

MEANS OF ENHANCING THE ROLE OF BIOLOGICAL NITROGEN IN PHYTOTECHNY

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According to several sources, biological nitrogen plays an important role in the growth, development and productivity of agricultural plants. The share of biological nitrogen in their harvest is about 20%. The rest of the nitrogen comes from mineral fertilizers (30%), organic (8%), seeds (7%) and soil (35%). It is also known that with increasing doses of mineral fertilizers their effectiveness decreases, in agricultural production increases the accumulation of nitrates, intensifies their migration into the environment (water, soil, air, etc.). One of the alternative sources of supplemental plant in nutrition with nitrogen is atmospheric nitrogen fixed microbially. The intensification of the use of molecular nitrogen can be performed in several ways such as: increasing the areas of the crops of leguminous plants, bringing them in the structure of crops up to 20-25%. For this it is necessary to ensure the optimal conditions for the symbiotic fixation process (optimization of aeration and water regime, introduction of the required amount of phosphorus fertilizers and necessary micro-fertilizers).

The use of microbial preparations based on nitrogen-fixing symbiotrophic bacteria, usually significantly increases the symbiotic potential, positively influences the harvest and accumulation of crude protein. The effectiveness of inoculants can be considerably increased by creating "super-effective" *Rhizobium* strains (using the methods of molecular biology and genetics), which would combine all the qualities (activity, ecological plasticity, technology, competitive ability, etc.).

When developing new varieties and hybrids of leguminous plants, it is necessary to assess the "symbiosis" in order to select plant forms that have an increased potential for fixing biological nitrogen. If in the years 1960-1990 soybean varieties and hybrids were created which in symbiosis with the nodule bacteria after its harvest in the soil accumulate from 60 to 90 kg / ha of biological nitrogen, then after the 90s of last century, with the development molecular biology varieties and hybrids with an increased potential for molecular nitrogen accumulation in the atmosphere of 300-500 kg / ha were developed.

In the Republic of Moldova, strains of soybean nodule bacteria with high biological nitrogen fixation capacities were selected, based on which the *Rizolic* biopreparation was obtained, which is currently used for seed treatment before sowing. The research carried out on the lots of the Experimental Base of the ASM, of the Field Crops Research Institute "Selectia" and on the testing field of agricultural crops belonging to the Ministry of Agriculture and Food Industry (s. Bacioi) showed that bacterialization of seeds is an important element in soybean plant cultivation.

Following several years of research, the following conclusion was reached: the use of nodular bacteria of *Rhizobium japonicum* RD2 in soybean culture promotes plant growth, development and productivity while stimulating the nitrogen-fixing activity of the rhizobio-root system.

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