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Effect of Cotton Yield of Siderites Used at Different Times in the Short-Quality Cotton-Cropping System

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Abstract – In the short-turn crop-grain-swapping planting system, as a result of planting care, their flowering, grinding in the fruit-bearing phases and burying in the ground as a siderath, the ground improves soil fertility, improves all its agrophysical, agrochemical properties by sowing gorox, peas, barley and raps into the fields emptied from the haystack and emptied from the haystack in the fall. This led to a better growth of the porous, resulting in an additional yield of the porous to 6,8-8,6 and 5,9-7,9 c/ha compared to the control option.

Keywords – Goose-Grain, Crop Rotation, Sideration, Siderite Crops, Agrophysicological, Agrochemical, Soil Fertility, Goose, Productivity

I. INTRODUCTION

The organic fertilizers use in cultivation in the Republic provides a stable ecological environment in the porous agrocenosis fields, has a positive impact on the growth and development of porous.

In the experiments planted siderite, the height of the main stem was 4-5 cm higher than the control variant, the number of sympodial branches and pods was 1.5-2.5 more, and the intermediate crops had a positive effect on the yield and overall productivity of cotton[1].

In all studies, it was observed that at the beginning of the mass flowering phase of cotton, the difference in the variants planted with intermediate crops was significant compared to the control variant. During the period of growth and development of cotton in the first year from June 1 to July 1, the height, number of leaves, yield elements are lower in lands where intermediate crops are planted than in those where they are not planted. However, the predominance of cotton in areas where winter intercrops are planted is observed to have accelerated significantly after 1 July. Phenological observations made on August 1 and September 1 show that the growth and development of cotton during the harvest period is much superior to that of winter intermediate crops in uncultivated lands[7].

In cotton, siderite crops are grown separately, with 2 components and 3 components. Experiments have shown that siderite crops planted without a mixture are more effective than those planted separately[2].

Experiments show that when studying the effect of siderite fertilizers on the conditions of typical gray soils where irrigation erosion occurs, the height of cotton is 3.5-4.9 cm higher than the control option when rapeseed, rye and their mixtures are driven into the soil[5].

On 1 August and 1 September, siderites produced 0.5–1.8

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and 0.3–2.4 more cocoons in cotton than in the control variant [2], while in other soils, siderites in cotton yielded 2.1–2.7. and formed 0.7–1 additional cocoons[5]. When the effect of siderites on cotton yield has been studied for many years in cotton, in the first year of application of siderites, the additional yield from cotton is 10 centners per hectare, and in the second year 5 centners.

In the southern regions of Uzbekistan, rye, barley and their mixtures have been planted with siderite fertilizers and positive results have been achieved. The additional yield from cotton was 2.4-7.5 quintals or 8.1-25.3% higher in the siderite planted variant than in the control variant.

The additional yield from cotton was 4.4 quintals in 3 years after the non-legume siderite crops were plowed into the soil. Green fertilizers enrich the soil with organic compounds, giving good results in both gray and meadow soils. Applying siderite fertilizers to a depth of 35 cm has been found to cause slow decay of the green mass and low emission of carbon dioxide.

Cotton develops slowly in the early stages of development, and development accelerates after the flowering phase. At the end of the season, the number of pods in the control variant was 8.2, while when mustard was used as a siderite, it averaged 10.4, 10.0 in peas and 9.1 in barley[6].

R. Aripov (1985), when using intermediate crops for siderite purposes, positive results were obtained in the growth and development of cotton, the height of the stem was 1.2-3.7 cm compared to the control variant, the number of horns was 0.4-1.4, and the number of pods Produced more than 0.5–0.7 pieces. Yields in these variants were 6.3–7.6% higher, and experiments showed that when plowed with mustard trichoderma, the yield increased by 22.4% in the first year, 15.8% in the second year, and 9.8% in the third year. The author notes that the yield increases by 3.7-16.2% even when the root crops of intermediate crops are driven into the soil.

