited sand masses north of the Aral Sea - Large and Small Badgers, the Aral Karakum, and to the east of it - the sands of the northern part the Kyzylkum desert. These huge massifs of sands are for the most part turfed with vegetation and relatively well supplied with fresh groundwater. From the southeast to the northwest, the Turan plain is crossed by Syrdarya river.

Some regions of Kazakhstan, folded horizontally lying sedimentary rocks, experienced in the Neogene-Quaternary time more significant uplifts than plains, and became uplands. At the same time, the layers of sedimentary rocks composing them remained almost horizontal or slightly inclined. The average height of such plateau-like hills about 300 m., their surface is usually flat, sometimes wavy, sometimes with sharp stepped ledges. The slopes are often steep, they are called here chinks. The largest plateaus: Ustyurt, Betpak-Dala, Embenskoe, or Poduralskoe, Turgai and Mangyshlak. Because the climate here dryer and less developed river network, Ustyurt plateau, Betpak-Dala and the southern part Mangyshlak is relatively little dissected.

The Emba and Turgai plateaus, located in the north of the country, are separated by river valleys into separate massifs with flat table surfaces. Such mountains are called table mountains.

Problems and solutions of the soil fertility. If we look at the protection and use of land resources from an economic point of view, we will make sure that by increasing the rational use of its fertility, it is possible to significantly increase the products obtained from it. Its main directions are: 1. increasing soil fertility; 2. moistening the land; 3. draining wetlands; 4. reducing the salinity of wetlands; 5. preventing erosion; 6. restoring damaged areas and other agronomic measures and land use, improve the structure [2].

According to scientific forecasts, it is possible to increase the area of irrigated lands in our Republic from 2 million hectares to 3.5 million hectares. Thus, it is possible to increase the pasture area by 7.1 million hectares. It is necessary to constantly restore damaged lands. According to estimates, 15-16 million hectares of damaged lands should be repaired every year.

A special property of the earth is the fertility of the soil. The fertility of the soil is restored by itself with the presence of many microorganisms, but it takes a long time. It takes 100 years to form a 2.5 cm fertile soil layer, and 16,000 years to create a 90 cm soil layer at a constant temperature. of course, it requires very long years. The formation of the fertile layer of the soil is influenced by factors of the external environment (heat, cold, wind, moisture, sun and many others).

Changes in soil fertility are also affected by human activity. If we act from a scientific point of view, soil fertility will increase, but if we look at it irresponsibly, soil fertility will certainly decrease or disappear altogether. The main agronomic and agrotechnical organizational measures to increase soil fertility and land use efficiency are:

1. Protection of soil from erosion. There are three main types of erosion: wind, water and soil erosion. In uneven, barren areas, rainfall washes away the fertile soil layer. Open areas without forests, especially unproductive areas, are subject to wind erosion, the wind blows away the fertile soil layer. Land cultivation with heavy equipment, planting one crop every year, and the use of equipment in roadless areas increase soil erosion even more.

2. Protecting the soil from salinization. Soil salinization occurs when the amount of precipitation is less than the moisture that evaporates. Irrigating the field abundantly for many years causes soil salinization.

3. Ways to protect the soil from siltation - planting trees, bushes, planting perennial grasses.

4. In order to protect the land from waterlogging, it will be necessary to carry out hydromelioration works and improve irrigation systems.

5. In order to preserve nutrients in the soil, reclamation works, treatment of salty areas with lime and plaster, plowing with a special method, fertilizing, regulation of livestock grazing and other agronomic works should be carried out.

6. Protection from soil poisoning - regulation of the amount of pesticide, herbicide, fertilizer use, production, protection from household waste, sanitary and health measures.

7. Restoration of lands damaged as a result of construction, road construction, exploration of the subsoil, mineral extraction, disposal of waste significantly improves the land stock of our Republic [3].

These works are carried out based on achievements in the field of special sciences. In addition, these are economic measures. Because it is necessary to calculate the financial and material costs and determine the economic efficiency of the measures. Economic calculations and assessments are carried out for the implementation of land protection and effective use measures. It requires assessment, restoration, protection, improvement costs, adding the land to the market relationship, and other economic calculations.

Conclusion.To sum up, the land stock is the most important national wealth of our people. Measures are being taken to correct the situation in the republic, however their implementation is difficult due to the large capital-intensive work. Together with
therefore, failure to make decisions today will lead to even greater economic losses tomorrow, deterioration of food supply for millions of people, and may slow down the country's economic development. In recent decades, the role of human activity in intensifying desertification has noticeably prevailed over the influence of climate fluctuations. The main results of anthropogenic impact are related to the deterioration of soil and plant cultivation.

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