

# CONSUMPTION OF ARTICHOKE PRICKLY (CYNARA SCOLYMUS L.) AND THE ENHANCING THE EFFICIENCY OF NITROGEN FERTILIZER IN VARIOUS SOIL CONDITIONS

Pirakhunova F. N., Inagamov S.Ya., Abzalov A.A.

<sup>1</sup>Tashkent pharmaceutical institute, Tashkent city, Uzbekistan (900010, Uzbekistan, Tashkent, Aybek street, 45), e-mail: [Akmal.38@yandex.ru](mailto:Akmal.38@yandex.ru)

---

As the authors note by balance and transformation of nitrogen fertilizer in the soil-plant can be argued that on a typical grey soil with a high content of organic substance and a wide ratio of carbon to nitrogen (C:N), more demanding of nitrogen application during the initial period of plant development than on grey-brownish soil. Based on the study and analysis of the literature, the authors note that due to the immobilization of nitrogen available to plants of inorganic nitrogen compounds in the early stages of development and the budding of plants is reduced, especially in grey-brownish soil. The authors found that artichoke plant grown on grey-brownish soil with the introduction of a complete fertilizer, particularly manure is promoter large formation of seeds and biomass, while the value of biomass more on a typical grey soil than on a grey-brownish soil.

**Key words:** nitrogen, immobilization, phosphorus, potassium, sodium, nitrates, sulfur, biomass.

**Introduction.** The development of methods for the effective use of nitrogen fertilizers for plants, including artichoke prickly, is not only of scientific but also of practical importance, since it provides high yields of high quality on the studied plants and the reduction in environmental pollution.

The transformation of nitrogen fertilizers in irrigated, both typical and grey-brownish soil, as well as its use by plants, depending on the mode of nitrogen nutrition, has not been studied enough [1,2].

**Methods of research:** in this regard, in 2011-2016 both vegetative and field experiments on light and typical sierozem soils of the Samarkand and Tashkent regions of the Republic of Uzbekistan were carried out by us. The area of each plot - 480m<sup>2</sup>. The plant layout is 60x40x2 with a density of 45100 bushes per hectare.

The repetition of vegetation experiments is 10, and field - 4-fold.

The filling of the vessels was carried out in autumn with soil taken from the field experiment (horizon 0-50 cm), taking into account its genetic horizons.

The soil moisture in the vessels was maintained at the level of 75% of capillary moisture capacity.

**Results of the study:** with the introduction of manure, the content of inorganic nitrogen of fertilizers, which was not used by plants of nitrogen fertilizer (at the end of its growing season), is particularly reduced on grey-brownish soil, especially when manure is applied more than on typical grey soil.

Based on the results of our research on the balance and nitrogen conversion of fertilizers in the soil-plant system, it can be argued that on a typical sierozem with a high content of organic substances and a wide C:N ratio, in the initial period of plant development, it is more demanding to apply nitrogen than on grey-brownish soil.

Studies have shown that with the onset of the flowering phase and maturation, the availability of plants with nitrogen on a typical grey soil is higher than on a grey-brownish soil, which is explained by the release of the previously absorbed nitrogen by soil microorganisms. The results of research in vegetation experiments have ascertained that the content of nitrogen compounds of fertilizers depends on soil differences. In the first half of the growing season (before mass budding), the amount of nitrogen immobilization from fertilizer applied on a typical sierozem (or the transition of inorganic nitrogen into an organic form in the body of microorganisms) occurs more intensively than in grey-brownish soil. The application of manure enhances this process on a typical sierozem, which is associated with the different content in these soils of the mass of organic residues, as well as the C:N ratio.

In connection with the immobilization of nitrogen, the content of inorganic compounds accessible to plants in the early phases of plant development and budding decreases, especially in the conditions of grey-brownish soil. This makes it necessary to study the effectiveness of the timing of application of nitrogen fertilizers, taking into account the biological features of nitrogen transformation and soil conditions (Table 1).

Table 1

**The content of nitrogen compounds of fertilizers in various soil conditions (mg/vessel).**

Annual norm g/vessel				Development phases					
				2-3 true leaves			Budding		
N	P	K	manure	Total	Protein	Non-protein	Total	Protein	Non-protein
<b>Grey-brownish soil</b>									
6	5	2	-	1842	960	882	1362	1290	72
6	5	2	400	1992	960	1032	1722	1380	342
<b>Typical soil</b>									
6	5	2	-	2400	1260	1140	1770	1560	210
6	5	2	400	2460	1380	1080	1872	1442	432

Research has shown that *Cynara scolymus* L. grown on grey-brownish soil with the introduction of nitrogen, phosphorus and potassium fertilizers, especially with manure, contributes to a greater formation of seeds and the formation of greater biomass. At the same time, the biomass is larger in typical sierozem than in light sierozem.

**Conclusion:** 1. In relation to grey-brownish soil, a higher yield of biomass is ensured when full fertilizer is applied, especially with manure on typical grey soil.

**References:**

1. Kim L.M. The transformation in the soil of nitrogen CFF and its use by cotton plant. // Proceedings of the Tashkent Agricultural Institute: Intensive technology of cotton cultivation in the UzSSR: -1988. – p.100-107.
2. Khodzhiev T., Bairov A., Nitrogen of fertilizers and nitrification inhibitor in cotton growing // Tashkent.: Fan, 1992.-p.118.