American Journal of Open University Education
ISSN 2997-3899
Vol. 1, No. 10, Dec 2024,
Available online at: https://scientificbulletin.com/index.php/AJOUP

Improvement of Soil Tillage Technologies for Planting Winter Wheat Between Cotton Rows

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Article information:
Manuscript received: 28 Oct 2024; **Accepted:** 27 Nov 2024; **Published:** 26 Dec 2024

Abstract: The article gives recommendations on the new disc working body, developed after studying the energy-efficient technology and the technical means that provide it, which creates a well-compacted soil layer for planting winter wheat between cotton rows.

Keywords: Cotton, processing, working tool, energy-saving technology, soil crusher, profile, cross-section, disk working body.

Enter. Preparation of grain fields for the planting season and high-quality soil cultivation, selection of varieties based on the conditions of each region, sowing of high-quality seeds ensure high productivity.

Taking into account the hot and dry weather of our republic in July-August, if resource-saving methods are used in agriculture, the productivity of our grain farms will be increased.

Before land preparation in all regions, it is necessary to apply 90 kg of pure phosphorus fertilizers and 60 kg of potash fertilizers per hectare, and then start plowing the land. Because phosphorus and potassium mineral fertilizers increase grain weight and quality. "Currently, more than 215 million hectares of grain are planted worldwide, and more than 730 million tons of grain are grown annually"[1]. Due to the increase in the level of production and consumption of grain products around the world, special attention is paid to the implementation of resource-saving, technically and technologically modernized equipment for high-quality soil cultivation and planting in order to obtain a high yield from grain.

The main part. Land preparation for planting is divided into two: Basic tillage and tillage before planting. The main purpose of tillage is to soften the compacted surface layer of the soil. The operation system of the lands planted with winter wheat depends on the type of crop planted in these fields before that. After a grain crop, corn, or vegetable crop, the soil usually dries out, and when plowed, the field is transplanted. Such cuts become difficult to grind. Therefore, such land areas are lightly watered at first, and when the soil matures, the surface is softened to a depth of 10-12 cm with the help of a disc softener or a harrow, and then it is plowed to a depth of 25-30 cm. This depth is optimal for growing winter wheat. To prepare the land for planting wheat after alfalfa or corn for silage, it is advisable to plow it to a depth of at least 30-35 cm on

PYA-3-35, PD-3-35 two-tier plows. If it is planted after winter wheat and vegetable crops, it is effective to keep it at a depth of 20-25 cm.

80-85% of winter wheat, or even more, is planted between cotton rows. When preparing the ground for planting cotton between the rows, it is necessary to prepare the ground for the planned cotton fields at the end of August with the help of small bodies of cultivators. In this case, the cultivator once again walks between the rows, so the cotton ripens faster and the bolls ripen. Especially in cotton fields with a large number of seedlings, it is prevented from opening the bags, air exchange inside the bags. The seeds are cleared of weeds, and cotton rows are softened with the help of universal cultivators such as KRX-4, KRX-3,6, KXU-4, KPN-4 and other similar equipment.

According to the results of the experimental research, as a result of working with a disc tiller for planting winter wheat between the proposed cotton rows, the cotton stalks are flattened, the cotton rows the area between which the seeds are sown expands. This, in turn, ensures optimal seedling thickness on the field.

Figure 1. Disk overview

Figure 2. Disk working body

Figure 3. Straightening razor between the rows

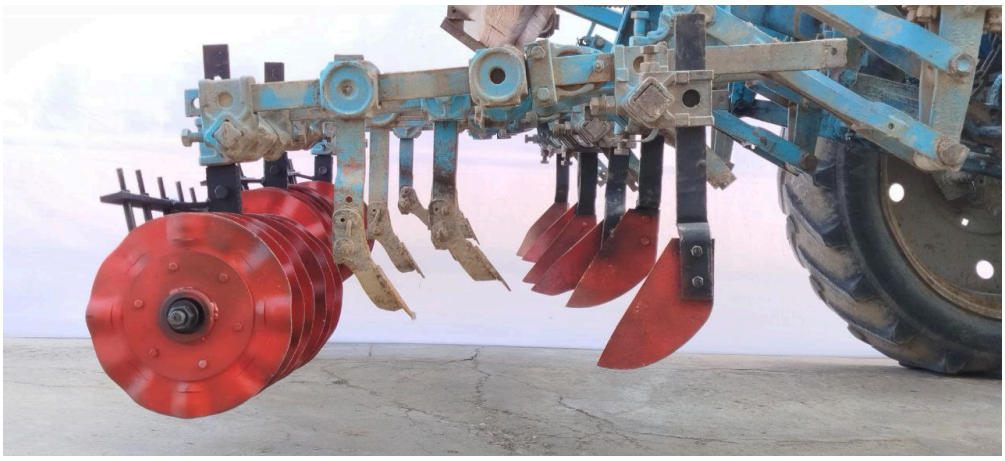

Figure 4. Working body with a razor blade and disk, which is installed on the KXU-4 cultivator.

