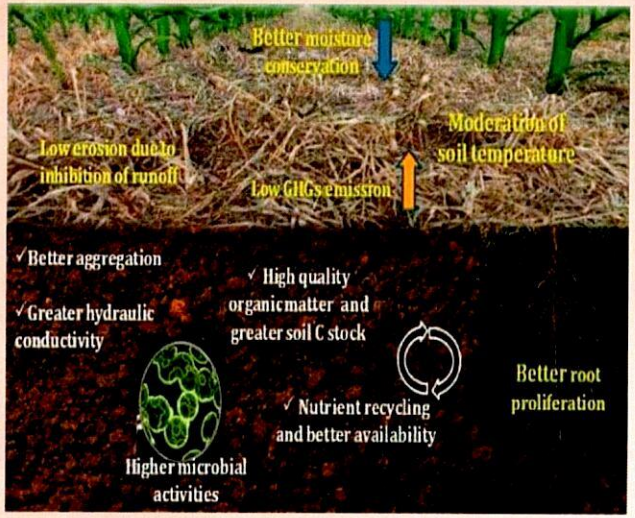

Benefits from zero tillage

- Enhance production stability and yield (4-10%)
- Lower production costs (Rs. 2000-3000 /ha)
- Reduction of CO2 emission
- Reduction in fuel consumption
- Lower soil erosion
- Increase soil quality
- Save water
- Increase biological activity
- Reduce health hazard by avoiding crop residue burning
- Enhancement of water use efficiency
- Reduction of the incidence of weeds such as Phalaris minor in wheat

Constraints in adoption of Zero Tillage

i. Lack of appropriate seeders especially for small farmers and medium scale farmers

ii. The wide spread use of crop residues for livestock feed and fuel

iii. Burning of crop residues

iv. Lack of knowledge about the potential of Zero Tillage

v. Skilled and scientific manpower.

ZERO TILLAGE
A RESOURCE CONSERVING TECHNOLOGY

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Zero tillage is the process where the crop seed are sown without prior land preparation. It is also called No Tillage or Nil Tillage. Zero tillage proves better for direct-seeded rice, maize, soybean, cotton, pigeonpea, mungbean, clusterbean, pearlmillet during kharif season and wheat, barley, chickpea, mustard and lentil during rabi season. Zero tillage reduces cost of cultivation.

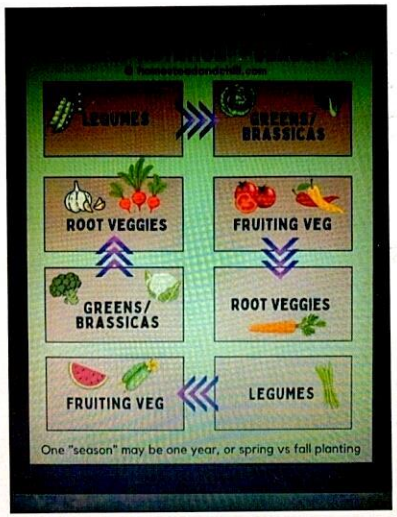
Objectives of Zero Tillage

- To reduce the cultivation cost
- To improve the organic matter content in the soil
- Reduction in soil erosion
- Increase in water use efficiency
- Reducing soil compaction
- Less fuel is required leading to less environmental pollution
- Weed problem is minimized. This may be due to the reason that weed seeds remained in deeper layer under zero tillage system in comparison to conventional system

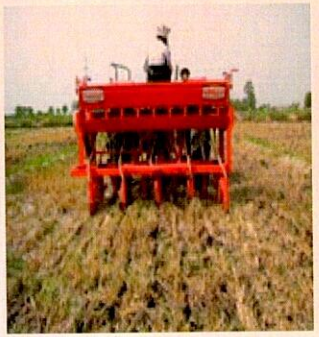
Practices for management of zero tillage

1. **Growing of cover crops** - Cover crops perform a dual function as they protect the soil surface and improve soil properties. Cover crops increase infiltration, create macropores (i.e., earthworm burrows), improve aggregate stability, and increase soil organic matter content and soil microbial biomass.

2. **Crop rotation** - Crop rotation is the practice of planting different crops sequentially on the same plot of land to improve soil health, optimize nutrients in the soil, and combat pest and weed pressure.



3. **Implements** - Heavy tillage equipments are not used for zero tillage as it can cause compaction of the soil. Implements used for zero tillage are zero seed cum fertilizer drill, rotary weeder, metal cutting blade mould board plough.



Minimum tillage

Happy seeder

Roto till drill

Slit till drill

Strip-tillage

4. **Management of crop residue** - Crop residues can improve soil structure, increase organic matter content in the soil, reduce evaporation, and help fix CO2 in the soil. Good residue management practices on agricultural lands have many positive impacts on soil quality.