

INFLUENCE OF WINTER WHEAT AND REPEATED CROPS ON THE GROWTH AND YIELD OF COTTON

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Annotation: Winter wheat and re-sowing in conditions on takyr-like soils have a positive effect on the growth, development and yield of fine-staple cotton.

Keywords: Winter wheat, repeated crops, fine-staple cotton, growth, development, cotton productivity, in infertile conditions, etc.

Introduction. Scientists of our country and foreign countries have studied the positive impact of winter wheat and repeated, intermediate crops on the growth, development and productivity of cotton and made the right conclusions and made recommendations.

According to A. Avtonomov (1969), winter wheat and repeated crops contribute to the rapid growth and development of fine-fiber cotton varieties and high yields [1].

B. Kholikov and A. Iminov (2011) found that when sown with cotton after winter wheat as a re-crop, the yield of buttermilk is 3.5-5.8 c/ha, the yield of fiber is 1.0-1.5%, the mass of seeds 1000 grains 9.0-10.0 g, fiber length 1.4-2.0 mm, and those who determined that it was higher [3].

According to S. Rakhmonkulov and Yu. Abdurakhmonova (2006), 32-40% of the cotton crop grown in our country is fiber, 55-60% seeds and 5% pile. It was established that when only nitrogen fertilizers were applied to cotton, the weight of 1000 seeds was 108.4 g and the oil content was 21.5%, and with the combined use of mineral (NPK) and local fertilizers, the weight of 1000 seeds was 124.3 g. The oil content was 23.9 % [2].

According to M. Tadjiev, Sh. Ch. Tursunov (2020), it was found that winter wheat and re-planted oilseeds have a positive effect on the fertility of marginal soils, growth, development and productivity of fine-staple cotton [4].

According to B. Kholikov, R. Tillaev and Sh. Teshayev (2003), when sowing a leguminous mash in the field after winter wheat, the humus content in the soil increased by 0.034%, and nitrogen by 0.011%. They found that the amount of humus in a field sown with cotton is reduced by 0.031%, the content of nitrogen by 0.027% and phosphorus by 0.014% [7].

According to Binder K. (1969), in Germany, intermediate crops are soil-renewing, softening crops, good fodder for livestock and the best predecessors of the main crops [9].

Methods of investigation. In the studies, phenological observations were carried out in accordance with the methodological manuals of UzPITI "Methodology for conducting field experiments" (2007) and "Methodology for field experiments with cotton" (1981). The methodology "State testing of crop

varieties" was introduced (Moscow, Kolos, 1969). Productivity indicators were mathematically processed according to the method of B. A. Dospekhov (1966).

Investigation results. Experiments were carried out at two fields in 2018-2020. The soil of the experimental field is poor, heavy mechanical composition, grassy, slightly saline, seepage waters are located at a depth of 2-3 m, rich in carbonates, poor in nutrients. The experimental variants are arranged in 8 rows 60 cm wide, the variants are arranged in three turns. Crop rotation was carried out on short-term systems in systems 1:1 and 1:2. Observation of the growth and development of fine-staple cotton sown after winter wheat and re-sowing under experimental conditions was carried out in June, July, August and September (Tables 1 and 2).

The experiment found that after winter wheat, a field sown with various oilseeds has a positive effect on the growth and development of cotton planted next year.

Already from the first months of our observations, the influence of oilseeds sown after winter wheat on the growth and development of cotton was clearly demonstrated.

As of June 1, the height of cotton was 23.0-26.4 cm, the number of tufts was 8.0-9.8 pcs., the number of combs was 2.4-2.6 pcs. It was found that when sowing cotton after various oilseeds after winter wheat, it was higher by 0.1-3.4 cm, by 0.2-1.8 cm, by 0.2-1.8 cm and by 0.2 cm.

During the experiment, it was found that the above law was fully preserved for the dates July 1 and August 1.

As of September 1, the height of the cotton plant is 97.7-106.8 cm, the harvested segment is 17.8-19.4 pieces, the number of harvesting elements is 22.3-27.3 pieces, including the number of bolls 17.0-22, 3 pieces, of which the opening was 14.7-17.4 units.

