European Journal of Agricultural and Rural Education (EJARE)
Available Online at: https://www.scholarzest.com
Vol. 6 No. 09 September 2025
ISSN: 2660-5643

THE EFFECT OF DIFFERENT SOIL TILLAGE METHODS ON THE HEIGHT OF WINTER WHEAT

Q/X.F.F.D., K.I.X. Uzaqov Gulomjon Oqbutayevich,
Junior Researcher Tilavov O'ral Xusanovich,
Junior Researcher Chariev Shaxbos Mardonovich
Southern Scientific Research Institute of Agriculture

Article history:

Received: 30th June 2025
Accepted: 28th July 2025

Abstract:

The article discusses the sowing of winter wheat seeds in different ways on light gray soils of the Kashkadarya region after summer green manure and the effect on plant height. Analysis of the experimental results showed that plant height varied depending on soil cultivation. Compared with zero tillage, plant height increased with soil plowing.

Keywords: Green manure, mung bean, winter wheat, variety, Shukrona, sowing methods, option, plant height.

RELEVANCE. To enhance or maintain soil fertility, it is necessary to regularly supply nutrients. For this purpose, mineral and organic fertilizers may be applied, or green manure crops may be cultivated. Green manure crops are those grown for subsequent plowing or composting in order to increase the humus content of the soil. These include fast-growing plants that are either mown and left on the soil surface or incorporated into the soil through plowing. After decomposition, their underground parts enrich the soil with beneficial compounds.

The cultivation of green manure crops helps enrich the soil with macro- and microelements, particularly nitrogen. Different plant species also influence the mechanical composition of the soil. Heavy clay soils can be loosened by growing crops with strong root systems that improve moisture and air exchange. Leguminous plants contribute to protecting the soil from pests. Plants with abundant green mass shield the soil surface from the scorching effects of direct sunlight.

The Level of Study on the Topic. Research findings indicate that sowing green manure crops and incorporating them into the soil reduces weed infestation in subsequent crops [1], while their combined use with straw and root residues of the main crop increases productivity [2, 3] and improves its agrochemical [4] and agrophysical properties [5].

RESEARCH OBJECTIVE. The objective of the study is to develop an agrotechnology for enhancing soil fertility through complex tillage under the soil and climatic conditions of the southern regions of the Republic.

RESEARCH METHODS. The research was conducted at the central experimental farm of the Southern Scientific Research Institute of Agriculture. In the field experiments, different sowing methods and summer green manure crops (mung bean) were applied in the cultivation of the winter soft wheat variety *Shukrona*.

RESEARCH RESULTS. One of the key indicators of agricultural crops is plant height. Excessive plant height reduces resistance to lodging, while excessively low plant height complicates harvesting and leads to reduced yield.

In the conducted experiment, mung bean was sown as a summer green manure crop, and the resulting green mass was incorporated into the soil. Subsequently, winter wheat seeds were sown under various tillage methods, and their effect on wheat plant height was analyzed.

According to the measurements and analyses carried out, the height of the winter soft wheat variety *Shukrona* ranged from 115.7 cm to 125.3 cm across the variants.

The Effect of Different Soil Tillage Methods on the Height of Winter Wheat Plants

Variants	Plant Height, cm (Before Harvest)	1st Replication	2nd Replication	3rd Replication	Average
2. Control + No-till Winter Wheat	115.7	120.8	116.3	117.6	
3. Control + Full-till Winter Wheat	121.8	120.7	118.6	120.4	
4. No-till Summer Green Manure (Mung Bean) + No-till Winter Wheat	118.4	116.4	120.7	118.5	

Variants	Plant Height, cm (Before Harvest)	1st Replication	2nd Replication	3rd Replication	Average
5. No-till Summer Green Manure (Mung Bean) + Full-till Winter Wheat	120.5	124.2	125.4	123.4	
6. Full-till Summer Green Manure (Mung Bean) + No-till Winter Wheat	119.8	124.3	120.3	121.5	
7. Full-till Summer Green Manure (Mung Bean) + Full-till Winter Wheat	122.4	125.3	125.2	124.3	

The lowest plant height was observed in the *Control + No-till Winter Wheat* variant, with an average of 117.6 cm. In the fourth variant, *No-till Summer Green Manure (mung bean) + No-till Winter Wheat*, the average plant height was 118.5 cm, while in the *Control + Full-till Winter Wheat* variant it reached 120.4 cm. In the *Full-till Summer Green Manure (mung bean) + No-till Winter Wheat* variant, the height was 121.5 cm. The highest values were recorded in the *No-till Summer Green Manure (mung bean) + Full-till Winter Wheat* and *Full-till Summer Green Manure (mung bean) + Full-till Winter Wheat* variants, with heights ranging from 123.4 to 124.3 cm.

According to the analysis of the experimental results, the plant height varied depending on the method of soil tillage. Compared to no-till, plowing the soil before sowing resulted in increased plant height.

REFERENCES.

1. M. A. Nesmeyanova, A. V. Dedov, Bulletin of the Omsk State Agrarian University 1 (29), 35-42 (2018)
2. A. V. Dedov, M. A. Nesmeyanova, Agrochemical Bulletin 4, 7-9 (2012)
3. S.I. Smurov, G.S. Agafonov, O.V. Gapienko, Achievements of science and technology of agroindustrial complex 9, 11-14 (2008)
4. A. V. Dedov, M. A. Nesmeyanova, Binary crops - one of the directions of organic agriculture development in the Central Chernobyl Region, Proceedings of the conference "Actual problems of agronomy in modern Russia and ways of their solutions", 37-41 (2018)
5. H. Pung, P. L. Aird, S. Cross, The use of brassica green manure crops for soil improvement and soilborne disease management 3rd Australasian Soilborne Diseases Symposium 8-11 February 2004 (2005)