British Journal of Global Ecology and Sustainable Development
Volume-36, January 2025
ISSN (E): 2754-9291

INFLUENCE OF VARIOUS AGROTECHNOLOGICAL MEASURES ON WINTER WHEAT BIOMASS ACCUMULATION IN TYPICAL GRAY SOIL CONDITIONS

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Abstract
The influence of wheat monoculture without the use of mineral fertilizers, the application of 10 t/ha of organic fertilizers with the rise of pure fallow followed by winter wheat throughout the year, sowing its legumes and perennial alfalfa on the dynamics of wheat biomass accumulation was studied.

Keywords: Rainfed, flat-hilly zone, crop rotation, technology, wheat, pure fallow, plant biomass.

Introduction
As shown by many years of research conducted in stationary experimental fields in all regions of the arable land, including the semi-arid mountainous region, sowing winter wheat without applying fertilizer to the soil leads to a decrease in soil fertility, deterioration of its structure, and deterioration of water-physical properties. As a result of such intensive tillage of the soil, it leads to a sharp decrease in organic matter (humus) and nutrients.

Agrotechnological measures used in fallow areas should be mainly focused on accumulating and storing more atmospheric precipitation in the soil and using it effectively during the growing season, creating all the conditions necessary for the plant (moisture, mineral nutrients, air and heat exchange, etc.).

all soils, organic matter (humus) in typical loamy soils was formed over a long historical period under the influence of complex natural and anthropogenic factors, biochemical, and microbiological processes. The formation of humus and its components (humus, ulmic and fulvic acids) in soils and the activity of microorganisms in their mineralization are of particular importance Yusupov Kh., Shadieva [54; p. 173-176]. Loamy soils are divided into moisture-supplied, poorly supplied and non-supplied soils according to the location of the soil regions. Brown and dark loamy soils are located in the highlands, and moisture-supplied and light loamy soils are considered loamy soils in the lower regions Gafurova [16; p. 12].

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According to FF Bolshakov [13; 159-162 p.], SM Mamaniyozov [37; 17 p.] and other scientists, the water regime of loamy soils belongs to the non-washable (impermacid) type, and although the upper layer of the soil is moistened under the influence of precipitation, this moisture does not combine with capillary moisture coming from groundwater, and a dry (dead) layer forms in the interval. The moisture regime in these soils belongs to the non-washable type, that is, it does not participate in the processes of soil formation [5, 6].

Research object and methods

The experiments were conducted in conditions of typical loamy gray soils with average loaminess belonging to the central experimental farm of the institute. The 0-40 cm layer of the soil contains 0.632-0.710 % humus, 0.017-0.022 % total nitrogen, 0.130-0.210 % total phosphorus and 0.925-1.007 % potassium, and is poorly supplied with mobile nitrogen (NO_3) and phosphorus. In the experiments, the weight and distribution of wet and dry biomass of 10 plants during the period of budding, tillering and heading of winter wheat vegetation were determined by variants. The experiments consisted of 14 variants, which were repeated in three replicates, the experimental plots were systematically arranged in one layer, the size of the plots was 360 m^2 (30 x 6).

Results and their analysis

According to the results of the experiments, the lowest indicators of wet and dry biomass of 10 plants during the period of accumulation of winter wheat vegetation were determined in the chronic fertilizer-free and fertilizer-applied variants of the stationary experiment. The weight of wet biomass was 4.8 g, and the weight of dry biomass was 1.2 g. Of these, the total weight of wet biomass in this phase by variant was 5.0-10.6 g, and the highest biomass weight was 10.6 g in the t oza plow-10 t/ha fertilizer+R_{40} variant, and the weight of dry biomass was 3.7 g in this variant.