After winter wheat, when sowing soybeans and cotton next year, the height is 101.9 cm, the yield is 18.0 units, the yield element is 27.3 units, including the number of pods 22.3 units, of which 17.4 units. open, after winter wheat, the number of bolls is 5.3 compared with the control variant with cotton sowing;

Table 1 The influence of oilseeds sown after winter wheat on the growth and development of cotton (2019, experiment-2), 1.08; 1.09 2019

№	Options	August,1					September,1					Cotton seedling thickness, t/ha
		Height, cm	Number of stalks, pc	Plant's element, pc	Number of cotton bolls, pc	Number of productive	Height, cm	Number of stalks, pc	Plant's element, pc	Number of cotton bolls, pc	Number of productive cotton bolls, pc	
1	Cotton(control)	90,1	16,5	27,0	15,9	3,8	97,7	17,8	22,3	17,0	14,7	90,4
2	Winter wheat (control)	92,5	16,9	28,1	16,5	4,0	102,3	19,4	25,6	20,1	17,4	91,7
3	Soybean (after winter wheat)	96,1	17,2	30,2	17,8	4,5	101,9	18,0	27,3	22,3	17,4	89,6
4	Sunflower (after winter wheat)	94,0	17,0	29,1	16,8	4,2	99,7	18,1	24,4	19,4	16,6	90,5

5	Sesame (after winter wheat)	95,5	17,1	28,9	16,9	4,3	102,0	19,2	24,8	19,4	16,5	92,1
6	Peanut (after winter wheat)	93,8	17,1	29,0	17,0	4,4	106,8	19,3	27,0	21,0	17,3	90,8
7	Safflower (after winter wheat)	95,6	17,0	29,2	16,7	4,5	105,8	19,1	26,9	21,9	17,4	90,6

Table 2 The influence of oilseeds sown after winter wheat on the growth and development of cotton (1.08-1.09.2020, experiment-1)

№	Options	August, 1					September, 1					
		Height, cm	Number of branches, pc	Harvest, s element, pc	Number of cotton bolls, pc	Number of productive cotton bolls, pc	Height, cm	Number of branches, pc	Harvest's element, pc	Number of cotton bolls, pc	Number of productive cotton bolls, pc	Number of bushes, t/ha
1		73,1	14,7	20,1	18,0	3,4	81,6	16,4	24,5	19,4	5,0	110,0
2	Winter wheat(control)	78,5	15,7	21,5	19,1	3,5	83,1	16,1	22,5	20,1	5,5	109,0
3	Soybean (control)	85,9	16,3	26,1	20,9	4,1	89,0	16,7	28,4	21,0	6,5	107,0
4	Sunflower (after winter wheat)	82,0	16,3	21,9	19,5	3,9	84,0	16,5	26,1	19,9	6,0	108,0
5	Sesame (after winter wheat)	83,7	16,3	24,2	19,1	4,5	87,5	16,9	24,1	20,1	6,3	106,0
6	Peanut (after winter wheat)	86,0	16,5	26,0	20,6	4,3	89,5	16,9	26,0	20,9	6,5	109,0
7	Safflower (after winter wheat)	80,1	16,1	22,5	19,7	4,5	85,5	16,7	23,0	20,7	6,4	108,8

those of which 2.7 units are open. and 1.2 units. respectively compared to the control variant planted with cotton after cotton; 0.0 units is too much.

After winter wheat, when sowing sunflower and cotton next year, the height is 99.7 cm, the yield is 18.1 units, the yield element is 24.4 units, including the number of pods 19.4 units, of which 16.6 units. open, after winter wheat, the number of pods is 2.4 compared to the control variant with cotton sowing; of which 1.9 units are open. and 1.7 units. respectively compared to the control variant planted with cotton after cotton; It was 0.8 units less.

After winter wheat, when sowing sesame and cotton next year, the height is 102.0 cm, the yield is 19.2 units, the yield element is 24.8 units, including the number of pods 19.4 units, of which 16.5 units are open. , and after winter wheat, the number of bolls is 2.4 compared with cotton in the control; 1.8 pcs., of which opened and 1.7 pcs., respectively, compared with the control variant sown with cotton after cotton; 0.9 units less.

After winter wheat, when sowing peanuts and cotton next year, the height is 106.8 cm, the yield is 19.3 units, the yield element is 27.0 units, including the number of pods 21.0 units, of which open 17.3 units. , after winter wheat, the number of boxes is 4.0 units. compared with cotton in the control; of which 2.6 were opened. and 0.1 pcs. respectively compared with the control variant sown with cotton after cotton; It differed by 0.1 units.

Data similar to those obtained in 2019 were obtained when sowing cotton in fields sown with winter wheat and re-sowing (Table 2).

Winter wheat and reseeded of oil crops had a positive effect on the growth and development of the first grade of fine-staple cotton Termi-202 and increased the yield of cotton compared to the control field (Table 3-4-5).