Hence, siderites used in cotton fields have a positive effect on the growth, development and yield of cotton. Under the influence of siderite crops, an adequate nutrient environment is created for the soil microflora [8]. Under their influence, bioenergetic products are broken down into a form that can be assimilated by plants. The energy generated in trophic networks in the agrocenosis migrates from one organism to another for a long time, which has a positive effect on the growth, development and yield of cotton and other crops.

II. Research Methods

Conducting field experiments, planting, caring for crops, harvesting and analysis of the generally accepted Uzbek scientific research institute of botany, (1986); the methods of the Uzbek cotton research institute (1981, 2007) were used.

In practice, the medium-ripe variety "S-8284" included in the State Register of cotton, Sample of K-295 (stern nigretum) from siderite crops, peas "Asia 2001", soybean “Dustlik”, autumn rapeseed “Loris”, spring varieties “Viking-VNIIMK”, barley “Temur” were obtained and planted at different times (summer and autumn). All technological measures used in the experimental field were carried out on the basis of the technological map (business plan) adopted on the farm and on the basis of manuals such as "Methods of the Botanical research institute" (1971), "Methodology for state variety testing of agricultural crops" (1971) and "Methodology for conducting field and vegetation experiments with forage crops" (1983).

Field experiments were carried out in 4 variants of 5 variants in the conditions of the old irrigated, cultivated, mechanically sandy, grassland-gray soils of Samarkand region, where the groundwater level is 3-4 m. The surface area of each pile in the experiment was 240 m^2 (length 50 m, width 4.8 m), the calculated area was 120 m^2, and the piles were systematically arranged in a single tier.

In the experiment, all *phenological observations and biometric measurements* of cotton were carried out on the basis of the adopted "Methods of field experiments (2007)" and "Methodology of field experiments with cotton under irrigation conditions (1981)", the following calculations, observations and analyzes were performed in the experiment:

- Phenological Observations At The Expense Of 10% And 50% Of The Phases Of Germination, Leaf Production, Combing, Flowering, Ripening;
- Height Of The Main Stem, Cm. - On Dates 1.VI, 1.VII, 1.VIII;
- Thickness Of The Main Stem (At The Root Collar And At The Tip Of The Stem), Cm. - At The End Of The Growing Season Using A Caliper;
- Number Of Leaves, Pcs. - On Dates 5.V, 10.VI, 10.VII, 10.VIII;
- Leaf Level, Sm^2. - By Weighing And Calculating On 5.V, 10.VI, 10.VII, 10.VIII;
- Dry Matter, G - By Sampling, Disassembly, Drying And Counting At 105 ^{0}C For 6 Hours On Dates 5.V, 10.VI, 10.VII, 10.VIII (According To Petersburgskiy, 1968);
- Net Productivity Of Photosynthesis, G / M^2 X Per Day - By Calculation By Development Cycles;

- Harvested Branches, Pcs. - On Dates 1.VI, 1.VII, 1.VIII;
- The Height Of The Location Of The First Crop Branch (After How Many Leaves) - Using Leaf Traces;
- Propagation Of The Root And Dry Matter (G) In It At The End Of The Growing Season In 3 Repetitions Of 0.225 M^3 (0.9x0.5x0.5 M) Area Monoliths Are Taken, They Are Washed In A Mesh Box And Divided Into Layers And Dried At 105 ^{0}C For 6 Hours (According To Petersburgskiy, 1968);
- Number Of Cotton Balls, Pcs. - On The Dates 1.VIII, 1.IX;
- Битта Кўсакдаги Чигитли Пахтанинг Ўртача Массаси, Г. – Теримлар Бўйича;
- Productivity, C/ Ha. - On Terms And Repetitions;
- Quality Indicators Of Fiber In The Regional Laboratory "Quality".

Yields were collected separately for each plot, converted to centners per hectare, and statistical analysis of experimental results was performed according to B.A. Dospekhov (1985).

