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## THE COMPOSITION OF VARIOUS COMPOSTS BASED ON BENTONITE, PHOSPHORITE, AND MANURE USED IN THE EXPERIMENT.

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**Abstract.** *Individual contents of Hovdak bentonite, Guliob phosphorite and semi-rotted manure contain nutrients necessary for soils and plants in various doses. Specifically, due to the presence of 20-60% or more magnesium-montomoranite mineral in the composition of bentonite, the moisture absorption capacity of the soil as the best natural sorbent has a positive impact on its water-physical and physicochemical properties.*

**Keywords:** *Bentonite, phosphorite, semi-decomposed manure, and various types of compost.*

### INTRODUCTION

Many scientists have emphasized in their research data that the application of non-traditional agro-ores to soil is highly important for maintaining and increasing the amount of nutrients in the soil and obtaining high yields from agricultural crops. They have developed scientific foundations for using agro-ores as fertilizers at rates ranging from 750 kg to 6 tons per hectare, as well as in the form of various composts prepared from these ores [1;2;3;4;5;6;7;8;9;10;11;12;13;14;15;16;17;18].

Research methods. All observations, analyses, and calculations in this study were conducted based on the methodological manual "Methods for Conducting Field Experiments" .

Analysis results. When using Khovdak bentonite compost as fertilizer, it was found that one ton contains 4 kg/t of mobile phosphorus, 6.5 kg/t of exchangeable potassium, 5.0 kg/t of nitrogen, 4.7 kg/t of carbon, and other macro and microelements.

It was determined that one ton of Guliob phosphorite compost used as fertilizer contains 12 kg/t of mobile phosphorus, 6 kg/t of exchangeable potassium, humic acid, and macro and microelements.

The widespread use of local fertilizers, as well as various composts, is of great importance in restoring soil fertility, increasing the effectiveness of mineral fertilizers and crop yields, especially in improving product quality. Local fertilizers contain

macro-, micro-, and ultramicroelements, which are important nutrients for cotton. A large amount of organic fertilizers consists of cattle manure, both with and without bedding.

One ton of semi-decomposed manure contains 4-6 kg of nitrogen, 2-3 kg of phosphorus, and potassium

In addition to 5-6 kg, it is a valuable organic fertilizer because it contains microelements (manganese, copper, lead, boron, cobalt, and other elements) and carbon. When applied to soil, manure decomposes with the help of microorganisms, and the carbon dioxide produced from the oxidation of carbon affects the phosphate in the soil, increasing its solubility. The carbon accumulated in manure is further decomposed by living microorganisms, enriching the humus content as complex compounds that transition into humus.

However, the amount of manure accumulated in our republic amounts to only 5-6 tons per hectare of land. This shortage can be addressed through the effective use of local fertilizers (poultry droppings, urban waste, horse manure, hydrolyzed lignin, tree leaves, non-fodder plant litter, and other waste) along with cattle manure, as well as fertilizers prepared from phosphorites and non-traditional agro-ores (based on bentonite, bentonite-like clays, glauconites).

It can be noted that in recent years, in order to reduce as much as possible the standards of local manure and mineral fertilizers, which have been decreasing in stock, and to increase its effectiveness, Khovdak bentonite, Guliob phosphorite and half the use of composts made on the basis of rotted manure is more effective, and it was found that this technology can save up to 21% of the consumption of minerals and local fertilizers.

Compost composition Changes in the composition of Khovdak bentonite, Guliob phosphorite, half-rotted manure and composts prepared on their basis, in the fourth month of the preparation period, an increase in the nutrients contained in them was observed. It should be noted that the various compost nutrients used were applied to the soil before plowing in the fall of 2019, and the changes in the nutrients in the soil during their effects and last effects were unique.

One of the ways to increase the rate and quality of local fertilizers is to prepare different composts with different manures and non-traditional agro-ores.

Various composts applied to the soil are decomposed by microorganisms (bacteria, fungi, etc.), the carbon content is oxidized, and favorable conditions are created for the reproduction and activity of microorganisms.

In our work, various composts based on half-rotted cattle manure and bentonite slurry, as well as cattle manure and Guliob phosphorite were analyzed based on the mechanism of their preparation over a period of 3 months. During the analysis, samples were taken and analyzed from various composts on the same day of each month, and as a result of the analyzes conducted on 20.05.2019, the moisture content

of the various composts (with phosphorite and bentonite) was 54.7-52.2%, dry matter 45.3-47.8%, ash 23.1-24.7%, organic matter 22.2-23.1% and total nutrients nitrogen 0.42-0.43%, phosphorus 0.21-0, 23% and potassium was 0.49-0.52% (Table 1).

Table 1

**Structural changes of different composts during their preparation**

Composition of composts made on the basis of Khovdak bentonite, Guliob phosphorite and manure													
Preparation time, 20.05.2019							End time, 19.08.2019						
Humidity water content, %	dry matter amount, %	Amount of ash, %	Organic matter amount, %	Total nitrogen quantity, %	Total phosphorus, %	Total potassium, %	Humidity water content, %	dry matter amount, %	Amount of ash, %	Organic matter amount, %	Total nitrogen quantity, %	Total phosphorus, %	Total potassium, %
54,7	45,3	23,1	22,2	0,42	0,21	0,49	53,4	46,6	24,6	22,0	0,45	0,23	0,53
<i>Compost with Guliob phosphorite - (made on the basis of cattle manure + Guliob phosphorite)</i>													
52,2	47,8	24,7	23,1	0,43	0,23	0,52	52,7	47,3	23,9	23,3	0,49	0,26	0,58
<i>Compost with Khovdak bentonite (prepared on the basis of cattle manure + Khovdak bentonite)</i>													

In the preparation of various composts, it was observed that the temperature was optimal, the decomposition of organic substances under the influence of microorganisms, and the rapid progress of agrochemical reactions, and as a result, the amount of total nutrients increased within a period of 3 months.

In short, when analyzed on August 19, 2019, the moisture content of the composts prepared on the basis of Khovdak bentonite and Guliob phosphorite was 53.4-52.7%, dry matter 46.6-47.3%, ash 24.6-23.9%, organic substance 22.0-23.3%, and the total nutrients nitrogen 0.45-0.49%, phosphorus 0.23-0.26% and potassium 0.53-0.58%, and compared to the initial period, the amount of accumulated nutrients nitrogen 0.03-0.06%, phosphorus 0.02-0, 03% and potassium was found to increase by 0.05-0.06%.

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