The yield of cotton was 31.0 t/ha in the control of cotton, 32.6 t/ha in the control of winter wheat and 32.7-35.8 t/ha when sown with winter wheat + oilseeds (Table 3). In the experiment, a relatively high yield (35.5-35.9 c/ha) of cotton was grown in options (3 and 6) with winter wheat + soybeans, winter wheat + peanuts and 32.6-32.9 c/ha from other experimental variants The cotton harvest has been harvested.

Table 3 The impact of various oilseeds planted after winter wheat on cotton yields, c/ha (2019)

№	Experiment options	Yield		Average yield	Difference, c/ha			
		1	2		After winter wheat		After cotton	
					c/ha	percentage	c/ha	percentage
1	Cotton (control)	26,1	4,2	31,1	-	-	-	-
2	Winter wheat(control)	27,3	5,3	32,6	1,5	4,8	-	-
3	Soybean	30,7	4,6	35,3	4,2	13,5	2,7	8,3
4	Sunflower	28,3	4,3	32,6	1,5	4,5	0,0	0,0
5	Sesame	28,3	4,6	32,9	1,8	5,8	0,3	1,0
6	Peanut	30,2	5,6	35,8	4,7	15,1	3,2	9,8
7	Safflower	28,4	4,3	32,7	1,6	5,1	0,1	0,0

Table 4 Yields of cotton, winter wheat and oilseeds by collection and return in c/ha (2020 Experiment-2)

№	Experiment options	Yield		Total yield, c/ha	Rotations			Average yield, c/ha	Difference from control, +-	
		1st	2nd		I	II	III		1st	2nd
1	Cotton (control)	26,7	4,3	31,0	31,0	31,1	31,2	31,1	-	-
2	Winter wheat (control)	27,3	5,3	32,6	33,0	33,1	32,0	32,6	1,5	-
3	Soybean(after cotton, winter wheat)	30,7	4,6	35,3	36,1	36,0	35,0	35,3	4,2	2,7
4	Sunflower (after cotton, winter wheat)	28,3	4,3	32,6	32,0	32,1	33,0	32,6	1,3	0,0
5	Sesame (after cotton, winter wheat)	28,3	4,6	32,9	32,1	34,0	33,1	32,9	1,8	0,3
6	Peanut (after cotton, winter wheat)	30,2	5,6	35,8	35,6	36,0	36,1	35,9	4,8	3,2
7	Safflower (after cotton, winter wheat)	28,4	4,3	32,7	32,0	34,0	32,1	32,7	1,6	0,9

Table 5 Impact of various oilseeds planted after winter wheat on cotton yields (2019-2020)

№	Experiment options	Cotton yield, c/ha		Average yield. c/ha	Difference from control, +-			
		2019 year	2020 year		1st		2nd	
					c/ha	%	c/ha	%
1	Cotton(control)	31,3	31,1	31,2	-	-	-	-
2	Winter wheat (control)	32,4	32,7	32,5	1,3	4,2	-	-
3	Soybean (after cotton, winter wheat)	37,6	35,7	36,7	5,5	17,6	4,5	14,0
4	Sunflower (after cotton, winter wheat)	34,0	32,7	33,3	2,1	6,7	0,8	2,6
5	Sesame (after cotton, winter wheat)	34,4	33,1	33,7	2,5	8,1	1,2	3,8
6	Peanut (after cotton, winter wheat)	35,7	35,7	35,7	3,2	19,7	3,2	10,5
7	Safflower (after cotton, winter wheat)	34,4	32,7	33,5	2,3	7,4	1,0	3,2

In the 2020 experiment, 31.1-32.6 t/ha of control options (options 1 and 2) and 32.6-35.9 t/ha of experimental options (3-7) were grown (Table 4). In the 2020 experiment, the highest yield (35.3-35.9 t/ha) of cotton was grown from the options (option 3 and option 6) for winter wheat + soybeans, winter wheat + peanuts.

The two-year yield of cotton, the average yield and the difference with the control are presented in the experiment (Table 5). According to the yield of two-year-old cotton, it was found that it amounted to 33.3-36.7 q/ha in the control (31.2-32.5) and experimental (3-7) options.

With winter wheat and leguminous crops (variant 3 and variant 5), with a high cotton yield, 35.7-36.7 c/ha was harvested in the two-year cotton crop (Table 5).

In conclusion, we can say that in short-term crop rotations (1:1 and 1:2), the highest cotton yield was obtained from the field sown with soybeans after winter wheat and peanuts after winter wheat, and the additional cotton yield was 3.2-5.5 t more than in the control variants.

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