

PERENNIAL GRASSES IN THE FIGHT AGAINST SOIL EROSION

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INTRODUCTION

One of the ways to reduce the process of soil erosion is the use of soil-protecting crop rotations. Soil-protecting crop rotations should have a large specific weight of perennial grasses (up to 50%, and sometimes more) and grain ear crops of continuous (or cross) sowing. Pure steam is excluded from such crop rotations (occupied and sideral steams are used instead) and row crops are limited or excluded to a minimum. Perennial grasses (alfalfa, safflower, clover, cornflower, ryegrass, etc.) are used in soil-protecting crop rotations both in pure crops and in a mixture.

RESULTS AND DISCUSSIONS

Mandatory inclusion of perennial grasses in crop rotations is due to their greatest soil protection efficiency due to a well-developed root system and dense covering of the soil surface with above-ground mass of plants, which persists almost continuously for several years, but it should be noted that the degree of soil coverage by plants in autumn, winter and early small in spring. The use of perennial grasses on eroded slope lands is also determined by the fact that cereal, technical and other crops produce low yields on washed out soils. In field conditions, mainly perennial grasses are grown in soil-protective crop rotations from solid cover crops. Perennial leguminous grasses enrich the soil with nitrogen due to the biological fixation of air nitrogen by nodule bacteria under all crops, and their effects are felt for three years or more. Of the legumes, it is better to grow alfalfa, field clover, asparagus, burgun, and horned dogwood. Among cereals, we recommend meadow fescue, ryegrass, combed ryegrass, thornless ryegrass, and many-stinged ryegrass. In the forest-steppe zone, the bromus inermis is the thornless sedge. Under favorable feeding conditions, 1 ha provides 7,200–7,600 fodder units, 12–13 h of crude protein, and 85–90 g of exchangeable energy. The nutritional value of 1 kg of dry weight is 0.79 feed units or 9.9 MJ of exchangeable energy. This cereal is very plastic, well adapted to different climatic conditions, and can be successfully used in grass mixtures in different regions of our country. One of the most drought-resistant perennial grasses. The introduction of seedless corn crops, especially on sloping eroded areas, can contribute to restoring soil fertility, reducing erosion and improving the agro-ecological situation as a whole. It was established that already from the second year of use, root and post-harvest residues amount to 4.5–5.5 t/ha, and over the years – up to 10.0 t/ha. 50 t of such residues contains 0.39–0.58 t of nitrogen, 0.24–0.28 t of phosphorus and 0.18–0.23 t of potassium, which is equivalent to applying 18 t/ha of manure. Also, this culture cleans the fields from weeds quite well. In the spring of the second year, thornless cornflower plants begin to grow rapidly, develop and suppress all weeds, which almost completely die in the third year.

CONCLUSIONS

Perennial grasses are an effective means of preventing wind and water erosion and improve the ecological situation. Therefore, the cultivation of perennial grasses in field and fodder rotations will reduce soil erosion and restore lost soil fertility, and will significantly increase the collection of complete fodder, which will reduce the cost of livestock production and make this industry profitable.