

ABSORPTION by *Cynara scolymus* L. and INCREASING THE EFFECTIVENESS OF NITRIC FERTILIZERS ON VARIOUS SOIL CONDITIONS

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Aim of research: It should be noted that the elaboration of methods for effective use of nitric fertilizers for plants including *Cynara scolymus* L. has not only scientific but practical importance as they provide high crops of high quality in studied plants and also the decreasing the level of environment's contamination.

Transformation of nitric fertilizers in the irrigated both on typical and bright grey earth and also its use by plants depending on the regimen of nitric nutrition has been studied insufficiently (Abzalov A. A., 2009; Kim L. M. 1988).

Research methods: In this connection in 2011-2014 we conducted both vegetative and field experiments on bright and typical grey earth soil in Samarkand and Tashkent regions of the Republic of Uzbekistan. The area of each divided part was 480 m². The scheme of disposition plants is 60×40×1 with density of 36680 bushes per ha.

The repeat of vegetative experiments was 10 times and field – 4 times. The filling of vessels was conducted in autumn with soil taken from the field experiment (horizon 0-50 cm) taking into account its genetic horizons.

The moisture of soil in vessels was supported in the level of 70% of capillary moisture-capacity.

Results: Based on results of our research on balance and transformation of nitric fertilizers in the system soil-plant it can be confirmed that on typical grey earth with high content of organic substances and wide ratio C:N at the beginning of plant' development it is required more nitrogen than on light grey earth.

The research showed that with the beginning of flowering phase and maturing seeds the provision of plants with nitrogen on typical grey earth is higher than on bright grey earth that is explained with releasing of earlier absorbed nitrogen by soil microorganisms.

The research results ascertained that the content of nitrogen compounds of fertilizers in plants' tissues depends on soil varieties.

Table 1**Content change of organic and inorganic nitrogen of fertilizers on typical grey earth and bright grey earth (mg per vessel)**

Year norm g/vessel				2-3 real leaves			Buds forming process		
N	P	K	Manure	Total	Organic	Inorganic	Total	Organic	Inorganic
Bright grey earth									
6	5	2	-	1390	736	654	2848	1208	1640
6	5	2	400	1620	900	720	3004	1500	1504
Typical grey earth									
6	5	2	-	1694	1064	603	3136	1556	1580
6	5	2	400	1690	1250	440	3252	1640	1612

In the first part of vegetation (before mass buds forming process) the immobilization value of nitrogen from the introduced fertilizers on typical grey earth (or transformation of inorganic nitrogen to organic form in microorganisms' body) occurs more intensively than on bright grey earth.

With introduction of manure the content of inorganic nitrogen of fertilizers decreases more, nitrogen of fertilizers not used by the plants (in the end of its vegetation) on bright grey earth, especially when manure is introduced, more than on typical grey earth.

The introduction of manure intensifies this process on typical grey earth that is connected with different content in this soil the mass of organic residues and also the ratio C:N.

With immobilization of nitrogen the content of available for plants inorganic compounds in early phases of development and buds forming process of plants is decreased, especially in conditions of bright grey earth.

This makes necessary to study the effectiveness of introduction terms of nitric fertilizers taking into account the biological transformation features of nitrogen and soil conditions.

Table 2**Content of nitrogen compounds of fertilizers on various soil conditions (mg/vessel)**

Year norm g/vessel				2-3 real leaves			Buds forming process		
N	P	K	Manure	Total	Organic	Inorganic	Total	Organic	Inorganic
Bright grey earth									
6	5	2	-	1842	960	882	1362	1290	72
6	5	2	400	1992	960	1032	1722	1380	342
Typical grey earth									
6	5	2	-	2400	1260	1140	1770	1560	210
6	5	2	400	2460	1380	1080	1872	1442	432

Conclusion: The researches ascertained that *Cynara scolymus* L. grown on bright grey earth with introduction of full fertilizers, especially with manure provides for more seeds formation and biomass. Biomass amount during this process is higher on typical grey earth than on bright grey earth.

References

1. Абзалов А. А. Применение серы как важный фактор получения экологически чистого продукта лекарственных растений. Ж. Вестник аграрной науки Узбекистана, № 1-2, 2009. p.54-60
2. Ким Л. М. Превращение в почве азота КФУ и его использование хлопчатником. Труды ТашСХИ «Интенсивная технология возделывания хлопчатника в УзССР, 1988, p.100-107

SUMMARY

In this research were conducted both growing and field trials in different conditions of Samarkand and Tashkent regions of the Republic of Uzbekistan. On the basis of the obtained results it was ascertained that the bright grey earth of higher biomass harvest of artichoke prickly makes full fertilizer, especially manure than a typical grey earth.