

STRIP-TILL TECHNOLOGY: PROS AND CONS

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Climatic changes and unstable prices due to pandemics, and increased competition among producers require responsible farming, namely, precision farming, improved quality of crop seeds, and the use of technologies for water conservation in soil. Thus, the challenge of the day is the search for a technology that could provide enhanced effectiveness and profitability of agriculture.

As practical experience has shown, cultivated crops (rape, sugar beets, corn) require most attention during a crop rotation. That is caused by their well-developed taproot system, which is vulnerable to poor soil preparation and improper care of the previous crops. As a result, these have essential impact on yields.

The search for the economy of energy and conservation of the environment in agriculture leads to innovative technologies in farming, namely, to strip-till technology. This method combines the advantages of traditional farming (tillage) and no-till technologies.

The strip-till technology combines the advantages and eliminates the disadvantages of the traditional and no-till soil cultivation. This technology aims at cultivating soil stripes which are 20-25 cm wide and 20-30 cm deep, which simultaneous fertilizer application at various depths. So, 2/3 of the field remain uncultivated, and the fertilizers, applied in a strip, are concentrated in the position for root system development. This technology provides rational use of the fields, alternation strips of land in use and fallow.

According to the technology, the row-spacing should be 45 cm (varied regarding the crop type). The sequence of soil cultivation according to the strip-till technology is conducted both in summer and autumn. Cultivated crops as corn, soya and sunflower are grown according to the strip-till technology.

Soil is scarified in strips 12 cm wide and 25 cm deep over the previous stubble. Fertilizers are applied into these rows. The bearing wheel compacts the bed and seeds are stowed at the certain depth and rolled over.

Only 33% of the field are cultivated according to the technology, while 67% remain fallow. Soil structure and micro flora are retained there, soil moisture is conserved. Fertilizers are thriftily used as they are applied to root space of the crop. Less fuel is used for a machine pass.

The advantages of the strip-till technology:

- one pass provides full soil cultivation, which gives fuel economy by up to 30%.
- fertilizers are applied at the optimal depth to and around the root space of the crop, which provides sprout nutrition. There is no need in additional fertilizing. The economy in process materials constitutes about 20%;
- special units enable simultaneous scarification and fertilizing, and also sowing;
- two thirds of the field remain fallow which means that soil retains its natural fertility and is not disposed to water and wind erosion.

However, the technology has some disadvantages, mainly its complexity. The strip-till technology can be effective only if powerful tractors and special units are used. It presupposes additional expenses and investments.

Thus, strip-till is a modern technology of soil cultivation. Its implementation is accompanied by some difficulties, calculations and staff training. Though, care of soil will be compensated by its increased fertility.

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