



## Changes In Humus Quantity and Its Quality Composition In Soils Under Irrigated Agriculture

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**Annotation:** Reforms in agriculture are directly related to land resources, their environmental and land reclamation conditions, and at the same time, soil fertility. In practice, 80-90% of agricultural products are obtained mainly from these soils.

**Keywords:** humus, moderate, reserve, potential, of agricultural products are obtained mainly from these soils.

### Introduction

The positive effect of organic matter on soil properties and fertility is great. Humus plays a very important role in the formation of water-resistant aggregates. They improve water, air and biological regimes of the soil and increase its resistance to erosion. In addition, humus serves as the main source of nitrogen, carbonic acid, partly phosphorus and potassium.

Humus, as a substance that improves soil properties (controls water, air, and biological regimes and increases resistance to water erosion by forming water-resistant aggregates) and increases productivity, it is necessary to pay great attention to the study of its various reserves. Increasing or decreasing the amount of humus in the soil depends on the process of which form of reserve is accumulated or washed away, leaving with wastewater.

Based on these, humus reserve forms are divided according to the rule (Akhatov b 2004):

- The total amount of humus concentrated according to the Turin method - the total reserve;
- The part that forms the basis of humus composition - potential reserve;
- Humus connected with various particles is a close reserve;
- water-soluble humus part - direct reserve.

Therefore, we can use the terms "moderate" and "mule", which the French scientist Duchaufour (1965) applied to humus, to the types of humus reserves.

- general and potential reserves of humus can be called moderate humus, that is, coarse humus, and close and direct reserves can be called mule humus, that is, fine humus, because fine humus is collected in fine mechanical particles and partially they are water soluble.



Fine humus binds small mechanical particles to each other, covers the surface of the aggregates with a thin film and participates in the formation of water-resistant aggregates. Coarse humus is located in the spaces between aggregates.

Studying the connection of humus substances with the mineral part of the soil and their forms determines the direction of soil formation and the process of formation of fertility. The reserve of humus in the soil is considered to be a factor indicating the degree of formation of aggregates, especially proximity and direct types, and the potential reserve serves as the main reserve source for their formation.

In newly irrigated typical gray soils, the amount of humus decreased by 1.5-2 times in the arable layer compared to the reserve soil. The main reasons for this are the effects of soil plowing and suction.

It can be seen that the amount of humus in the typical gray soil that has been irrigated for a long time is significantly increased in the arable layer and its lower layers compared to the typical gray soil that is newly irrigated. Therefore, it is observed that the humus content of the irrigation is regenerating in the old irrigated soil compared to the newly irrigated soil.

The potential reserve, which makes up the main part of the humus composition, is observed in all sections of the soil to decrease according to the law from the upper layer to the lower parent rock. The potential reserve of humus in these soils ranges from 1058 to 197 mg/100 g.

The potential reserve of humus in the reserve typical gray soil is maximally accumulated in the sod layer, and in the sod oat layer, it is reduced by 2 times, and it is noticed that it gradually decreases in the subsequent genetic layers.

It can be seen that the potential reserve of humus in newly irrigated typical gray soils is significantly lower than in reserve and long-irrigated typical gray soils.