Table The effect of various agrotechnical measures on the accumulation of wet and dry biomass of winter wheat. Stationary experiment, wheat variety "Istiqlol-6", g/10 plants (G'allaorol 2024, earing period)

D	Options	Total biomass weight, g	dry weight, g						dry mass weight, g						Total biomass weight, g
			root	Stem	flag leaf	leaf	dried leaf	spike	root	stem	Flag leaf	leaf	dried leaf	Spike	
1	Chronic no-fertilizer-wheat-control	39.26	5.20	20.2	1.94	-	3.74	8.18	3.40	6.36	0.62	-	3.10	2.98	16.46
2	Surunkali bug'doy N_{40} has yili	41.80	4.76	21.6	1.28	-	4.56	9.52	3.10	8.00	0.90	-	3.86	3.54	19.90
3	Chronic wheat N_{40} years ago	55 ,36	13.3	31.4	2.70	-	5 .68	12.1	10.0	1 1.9	1.66	-	4 .80	8.72	37 ,16
4	Clean plow- wheat-wheat-without fertilizer	55.72	7.98	27.1	1.82	-	6.20	12.6	5.26	9.74	0.96	-	4.78	3.92	24.66
5	Clean plow-wheat-wheat with siderates without fertilizer	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Clean plow-10 t/ha manure+R_{40}	94.34	8.90	51.3	1.82	-	8.52	23.7	5.5	18.2	0.86	-	6.38	8.48	39.48
7	Pea-wheat	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	4 years alfalfa-4 years wheat R_{40} N_{40}	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	The place is empty.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Chronic wheat - R_{40} N_{40} – every year R_{40} N_{40}	51.28	8.34	24.8	1.64	-	4.86	11.6	5.7	11.0	-	0.8	3.76	4.34	25.72
11	Chronic wheat - R_{40} N_{40} K_{40} every year	76.90	7.30	43.7	1.30	-	6.24	18.2	4.9	17.1	-	1.0	5.5	6.84	35.44
12	7 years of alfalfa – 4 years of wheat – N_{20} R_{40} – before planting alfalfa	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Chronic wheat - N_{40} R_{40} K_{40} +Rokogumin	40.32	4.14	26.5	0.92	-	2.30	8.38	2.58	7.14	-	0.5	2.16	2.84	15.22
14	Chronic wheat is fed compost at the rate of 5 t/ha once every 3 years.	66.54	6.54	34.2	1.34	-	5.94	18.4	4.30	12.0	-	12.0	4.74	6.30	28.12

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winter wheat, the lowest biomass indicators of 10 plants were observed in the variants of the stationary experiment without fertilizer and with fertilizer, which were 22.36-46.34 g. In the experiment, it was found that the biomass of winter wheat in the variant of pure plowing with fertilizers (10 t/ha manure + R 40) was 58.77-34.49 g higher than in the control variant (80.83 g). Also, in variants 10, 11, 13 and 14, where mineral fertilizers were applied annually, it was found that it was significantly lower than in the variants of pure plowing with wheat sowing (41.9-70.72 g.).

By the time of heading of winter wheat vegetation, the total wet biomass weight of the plant was 39.26 g in the chronic fertilizer-free variant, and the dry biomass weight was 16.46 g. In the experiments, it was observed that the total wet biomass weight was 41.80-94.34 g according to the variants, and the lowest indicator among the variants was 39.26 g (without chronic fertilizer), while the highest indicator was observed in the variant under t oza plow-10 t/ha manure+R 40 -plug (94.34 g). The total dry biomass weight in this variant was 39.48 g.

In the stationary experiment variants with chronic wheat planting,
the root weight of 10 plants was 4.76-8.90 g, depending on the fertilizer rate, and in variant 6, where wheat was planted after clean plowing and 10 t/ha of fertilizer + R 40 was applied once every three years, the figure was 8.90 g.

It is known that in the structure of winter wheat, along with the root, the amount of leaves or leaf level is of decisive importance in the life of the plant. As can be seen from the table, in all variants of the experiment, where wheat was sown in the fallow, the leaf weight was significantly lower than in wheat sown after clean plowing.

In the experiments, the amount of dried leaves at the earing stage of winter wheat was 4.56-8.52 g/10 plants in the variants with chronic wheat sowing, and 8.52 g in the variant planted after clean plowing. In these variants, the weight of the spike increased significantly in proportion to the weight of the biomass.

Conclusions. In the semi-supplied plain-hilly region of the Lalmikor fields, planting wheat after legumes and perennial alfalfa in a pure-plough-wheat rotation system with 10 t/ha of organic and 40 kg/ha of phosphorus fertilizer leads to intensive biomass accumulation of winter wheat.

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