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Wisely use of natural land resources

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Abstract
Research has been conducted at the Andijan Experimental Station in Scientific-research institute of cultivation of cotton selection seeds agro technologies to study the factors influencing the increase of productivity and soil fertility in the application of fertilizer standards in the mung beans and soybeans of autumn wheat replanting on ancient irrigated light gray soils.

Keywords: Light gray soil, autumn wheat, mung beans, soy beans, mineral fertilizers, fertility, yield

Introduction
Nowadays one of the most pressing challenges facing countries around the world is food security. This is due to the indifference to nature, the growing anthropogenic impact on it, waste, the growing gap in the food balance between advanced and developing countries, climate change, a number of negative factors. Our delicacies, fresh water, oceans, forests, biodiversity are declining rapidly, soil fertility is declining and soil is degrading. According to the United Nations, 815 million people are starving, and by 2050 that number will reach at 2 billion. 12.9% of them live in developing countries. Forty-five percent of deaths among children under the age of five are due to malnutrition. Every year, 3.1 children die as a result of it. In addition, one in four children on the planet is underweight compared to their age, which is 66 million of school age. Involuntary starvation of boys and girls, 23 million of whom live in Africa [1].
In addition, the current resolution of the President of the Republic of Uzbekistan on food security "On additional measures to ensure food security during the coronavirus pandemic, rational use of available resources, state support of agriculture" and rule No. PF-5969 of March 19 of the President of the Republic of Uzbekistan was adopted in 2020. The purpose of the resolution is to introduce decommissioned lands with existing groundwater reserves, the procedure for their allocation to the population on preferential terms for the cultivation of agricultural products.
Furthermore, our management has carried out a number of organizational work. As a result, the introduction of leasing of land for up to 10 years, with the exception of families with knowledge and skills in agriculture, primarily in need of social protection and low-income farms, for up to 10 years, the use of water-saving technologies, planting of potatoes, legumes and oilseeds, construction of gardens and vineyards, as well as job creation. Specialization of land plots into one product type assist in delivery of seeds and seedlings to farms through fruit and vegetable clusters and cooperatives, training in advanced agro-technologies, sale of cultivated products and creates infrastructure for purchasing mineral fertilizers and fuels and lubricants in sufficient quantities and at affordable prices.
We found that it is necessary to fulfill the tasks set by the above-mentioned presidential orders and other normative legal acts, to obtain high-quality crops and rational use of land and water resources, to increase soil fertility through the results of this research and to make recommendations to farmers. Improving the elements of agro-technology of care based on the productivity of agricultural crops is of great importance. In the care of crops, it is important to increase the rate of mineral fertilizers, cultivation, technological quality of seeds [2].

Methodolgy
The aim of the study is to develop optimal agronomic measures for the cultivation of

Replanted crops in mung beans and soybean crops at different rates of mineral fertilizers in the conditions of light gray soils.

The object of research is light gray soil, autumn wheat, moss, soy, mineral fertilizers.

Research methods are laboratory, field and production.

Practical results of the research. Positive data were obtained by analyzing the growth, development, yield of autumn wheat moss and soybeans, the amount of nitrogen and root residues left in the soil, and the total amount of nitrogen, phosphorus and potassium in them.

The research was conducted at the Andijan Scientific Experimental Station. The experimental site is located in the northeast of the Fergana Valley, the south-eastern part of which is located on the left coast of the Black River, the main part of the foothills is light gray soils. The experimental area is located in the central part of the light gray soils.

The soil is light gray; the mechanical composition is moderately sandy, pre-irrigated, not saline. Flowing waters are located 4–5 m below the surface, the humus layer is 12–15 cm the content of elements was 1.0–1.5%. The humus layer is 40–60 cm, and the humus reserve in the 12 mm layer is 50–70 t / ha. The carbonate layers are 12–20 cm above and 50–100 cm below, and the SO_2 content is 6–9%. The total nitrogen content of humus is high, and the ratio of carbohydrates to nitrogen (S: N) is 7–9.

As far as nitrogen fertilizers are concerned, scientists say, they prolong the process of photosynthesis in grain crops and slow down grain ripening. The effectiveness of nitrogen fertilizers in the cultivation of autumn wheat on irrigated lands depends on soil-climatic conditions, varietal characteristics, soil moisture and other factors [1, 2].

According to American scientists [3, 4], very high soil volume mass has a negative effect on the process of soil aeration.

According to researchers at the Bonn Botanical Research Institute [5-7], the accumulation of 30-60 kg of nitrogen per hectare as a result of the decomposition of plant residues. The Austrian scientist [8] also pointed out that intermediate and secondary crops are one of the important factors for the intensification of agriculture.

Among the gray soils is light gray soil, which is relatively less supplied with phosphorus and potassium. In fact, the amount of phosphorus in these soils is almost high and goes up to 0.25%.

