INTRODUCTION OF RESIDUES OF SIDERATED PLANTS TO SOIL FERTILITY

SCHOLASTICO-2021

D.U.Burkhanova, N.Ch.Namozov , M.N. Urmanova , B.A.Fazliddinov
Tashkent, Uzbekistan Tashkent State Agrarian University.
(d.burxanova77@mail.ru)

Annotation.

This article presents materials on the introduction of plant residues and green manure into the soil, which reduces the evaporation of moisture from the soil, its temperature rises, and the content of phosphates and nitrates increases. As a result, the best conditions are created for accelerating seed germination and plant development.

Introduction.

Currently, there are a number of agrotechnical, agromeliorative, forest reclamation methods: which mainly change the energy regime of the root layer and the surface layer of the air. At the same time, it was found that the state of moisture and air in the soil, associated with this regime, and their agrochemical and microbiological properties, also change at the same time. Such techniques are irrigation, forest belts, methods of ridging and felling, methods of placing plants on an area (standing density), various methods of soil cultivation, some mulch techniques and artificial heating of the soil, etc. Here we will briefly dwell on mulching the soil as an agricultural technique improving thermal, water, nutritional, air conditions, agrochemical, microbiological and other properties.

As you know, in connection with the task of further increasing the yield, more attention is paid to improving the agrotechnical methods of cultivating agricultural crops. A relatively new, little-studied and at the same time promising agrotechnical method is mulching, which has long attracted the attention of many researchers. Mulching should be understood as any soil cover (continuous or inter-row) with various materials, for which plant stubble, peat chips, manure, humus, composts, straw, splittings, leaves, mulch paper, coal powder, soot, gravel, cement, bitumen can be used various kinds of emulsions obtained from oil waste, etc. Recently, new mulching materials have appeared, in particular, a polymer film of various colors and thicknesses. The properties of these mulching materials are very different and their effect on plant life and the environment is varied.

One of the main reasons for low productivity is a sharp drop in soil fertility, due to a decrease in the content of humus in the soil and deterioration of the agrophysical properties of the soil. To create a deficit-free balance in the soil, and in this regard, to increase productivity is possible only when a large amount of organic matter is introduced into the soil. However, it is not possible to apply manure in sufficient quantities in the farms of the republic due to its shortage. Therefore, scientifically grounded agrotechnical methods, contributing to the accumulation of humus in the soil, based on other types of organic fertilizers, is one of the most important tasks. An increase in soil fertility can be a cotton stalk, a wheat stalk and green manure use for mulch (sod-humus system) will significantly reduce energy costs, since this system does not require loosening and plowing, and due to the mass of mown grasses and dying roots, the soil will constantly be replenish with fresh organic matter.

With a stalk of cotton, a stalk of wheat and green manure used for mulch, it is a complex agricultural practice that has a positive effect on the soil, plants and the environment. Plant biomass improves the chemical, physical and biological properties of the soil. After the decomposition of plants, a huge amount of organic matter enters the soil, as from aboveground, which increases the content of nitrogen, phosphorus, potassium and humus in it and leads to an increase in effective soil fertility and an increase in yield.

Experimental methods. The experiments were carried out at the experimental station of the Uzbek Research Institute of Mechanization and Electrification of Agriculture (UzMEI) which is located in the Tashkent region, Yangiyul district, irrigated with typical serozem. All phenological observations on field experiments were carried out according to the methodology of the Soyuz NIHI (1963), "Methodology for conducting field and vegetation experiments with cotton" (SoyuzNIIH, 1973, 1984) and "Methods for conducting field experiments" (UzPITI, 2007).

Field experiments were carried out according to the following scheme:

1. Traditional method.
2. The stalk of cotton is completely plucked out of the field against the background of wheat.
3. In a row of winter wheat, grind and mulch the cotton stalk.

