Using Artemisia leucodes Schrenk and increasing the effectiveness of nitrogen fertilizers on typical gray soil and gravelly typical gray soil

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Based on literature data and research results, the authors found that in the balance and conversion of nitrogen fertilizer in the soil-plant system, it can be argued that on a typical gray soil with a high content of organic matter and a broad C: N ratio in the initial period of plant development, it is more demanding to apply nitrogen , than on gravelly light gray earth. As studies have shown, with the onset of the flowering and maturation phase, the supply of plants with nitrogen on a typical gray soil is higher than that of gravelly light gray gray soil. Studies have established that Artemisia leucodes Schrenk grown on gravelly light gray earth with the introduction of full fertilizers, especially with manure, promotes more seed formation and the formation of greater biomass. The amount of biomass is more on typical gray soil than on gravelly light gray earth.

Keywords. Biomass, crop, fertilizer, typical gray soil, gravelly gray soil, light gray, immobilization, transformation of nitrogen, microorganisms, development phase, flowering.

The purpose of the study. Among mineral fertilizers, nitrogen fertilizers exert the most significant influence on the yield of plants. With the use of a stable isotope of nitrogen ^{15}N, it is established that in typical gray soil cotton does not use nitrogen fertilizers by 60-70%, as previously thought, but by 40-42% (Ryzhov S.N., Pirakhunov T.P., Tashkusiev M.M. ., Aliev A.T., 1979; Khodzhiev T., Bairov A., 1992).The main reason of incomplete using of nitrogen fertilizer by plants is gaseous and other types of losses, such losses reach 40-45 or more percent. The development of methods for the effective use of nitrogen fertilizers for growths is not only of scientific but also of practical importance, since it ensures high yields of the studied plants of increased quality, as well as a reduction in the level of environmental contamination. The transformation of nitrogen fertilizer in irrigated typical gray soil and gravelly light gray earth, as well as its use by plants depending on the nitrogen supply regime, has not been studied enough (Abzalov A.A., 2008; Kim L.M., 1988; Pirakhunov T.P., Mannanova R. N., Zakirova D., 1988).

Methods of research. In 2008-2009 we conducted vegetation and field experiments. In the first series of experiments, nitrogen fertilizer conversion was studied under identical conditions of nitrogen nutrition, in the second year - in connection with the timing of nitrogen application. Both vegetative and field experiments were carried out in the Farish region of the Djizak region.The agrochemical characteristics of the arable and subsoil horizons of conditionally irrigated rubbly light gray earth are, respectively, the following: nitrogen 0.10 and 0.07%; Humus 1.0 and 0.7%; Phosphorus 0.16 and 0.09%; Nitrates 15-20 mg / kg; Mobile phosphorus and exchange potassium, respectively, 32-10.8 and 208-120 mg / kg soil.In the arable and subsoil horizon of typical gray soil, the initial content of humus was 1.26-0.85%, respectively, to the soil mass; Nitrogen - 0,125-0,080;

Phosphorus 0.160 and 0.100; Potassium - 2,100 and 1,220%; Nitrate 18.0 and 10.0 mg / kg soil, mobile phosphorus - 33.7 and 4.0; Exchange potassium - 200-120. The C: N ratio is 7.8: 1 in the gravelly light gray earth and 11.7: 1 typical gray soil. Scheme of planting Artemisia leucodes schrenk 60x25x1.

Results of the research. The results of studies in vegetation experiments have established that the content of fertilizer nitrogen compounds depends on soil differences. In the first half of the vegetation (before mass budding), the amount of nitrogen immobilization from introduced fertilizers on typical gray soil (or the transfer of inorganic nitrogen to the organic form in the body of microorganisms) Occurs more intensively than in gravelly light gray earth.The introduction of manure increases this process on a typical gray soil, which is due to the different content of organic soils in these soils, as well as by the ratio. C: N.In connection with the immobilization of nitrogen, the content of inorganic compounds available for plants in the early stages of development and budding of plants decreases, especially under conditions of gravelly light gray gray soil.With the introduction of manure, the content of inorganic nitrogen fertilizers, unused fertilizer nitrogen (at the end of its growing season) on rubble light gray soils, especially when introducing manure more than on typical gray soil, is further reduced.

Conclusions. With respect to rubble light gray gray soil, a higher yield of biomass is provided when full fertilizers are introduced, especially with manure on typical gray soil.