Figure 5. Harvest of winter wheat grown as a result of tillage between rows of cotton based on recommended technologies.

Preparation of cotton rows for planting winter wheat has its own characteristics. If there is an area of land where the stalks have been harvested, such an area is plowed to a depth of 20-25 cm after softening the surface with a harrow at a depth of 10-12 cm.

When the soil moisture in the plowed area is 50-60 percent compared to the moisture capacity of the field, the land is harrowed using a "zig-zag" harrow. Before preparing the cotton rows for sowing, the annual rate of phosphorus and potassium fertilizers is given, and in order to prevent the spread of weed seeds between the cotton rows, they are pulled, taken to the edge of the field and burned.

If the tillage system is chosen incorrectly, the best predecessor crop can become the worst. For example, after corn, sunflower and beets, it is the second crop that leaves the most residues and moisture in the soil. After these crops, in the hot days of July-August, deep plowing is done without overturning, and if the cuttings are left undisturbed, the plowed layer dries up and makes it difficult to prepare the land for planting. Therefore, it is necessary to cultivate the soil taking into account the condition of each plot of land. In irrigated land conditions, cotton as a predecessor crop for winter wheat, corn for blue mass, corn for grain and, in recent years, sunflower are also expanding.

In order to prepare the arable fields freed from autumn and spring wheat for re-planting of autumn wheat, the fields are plowed one by one to a depth of 25-30 cm. For this purpose, plant residues left on the ground before plowing are crushed and thoroughly mixed with the soil.

Only then it is plowed and the pieces are chopped. If weeds start to appear in this area, it is cultivated to a depth of 5-6 cm, fertilized and mulched over it. In this case, the prepared area is cultivated a day before planting or on the day of planting. Before planting the seeds, the ground is leveled using equipment and a heavy trowel is pressed.

In recent years, taking into account the lack of water, the grain fields were plowed to a depth of 25-30 cm until August 25, leveling the height and height of the land with the help of laser leveling or dlinabase, taking into account the smooth flow of water in the fields, in order not to escape the moisture in the fertile layer, with the dominator mechanism it is advisable to grind the pieces and press with a heavy trowel.

Sowing dates of autumn grain crops. Based on the results of many years of experience, it is recommended to plant in the following periods by region:

- Northern regions of our republic (Republic of Karakalpakstan, Khorezm region) from August 30 to September 30;
- Central region (Bukhara, Navoi, Samarkand, Jizzakh, Syrdarya, Tashkent regions) from September 15 to October 20;
- Fergana Valley (Andijan, Fergana, Namangan regions) until October 20;
- Southern regions (Surkhandarya, Kashkadarya regions) it is recommended to plant autumn grain crops from September 15 to October 25.

When planting autumn grain crops, their biological, that is, late, early and late, is of great importance. In addition to the selection of varieties, it is necessary to determine specific measures to ensure moderate development and ripening depending on the natural soil-climate conditions and water supply conditions of the fields. Early sowing of grain (Northern regions), i.e., starting from August 30, in the first 10 days, late wheat varieties should be planted. It is recommended to plant Durdona, Polovchanka, Andijan-1, Krasnodarskaya-99, Tanya, Asr varieties after the next ten days. In the central regions and the regions of the Fergana Valley, it will be necessary to organize planting from October 5 to October 20. In the southern regions (Kashkadarya and Surkhandarya regions), it is recommended to plant from September 15 to October 25 in the above order.

As a result of many specialists arranging planting in a haphazard manner, without paying attention to the biological condition of grain varieties, there are few cases of failure to get the

intended harvest. Therefore, it is impossible to plant grain either too early or too late, depending on the characteristics of the varieties. It is necessary to sow the seed at the appropriate time for each region. If early varieties are planted in early periods, as a result of prematurely entering the phases of growth and development, tuberting in the fall can even cause cases of refusal or fall of rust and other diseases. The development of rust disease also damages healthy grains in the planted fields.

When planting late, the development phases are delayed, the seedlings become cold resistant, they enter the winter without flowering, as a result, the period of development and ripening coincides with the heat, and the yield drops to 30-40 centners. Taking into account the above, it is necessary to prepare the land for planting, not to scatter the grain in open fields, but to sow the soil 3-5 cm deep in grain drills, without leaving the soil moist before planting.

When determining the planting period of each region, it is appropriate to start from the northern or mountainous regions of the region based on its own conditions. Because the germination of grain planted in northern and mountainous regions is delayed by 2-3 days. The results of many years of experience have confirmed that the preparation of land for autumn grain sowing in August is a guarantee of abundant and high-quality grain harvest.

In conclusion, it should be noted that when preparing the cotton inter-rows for planting autumn grain crops, attention should be paid to the fact that when the cotton stalks are flattened and softened, the area for sowing seeds between the cotton rows will expand. This, in turn, ensures optimal seedling thickness on the field.

If the tillage system is chosen incorrectly, the best predecessor crop can become the worst. Therefore, taking into account the condition of each plot of land, tillage gives its positive result.

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