Experience scheme

Sowing cotton seeds - 2009								
I-repeat			II- repeat			III- repeat		
Sowing wheat-2009 autumn								
I- repeat			II- repeat			III- repeat		
1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Siderat - 2010 summer								
I- repeat			II- repeat			III- repeat		
1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Sowing cotton seeds - 2011								
I- repeat			II- repeat			III- repeat		
1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**

Research results.

One of the most important reserves for increasing soil fertility can be the stalk of cotton, the stalk of wheat and green manure using for mulch (sod-humus system) will significantly reduce energy costs, since this system does not require loosening and plowing, but due to the mass of mown grasses and dying roots, the soil will constantly be replenished with fresh organic matter.

With a stalk of cotton, a stalk of wheat and green manure used for mulch, it is a complex agricultural practice that has a positive effect on the soil, plants and the environment. Plant biomass improves the chemical, physical and biological properties of the soil. After the decomposition of plants, a huge amount of organic matter enters the soil, as from aboveground, which increases the content of nitrogen, phosphorus, potassium and humus in it and leads to an increase in effective soil fertility and an increase in yield.

In 2009-2011, with the introduction of plant residues of seedling soil in option 3, cotton-wheat and green manures were grown in 1 m2 of the area, on average, 7433 g of pregnant mass was introduced (table No. 1). 2009 in October there was a moisture of 46.8% of the stalk of cotton, which has a weight of 959 grams, in 2010 in July, moisture of 8.2% of which has a weight of 781 grams, 2010 in October, moisture is 59.8% African millet weighing 4018 grams, the second a green manure plant sown in 2011 in the month of April had a moisture of 72.16% of the green mass of which has a weight of 985 grams, and in October 2011 the moisture of 53.7% of a cotton stalk which has a weight of 690 grams.

Introducing the remainder of plants and green manure into the soil

№	Introduced masses	Option I the control	Option II Not applied plant residues	III option mulch	Number
1	**Cotton stalk**	Remained in place	Completely plucked out	959 гр/м^2 46.8%	2009 г.
2	**Wheat straw**	completely plucked out	completely plucked out	781 гр/м^2	2010 July

				8.2%	
3	**African millet**	Re-planting of plants	Re-planting of plants	4018 гр/м^2 59.8%	2010 October
4	**Barley**	Unplanned	Unplanned	985 гр/м^2 72,16%	2011 April
5	**Cotton stalk**	Remained in place	Completely plucked out	690 гр/м^2 53,7%	2011 October
Total masses added			_____	7433 гр/м^2	

Biomass weight consists of 510 grams of cotton stalk, 717 grams of straw, 1615 grams of African millet, 275 grams of barley green mass, and 319 grams of cotton stalk (2011) 1 m2 of the area was mixed with soil. 34.36 tons of biomass were introduced into the average area of 1 hectare. As a result, the yield of 2009 cotton 34.3 centners, 2010 wheat 41.6 centners, and 2011 cotton consist of 42.2 centners.

Findings. Within three years, 1 g of the area is enriched with biomass 3 tons 162 kg. The alternation of crops of cotton-wheat culture has to stop degradation, it will preserve soil fertility with the help of cotton stalk, wheat straw, and also plant a re-plant, and completely introduce them into the soil. Experiments have shown that due to biomass there is an increase in soil fertility.

Bibliographic list

1. Artamasov V.V. Sowing cotton with the use of crop protection paper // J. Cotton growing. -1962.-№2.- p. 25-27
2. Balashev N.N. Mulching vegetable plants // J. Uzbek.k / kh.-1958. -№ 4.-C.7-9.
3. Karimov A. Growth, development and productivity of cotton in different types of soil mulching: Author's abstract. dis. Cand. agricultural sciences. Toshkent, 1962. - 24 p.
4. Niyozaliev B.I. The effectiveness of a new method of mulching on cotton crops .: Avtoref.dis. on the co-educational step of the candidate of agricultural sciences, Toshkent, 1989, 24 p.
5. Turapov I. Hydrothermal regime and yield of cotton when mulching the soil with polyethylene film // Dokl.AN UzSSR-. 1976.- No. 11.- P.40-41.