Morphological features of light gray soils:

- The mechanical composition is average sand.
- 0–5 cm Grassy yellowish-gray rubbing structure is loose, medium sand.
- 5–16 cm Gray-yellow, slightly thinner than above, with dense medium sandy soil cocoons and scattered small spots of newly formed deaf-banatas and white spots on the walls of cocoons.
- 16–55 cm weakly compacted with brownish-yellow holes, medium sand, soil cocoons, and small spots with carbonates, there are dark spots on the walls of the newly formed cocoons.
- 55–87 cm Brownish-yellow, slightly lighter in color than the previous one, sandstone of medium density, with weakly distributed carbonate spots.
- 87–185 cm Light yellow, almost soft, with holes, light sandy loam, dense layer of cement at a depth of 115–116 cm, unsightly pieces of gypsum.

In the conditions of light gray soils, the state of salinity conservation is observed, as the climate of these lands is sharply changing.

According to the analysis of water absorption, salinization occurs mainly in the upper layers and is 0.1–1.0% (at 100–120 cm).

For autumn wheat: All phenological observations made on autumn wheat were carried out by the envelope method in an area of 1 m^2 from 5 designated areas of the experimental field.

Phenological observations revealed the following:

- Germination of seeds %.
- Number of plant bushes, m^2 / piece (at the end of the application period).
- Stem height, cm (during development).
- Total number of stems, m^2 / piece (at the end of the validity period).
- Number of productive stems, m^2 / piece (at the end of the application period).
- Average grain mass per grain, g (at the end of the period).
- Average number of grains per spike, grains (at the end of the validity period).
- 1000 grain mass, g (at the end of the validity period).

The grain and straw yield of the plant was determined by weighing the samples taken from the 3 replicates of the marked options for repeated crops from 5 points of the 1 m^2 area of the experimental field.

Phenological observations on moss and soy were carried out on 100 specially labeled plants in each variant of I and III repetitions of the experiment.

The following phenological observations were made in mosh, soy.

- Seed germination rate (%).
- Number of leaves, pieces (in development).
- Plant height, cm (during development).
- 1000 grain mass, g (at the end of the validity period).
- Grain yield of crops was determined by weighing the crop harvested from two points set at 11.1 p / m in all repetitions and variants of the experiment.

Experiments

In autumn wheat, agro-technological experiments were carried out in 2007-2009, sowing in the recommended periods according to the rotation system. During the growing season, nitrogen fertilizers were applied three times, 1- feeding in the accumulation phase, 2-feeding in the tube, 3-feeding in the sprouting phases.

“Pobeda-104” and “Orzu” varieties of soybean were planted as repeat crops. After harvesting the autumn wheat, it was lightly irrigated and plowed to a depth of 25-27 cm after sowing, and the sowing rate was 18-20 kg per hectare and 55-60 kg of soybeans. During the period of operation, the plants are based on the experimental system (mosh N – 25, P_2O_5–80, K_2O–60 kg / ha, N–50, P_2O_5–80, K_2O–60 kg / ha), (soy N–60, P_2O_5–90, K_2O–60 kg / ha, N–90, P_2O_5–90, K_2O–60 kg / ha) were fed with mineral fertilizers and irrigated 3-5 times. Weeds were treated twice by hand and 2-3 times between rows using mechanisms. Repeated legume crops were harvested in the third decade of October.

At the end of the growing season of autumn wheat and repeated crops, agrochemical studies were carried out by

taking soil samples from layers of 0–30, 30–50 cm from all returns of the experimental variants.

At the end of the autumn wheat moss and soy period, the envelope method was used to determine the root residues in the 0-30, 30-50 cm layers of 1 m^2 of soil and the total amount of NPK in them.

Results and discussion

The growth and development of autumn wheat was observed after 16 days of full germination of seeds, and the number of seedlings was 90.6 in proportion to the years; 93.3 and 91.8% or 411.2 per 1 m2; 431.7 and amounted to 402.1 units. The mean values obtained in the experiments were 19.5; 54.6; 91.4% and 415.0 pieces per 1 m2. It should be noted that the climatic conditions of the years were favorable for the germination of autumn wheat seedlings, and the number of deaths was 9.1; 9.9 the average was 8.7% and 9.2%.

In the years of the study, the residues of autumn wheat were 17.5 per cent, respectively, in terms of returns; 18.0 and 17.8 centner / ha, respectively, on average 17.7 centner / ha. The average total nitrogen content of the ore residues was 0.813%, phosphorus 0.708%, and potassium 180%.

Root residues 19.2 centner / ha, total nitrogen - 0.600; phosphorus -0.296 and potassium 0.818%, the total amount of root and root residues was 36.0 centner / ha, total nitrogen was 1.413%, phosphorus was 1.005% and potassium was 2.050%.