III. Research Results

An analysis of the data obtained to determine the effect of siderite crop varieties on cotton yield in the experiment showed that all siderite crop varieties tested in the summer crop rotation in the summer and in the cotton field in the fall had a positive effect on yield growth.

In the 1st year of the experiment, ie in 2016, the average yield on the options studied in experiments 1 and 2 was 33.0-41.7 and 31.8-39.4 c / ha, with the highest (41.7 and 39.4c/ ha) yield or additional yield (8.7 and 7.6c/ ha) was obtained from the raps planted variant as a siderite. In the experiment, less additional yield was obtained from the tested siderite crops than from the gorox planted variant, and the yield was 5.5 and 5.6 c / ha higher than the control variant, respectively.

In the experiment, relatively high pea and barley variants were observed (Table 1).

In the control variant of the field experiment conducted in 2017, the average yield was 35.5 and 33.6c/ ha, while in the variants using sideration, the yield was 41.4-43.9 and 33.6-41.5c/ ha. In this case, the highest yield compared to the control variant was observed in the variant planted with rapeseed as a siderite, which provided an additional yield of 8.4 and 7.9c/ ha. Less productive than the control-siderite variant was the pea planted variant as a siderite, with additional yields of 5.9 and 5.5c/ ha, respectively.

In the studied experiment, a relatively high additional yield was obtained from pea and barley variants (6.5–7.6 and 6.0–7.2c/ ha, respectively). By year 3 of the experiment, it was found that the yield was significantly higher in all variants using siderite. While the control variant of the experiment yielded 35.1 and 33.3c/ ha, the siderite yielded 5.5-8.6 and 5.3-8.2c/ ha respectively. In the experiment, the highest yield (43.7; 41.5c/ ha) and additional yield (8.6 and 8.2c/ ha) were obtained in the rapeseed variant as a siderite, 40.8; 42.8 and 38.6; Yields of 40.7c/ ha were observed in pea and barley variants planted as siderite, respectively (Table 1).

Table 1. Effect of sideration on cotton yield, c / ha

№	Experiment options	Productivity over the years			In an average of three years
		2016	2017	2018	
Summer sideration					
1	Without control-siderite	33	35,5	35,1	34,5
2	Peas	38,8	41,4	40,6	40,3
3	Pea	39,2	41,6	40,8	40,5
4	Rapeseed	41,7	43,9	43,7	43,1
5	Barley	40,5	43,1	42,8	42,1
EKIF$_{05}$, c		3,03	2,9	3,45	3,1
$S_{\bar{x}}$%		2,5	2,15	2,42	2,4

Autumn sideration					
1	Without control-siderite	31,8	33,6	33,3	32,9
2	Peas	37,4	39,1	38,6	38,4
3	Pea	37,8	39,8	39,3	39,9
4	Rapeseed	39,4	41,5	41,5	40,8
5	Barley	39	40,9	40,7	40,2
$EKIF_{05}$, c		2,12	2,77	2,9	2,6
$S_{\bar{x}}\%$		2,18	2,07	2,29	2,18

IV. CONCLUSIONS AND SUGGESTIONS

In short, in the conditions of meadow-gray soils of Samarkand region, (short-row cotton-grain rotation in the field of grain-free and in the fall cotton-free fields) planting peas, peas, barley and rapeseed at different times, using them as a siderite, increases soil fertility and improves all its agrophysical and agrochemical properties.As a result, the plants grow well and develop, providing an additional yield of 6.8-8.6 and 5.9-7.9 ts / ha compared to the control option.

Therefore, in order to increase the soil fertility and cotton yield of the cotton-crop rotation field at different times (optimal time for sowing of intermediate crops as siderite in summer and autumn after cotton in optimal times is July 10 in summer and October 10 in autumn) siderite crops (peas, planting peas, rapeseed and barley) and crushing them in the fall, quality plowing to a depth of 35-40 cm, as a result of their decomposition, they become all the nutrients necessary for the cotton plant, creating the basis for high and quality yields of cotton.

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