

Advantages of biomeliorative plants in improving the reclaimed condition of the land

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Abstract

Increasing the fertility of the active soil layer, especially on irrigated fields, is critical for high agricultural crop yields. Special attention is devoted to lands with high salinity, additional measures are done for fields with high salinity, proper crop selection, timely irrigation, and local and mineral fertilizers are used to improve land reclamation. Land for bioremediation plants and is also used to irrigate agricultural crops rather than to discharge excess water as a result of water application.

Keywords: biomelioration, biomeliorative plants, aquatic plants, salinization, reclamation, irrigation, exornia, azolla, pistachio.



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I. Introduction

In recent years, in Uzbekistan has undergone significant changes. Although Uzbekistan has long been considered an "agrarian" state, during the Soviet era, only cotton and wheat were grown in the region. At present, a variety of fruits and vegetables, cotton, grain, cereals, meat products, silk and leather are grown and exported to world markets. In order to develop entrepreneurship and get more yields from agricultural crops, special attention should be paid to the reclamation of lands. After all, our ancestors used to say: "If you look at the earth, the earth looks at you." The total land area of the country as of today is 449.8 thousand sq. Km of which irrigated area is 4 mln. 3,000 hectares or 9.3% of the total area. Products from irrigated lands account for 95% of total agricultural production. 55-60% of irrigated lands are saline and swampy, 50% are eroded, 10-12% are gypsum, carbonate soils. At the same time, very infertile sands and sandy, stony, gravelly soils are also common in irrigated lands. The reclamation function is divided into four types (irrigation, drainage, desalination, and erosion control), and the work performed is divided into agro-technical, hydrotechnical, biomelioration, forestry, chemical, cultural-technical, thermal, water reclamation, and many other types, depending on the work performed. Each sort of reclamation has its own application. Biomelioration is mostly used to improve the reclamation of lands and wastewater treatment. The mechanical composition, porosity, quality, structure, humidity, temperature, minerals of the soil play a special role in the development of the active layer of the soil. Soil contains chemical elements such as calcium (Ca), magnesium (Mg), chlorine (Cl), sodium (Na), sulfate (SO₄), carbonate (HCO₃). Excessive amounts of salts in the soil lead to salinization of soils.

II. Main part

In order to reduce the salt content of saline soils, similar salt-tolerant plants such as natural alfalfa, corn, wheat, sorghum, squash, barley, millet are grown on the soils. Good results can be obtained if blue-green aquatic plants (chlorella), azolla, exornya, pistachio are added to the water used for irrigation. In water-scarce areas, it is advisable to treat wastewater in exchange for biological plants. To do this, wastewater - natural aquatic plants in the effluent from the sewage system: small ryaska (*Lemna minor*), *Pistia* (*Pistia stratiotes*), azolla (*azollacaroliniana*), exornya (*EichhorniacrassipesSolms.*), Blue - green algae chlorella (chlorella) plants are grown, cleaned and used for irrigation.

Pistia stratiotes is a plant that grows on the surface of the water, with shortened stems and flat shovel-like leaves. Under introduction, the height reaches 20-40 cm. The leaves protruding from the root collar form a thick bundle, the upper part of which is green, with long traces of longitudinal stripes. As the aerenchyma tissue is well developed in the leaves of the plant, it grows floating on the surface of the water. The root system of the pistachio is poppy-like, 50-60 cm long, covered with many hairs.

Azollacaroliniana grows on the surface of the water and reaches a length of 0.7-1.8 cm. In the upper part of the sporophyte 2 rows of small leaves cover the branch, like overlapping coins, and in the lower part of the body is formed a root 2.0-2.5 cm long. According to the leaf structure, it is highly developed, i.e. each leaf consists of two segments: the upper segment is green, located on

the surface of the water surface; the lower segment is located at the bottom of the water and serves to attract water-soluble substances. The optimal period of mass reproduction of azole is July-September, during which it produces 250-300 g / m² of biomass per day. Wet biomass of 1500-2000 kg per day on 1 hectare of water with azole grown in wastewater; Pistachios and eucalyptus can produce up to 1800-2700 kg of wet or 90-135 kg of absolute dry biomass (June-October). , AVM-1,5) can be processed, prepared vitamin flour, protein - as a vitamin and mineral feed can be used as a supplement to their diet in the feeding of farm animals and poultry. Eichhórniacrásipes is a plant that grows on the surface of water and is 30-40 cm tall. Spoonful; smooth, green, glossy petals oval in shape; the edges are straight, parallel to the symmetrical longitudinal, and the veins are clearly visible. At the base of the leaf bands, the air-filled spherical part of the aerenchyma - the plant - floats on the surface of the water. The hairs of the poplar root system are well branched. From the base of the shortened stem joined by 15–20 leaf sheaths, the first order of growth developed lateral roots. The second order lateral roots up to 2.5 cm in length are placed horizontally in the water. All species of aquatic plants are now widely utilized in the treatment of wastewater and the reduction of mineral content in collector-ditch water. Another aspect of these plants is that when mixed with water and used for irrigation, they can hold moisture in the soil for a long time, thus acting as a fertilizer.

Conclusion

In other words, in order to improve the reclamation of lands, special attention should be paid to lands with high salinity. the goal is achieved. The application of biomeliorative plants to land and water is also used to irrigate agricultural crops rather than to discharge excess water.

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