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IMPORTANCE OF USING ORGANO-MINERAL COMPOSTS AS AMELIORANTS

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ANNOTATION

At present research article, described data on the conducted experiments under the medium saline soil bold serozem like soils of Surkhandarya region, where it observed that soil.

Keywords: Agroruda, bentonite, organomineral compost, volume mass, dry residue, chlorine ion, macrostructure, soil reclamation, ameliorants, salinization, organic fertilizers, fertility, agrophysics, cotton, yield.

Аннотация

Мазкур мақолада, Сурхондарё вилоятининг ўртача шўрланган тақирсимон тупроқлари шароитида ноанъанавий агрорудалар асосида тайёрланган компостлар мелиорант сифатида қўлланилганда тупроқ мелиоратив ҳолатининг ўзгаришига таъсири тўғрисида маълумотлар келтирилган.

Аннотация

В натоящей статье, приведены данные о проведенных исследований в условиях такыровидных, среднезасоленных почв Сурхандарьинской области, приминение компост действия изминение мелиоративных состояние почв.

Ключевые слова: Агроруда, бентонит, органоминеральный компост, объемная масса, сухой остаток, ион хлора, макроструктура, мелиорация почвы, мелиоранты, засоление, органические удобрения, плодородие, агрофизика, хлопок, урожайность.

Калит сўзлар: Агроруда, бентонит, органоминерал компост, ҳажм масса, қуруқ қолдиқ, хлор иони, макроструктура, тупроқ мелиорацияси, мелиорантлар, шўрланиш, органик ўғитлар, унумдорлик, агрофизика, ғўза, ҳосилдорлик.

INTRODUCTION

Improvement of saline soils of different levels in Surkhandarya region, the southernmost region of Uzbekistan, prevention of salinization, desalination of soil, introduction of water and resource-saving agro-technologies, adequate yield of agricultural crops in saline soils, development and widespread use of new modern agro-technologies to improve reclamation are among the current issues.

It is recommended to use non-traditional organomineral composts based on bentonite sludge and various local fertilizers as ameliorants in moderately saline soils and the effects of their timing on soil reclamation, crop and cotton crop yields have not been extensively studied.

Academician K. Mirzajonov noted that different levels of soil salinity sharply reduce the coefficient of seasonal application of mineral fertilizers by plants. [1] M.A.Belousov found that in saline soils the absorption of nitrogen by plants varies, and when the chloride ion in the soil is 0.04%, the resulting elements absorb nitrogen as the least ammonium chloride. [2] In order to reduce harmful salts in the soil, professors M.Khamidov, U.Juraev and K.Khamraev [4] planted phytomeliorant of white corn (sorghum) on the lands vacated by grain crops in saline soils in the conditions of water shortage the amount of water used for saline washing in the fall is relative to a field that has been left uncultivated by plowing 2392 м^3/hec found that it had decreased.

METHODS

The experiment consisted of 7 variants and was performed under moderately saline loamy soils. Methodological manuals "Methods of conducting field experiments" UzPITI (2007), "Methods of agrophysical research" SoyuzNIXI (1973) were used in agrophysical analysis.

In our research, the effect of the use of non-traditional agro-ores and organo-mineral composts prepared on their basis as ameliorants in the conditions of moderately saline loamy soils on changes in soil reclamation and cotton yield.

Also, in the first case, when the effect of the use of different amounts of organo-mineral composts as ameliorants on changes in soil volume mass during the season was determined, the first option, which was carried out by simple saline washing in the 0-30 and 30-50 cm layers of soil, the volume mass was 1.35 and 1.38 g / cm3, while in the second variant, where river mud was used as ameliorant at 40 t / ha, the figure was 1.34-1.36 g /cm^3 formed.

In the third variant, in which 25.0 t of semi-rotten cattle manure per hectare was applied in the experiment, the volume mass of soil in the drive and sub-drive layers was 1.34-1.36 g/cm^3 дан ошмади. In the sixth variant, where the most optimal effect of ameliorants, ie (10 tons of semi-rotten cattle manure + 6.0 tons of bentonite-based) 21.0 tons of compost was applied, the soil volume mass was 0.02-0.03 g /cm^3 from the first and second options was found to decrease. By the end of the season, under the influence of inter-row tillage and irrigation, the soil volume mass in all variants was 0.01-0.02 g/cm^3 compared to the beginning of the season. was found to have increased, but a relatively small increase was also found at the end of the season under the most optimal exposure of compost ameliorants. At the end of the season in the 0-30cm layer of soil the volume mass is 1.38g/cm^3 in the first in the sixth variant 1.34 g/cm^3, where 21.0 t compost meliorant was applied 0.04 g / cm^3 from the control was low.

Changes in the amount of macroaggregates in the soil under the influence of compost ameliorants were determined by the method of N.I.Savinov before application of composts and after reclamation measures in layers of 0-10, 10-20, 20-30, 30-40 and 40-50 cm.

