

ZERO TILLAGE SOWING OF WHEAT-A BOON FOR FARMERS

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With the development of resistance in the Phalaris minor against the commonly used herbicide-isoproturon,



the density of this weed has increased tremendously in wheat crop. Before the introduction of new herbicides like topic, leader and pumasuper, high density

(3000 plants/m²) of P.minor had threatened the cultivation of wheat and many farmers used to harvest their unmaturing crop for fodder purpose. The only available option with the farmers was to change of existing cropping pattern or some agronomic practices to raise wheat crop. The acceptance of alternate crops like sunflower, sugarcane, vegetables etc. would depend on family need, economic forces and other location specific factor. Now the time has come not to depend solely on use of herbicides as the problem of cross resistance in the new herbicides may also occur in times to come. Under such situation change in sowing technique of wheat i.e. zero tillage (means direct sowing of crop after paddy harvest) has proved most beneficial to the farmers as it reduces the density of p.minor and cost of cultivation without affecting the crop yield.

The germination of p.minor takes place only when its seed lies within upper 5/cm. Layer of soil coupled with desired temperature and moisture as in case of conventional tillage. Whereas, in zero tillage there is less germination of seed of p.minor lying in the upper 5cm. Soil depth because of lack of desired temperature and moisture at sowing time and the seed lying below 5 cm. Soil depth will not germinate because of minimum disturbance of soil. Date of trials conducted by Krishi Vigyan Kendra, Kapurhala (punjab) showed that zero tillage reduced the density of p.minor upto 80 percent. In addition to this, zero tillage has yield advantage of 1-4 qtls/haparticularly in early sown crop and the yield was at par in late sown conditions.

Benefits of zero tillage:

- Net saving of Rs. 1500-2500/- per/ha in term of

cost of fuel, herbicides and labour.

- Sowing of wheat can be early by 3-4 days even upto 7days.
- Pre-sowing irrigation is not required where sowing is done by zero-tillage.
- Reduces the soil erosion.
- Proper management of paddy staw because sowing of wheat can be done in the presence of standing long paddy straw. Farmers generally burnt the staw to clear the field which decrease the soil fertility and create environmental pollution also. Using the new technology, the residue of paddy is decomposed in the fields which helps in increasing the soil fertility. There was no reduction in yield where zero tillage sowing has been done for the last 3-4 years continuously.



Results of zero-tillage trials: Zero-tillage trials were conducted by some KVKs under on-farm testing programme with the objective to make the farmers aware of the use of zero-till drill for direct sowing of wheat and to save the time and money being spent on land preparation before sowing of wheat. The results of the trials conducted in four districts of Haryana and Punjab indicate that on an average,

there has been an increase in yield in wheat by 2.3 percent over conventional method of sowing.

Constraints in zero tillage sowing:

- Presence of loose paddy straw after combine harvesting which create obstacles in smooth running of machine
- Moisture is limiting factor for zero tillage. If the moisture is low at sowing time, the germination of wheat will not be optimum.
- Good quality of zero tillage machine is pre-requisite for this practice.

Study is required to be continued to evaluate the effects of zero tillage on change of weed flora, soil health, physical properties of soil, attack of insect-pests, incidence of nematodes, presence or absence of other bio-agents which are very important to see its long term effect on paddy-wheat cropping system.

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