Depending on the norm of mineral fertilizers, the height of the moss plant during its ripening is 64.0–67.4 cm, the number of grains in legumes is 30.6–29.0 the number of grains in 1 legume is 8.7–8.3 and 1000 grain weight 61.8–62.8 g. These data showed that increasing the norm of nitrogen fertilizers to phosphorus 80 and potassium 60 kg / ha in the background from 25 kg / ha to 50 kg / ha affected mainly vegetative parts of the moss plant.

The effect of mineral fertilizers on the grain yield of manure When the fertilizer standards are applied in the amount of N–25, P_2O5–80, K_2O–60 kg / ha, the yield of moss on the return is 18.1; The average yield of phosphorus and potassium fertilizers was 0.9 with an increase of nitrogen from 25 kg / ha to 50 kg / ha at the above norms, with an average of 19.1 and 17.7 t / ha and 18.3 t / ha; Averages of 1.0 and 1.6 were found to increase by 1.1 centner / ha.

Thus, it was found that the norm of mineral fertilizers N–25, P_2O_5–80, K_2O–60 kg / ha is sufficient for an optimal grain yield from moss. An average grain yield of 0.7 centner / ha at the expense of an additional 25 kg / ha of nitrogen was in the range of errors in the returns of the experimental options and was considered economically inefficient.

Mineral fertilizers N–25, P_2O_5–80, K_2O–60 kg / ha were applied in the norm. In this case, with an increase in nitrogen fertilizer by 25 kg / ha, these values were 12.1 and 29.2 centner / ha, and the average was 41.3 centner / ha, or decreased by 0.3 and 0.5 and 0.8 centner / ha, respectively

Their total NPK content is also 2.96–2.91; 2.23–2.14 and 3.04–2.96%, with an increase in fertilizer rate of 0.05; Decreased by 0.04 and 0.08%, respectively.

Depending on the norm of mineral fertilizers, the growth of secondary soybean crops is the same as that of moss, with mineral fertilizers N–60, P_2O_5–90, K_2O–60 kg / ha to N–90, P_2O_5–90, K_2O–60 kg / ha (nitrogen only). with an increase in the number of pods per 1 cm of plant height increased by 1, the number of grains per 1 pod decreased by 0.1 and the weight of 1000 grains increased by 0.7 g.

Thus, in the background of mineral fertilizers applied in the norms of N–60, P_2O_5–90, K_2O–60 kg / ha, soybean yield is 17.4; 18.1 and 18.2 t / ha, and the average was 17.9 t / ha. 17.3; 18.2 and 18.3 centner / ha, or an average of 0.4 centner / ha higher.

The total nitrogen content in the stems and roots averaged 1.90–1.91% over 3 years; phosphorus was 0.78–0.78% and potassium was 1.50–1.51%. This means that 60–70 kg of nitrogen, 25–28 kg of phosphorus and 40–45 kg of potassium are accumulated per hectare.

Conclusion

In summary, the results of the experiments show that 35–40 t / ha of manure and roots contain 20–25 kg of total nitrogen, 5–10 kg of phosphorus and 25–30 kg of potassium, which then has an optimal effect on replanted crops.

It was found that mineral fertilizers N–25, P2O5–80, K2O–60 kg / ha should be applied in order to ensure optimal growth and development of moss after autumn wheat, high grain yield and accumulation of more nutrients and root residues.

It was found that moss and soybean plants planted after autumn wheat not only yielded grain and straw crops, but also improved soil fertility due to the stalks and root residues they left in the soil and the nutrients they contained. The extent to which these crops affected soil fertility was followed by an increase in the growth, development, and yield of cotton varieties planted after them.

References

1. Носатовский А.И. Пшеница. М.Колос, 1965, 568.
2. Халилов Н.Х. Научные основы возделывания пшеницы осенного посева на орошаемых землях Узбекистана //Афтореферат диссертации на соискание уч. Степени д.с–х.н – Самарканд, 1994, 39.
3. Abdel Gaffar Selim - Bund–Seeding and its relation to pollen development in cotton Egypt Min Agr Techn and Scient Serv Bot Sect Bull. 1939; 206(19):113–116.
4. Taylor H.M, Cardner H.B. Penet ration of cotton to proteas incensed by dusk density // bio structure and strand the soil Soil Science. 1963; 96:153.
5. Volger B. Nitra tveerfug tarneit des Bondens in Abhengig neat von Zwieshenf Ruch Tsoni Sard W.Z Rheinland. 1974; 2617–2618:143–146.
6. Wanly B.J. Untersuch lieber den Ebfluences strammes L.F Landw Jg. Berlin 2005. 29:33–38.
7. Ware J.O. Cotton Spacing 9 stualies of the effect a yield and earliness // Univ of Arkansas Agr Exp Stot Ball. 2015; 230:69–94.
8. Binder R. Zuishen - Fruchtlou verteseert der // Boden–Sand–Wirt sehoft, 1969, 29.