Under the influence of compost ameliorates applied on moderately saline loamy soils, the amount of macroaggregates in the driving layer changed, the amount of agronomically useful macroaggregates from 0.25 mm to 10 mm in the 0-50 cm layer of soil increased from 47.31% to 58.31% in the third variant. In the variant where 21.0 tons of compost was used, this amount was 60.03%, while it increased to 14%. (Table 1)

Table 1 Changes in the amount of agronomically useful macro-aggregates in the soil from 0.25 mm to 10 mm after the application of compost and other ameliorants

Soil layer, cm	Variants						
	Control	Salted washed	25.0t manure in semi-rotten state	6.0 t of bentonite mud	12.0 t of bentonite mud	21.0t compost based on cattle manure and bentonite	16.0 compost based on sheep manure and bentonite
0-10	55.31 55,29 55,33	56.32 56,30 56,34	58.14 58,11 58,17	55.58 55,60 55,56	56.45 56,46 56,43	59.76 59,77 59,75	58.81 58,80 58,82
10-20	53.11 53,10 53,12	55.76 55,72 55,80	57.60 57,58 57,62	54.72 54,70 54,74	54,83 54,83 54,82	58.69 58,70 58,68	57.58 57,60 57,57
20-30	53.25 53,27 53,23	54.22 54,25 54,20	56.59 56,61 56,56	53.91 53,90 53,92	52.46 52,44 52,47	60.03 60,05 60,02	55.34 55,33 55,35
30-40	51.03 51,06 51,00	52.16 52,13 52,19	53.45 53,41 53,48	50.41 50,39 50,43	48.96 48,97 48,95	53.39 53,40 53,38	52.47 52,46 52,49
40-50	45.88 45,85 45,90	47.56 47,52 47,59	47.31 47,33 47,29	47.97 47,98 47,97	46.67 46,69 46,65	49.33 49,35 49,32	48.05 48,07 48,04

The aim of the study was to determine the effect of compost ameliorants on the change of harmful salts in the conditions of moderately saline loamy soils. In particular, the average salinity of soils in Surkhandarya region is 47.6 thousand / ha, or 17.0%. National Report on Land Resources, Kuziev [3]. In the initial period of the experiment, the dry residue in the 0-50 cm layer of soil was 0.541%, chlorine ion 0.045%, and at 50-100 cm this figure was 0.547-0.048%, in the first variant 4000-4500 m^3 the dry residue was 0.473% and the chloride ion was 0.034% when the water was used and the brine was washed. The most optimal effect of non-traditional organomineral compost ameliorants is when applied at 21.0 t / ha, 0-50; In the 50-100 cm soil layer, the dry residue and chlorine ion did not exceed 0.476-0.035 and 0.501-0.036%, respectively.

According to the data obtained, the accumulation of salts in the driving layer of the soil was observed to increase relative to the end of the season from the beginning of the application period in all variants. It was found that seasonal waters during the growing season caused at

least partial leaching of salts from the drive layer of the soil, but at the end of the application period, as a result of mineralization of groundwater and intensification of their capillary rise, slightly harmful salts accumulated in the drive and subsoil layers.

Table 2. Changes in the amount of salts in the soil layers of the experimental field at the end of the season,%

Variant	General salinity condition			
	0-50 sm		50-100 sm	
	Dry residue	Cl	Dry residue	Cl
Before the event (control)	0,541 0,544 0,539	0,045 0,043 0,044	0,547 0,548 0,546	0,048 0,047 0,049
Salted washed	0,473 0,475 0,473	0,034 0,035 0,033	0,507 0,509 0,506	0,039 0,037 0,040
12.0t of bentonite mud was used	0,501 0,503 0,499	0,037 0,035 0,038	0,512 0,514 0,510	0,039 0,037 0,040
16.0 tons of compost was used (6.0 tons of bentonite mud + 10.0 tons based on sheep manure)	0,479 0,480 0,478	0,035 0,033 0,037	0,503 0,501 0,505	0,037 0,036 0,038
21.0 t / ha compost-ameliorant was used (6.0 t bentonite mud + 15.0 t based on cattle manure)	0,476 0,475 0,477	0,035 0,033 0,037	0,501 0,503 0,499	0,036 0,034 0,037

In the experiment, it was observed that in the variant where compost ameliorants were applied at 21.0 t / ha, the amount of accumulation of harmful salts in the soil layers at the end of the season was lower than in the control and other options. The applied compost ameliorants, along with the adsorption (absorption) of anions and cations of water-soluble salts, coagulation of insoluble salts, a decrease in the amount and effect of harmful salts in the soil layers was observed. (Table 2)

The study found that organomineral compost ameliorants used against the background of mineral fertilizers reduced by 15-20% during the season improved soil fertility and reclamation status as both ameliorants and supplements.

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