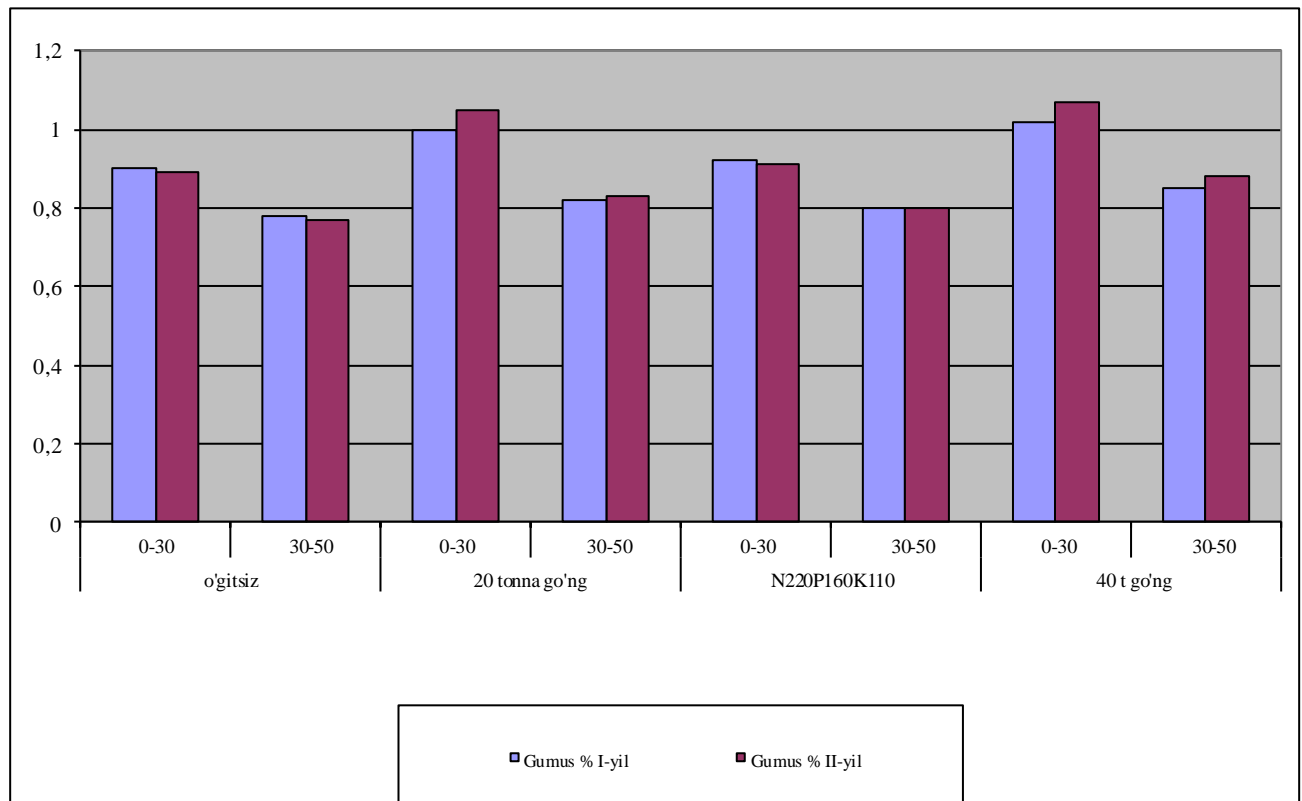
In the typical gray soil, which has been irrigated for a long time, along with the potential reserve of humus, the amount of proximity and direct reserve types increases. At a depth of 0-120 cm of the cutting layer, the potential reserve of humus is up to 843-309 mg/100 grams, the density is up to 317-178 mg/100 grams, the direct reserve type is from 160 to 13 mg/100 grams. These numbers show that the longer the soil is used in irrigated agriculture, the higher the level of cultivation of the soil, the better its structure, and the higher the level of formation of water-resistant aggregates. These, in turn, are the main factors in managing soil fertility, water, air, and heat regimes. It is very important to know the change of humus as an important indicator of the process of soil formation and fertility when observing the evolutionary change of the soil cover. Soil fertility is one of the greatest assets. It should be used wisely and correctly for human benefit. Maintaining and increasing its productivity should always be in the attention of agricultural experts. Organic matter is very important in soil fertility and ecology.

The amount of humus in the soils of different regions of the republic is different, and it depends on a number of factors such as the origin of these soils, soil-climate conditions, use in irrigated agriculture, applied agrotechnological methods, farming culture. Therefore, the amount of humus in the main soils of the republic and its reserves in certain layers may decrease, increase or



remain unchanged depending on the extent to which farms use the land. This depends on a number of factors, such as the organization of each individual farming system, the use of organic and mineral fertilizers, the placement of crops and adherence to crop rotation.

Organic moda-humus has a special role in soil fertility, soil fertility should be at a sufficient level to obtain a high and high-quality harvest from crops.



### 1- drawing. Effect of organic and mineral fertilizers on the amount of organic matter in the soil

The highest accumulation of organic matter in the soil (0.22%) was observed when 40 tons of manure was applied per hectare.

In order to increase the humus reserve in the soil, it is necessary to apply a large amount of organic fertilizer to the soil. According to the information in Germany, in order to increase the humus reserve of the soil in the country, it is necessary to apply 4 t/ha of organic fertilizers every year. In order to achieve this, 15-20% of perennial grasses should be used in crop rotation, and 75 conditional cattle should be on every 100 hectares.

In our conditions, according to scientific data, the humification coefficient of organic matter is considered to be 0.30 on average, when dry matter is 50%. This means that in irrigated agriculture, if well-rotted organic fertilizer is applied annually on average 10-15 t/year with mineral fertilizers, the amount of humus is 3.0 - will increase by 4.5 tons. If it is applied in a higher amount - 30-40 t/h, soil humus will increase by 9-12 t/h.



In conclusion, it can be said that organic fertilizers and their use together with mineral fertilizers have a positive effect on the composition of broken bases in the soil. These effects are especially evident in the amount of Ca<sup>++</sup> cations.

Organic fertilizers enrich the soil with organic substances. In order to increase the effectiveness of organic and mineral fertilizers, their content should be high. Increases the efficiency of organic fertilizers, mineral fertilizers.

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