

**FACULTY OF AGRICULTURE SCIENCES AND  
ALLIED INDUSTRIES**

## CONSERVATION AGRICULTURE STRATEGIES IN AGRICULTURE

Conservation agriculture is a concept for resource-saving agricultural crop production that strives to achieve acceptable profits together with high and sustained production levels while concurrently conserving the environment. It is based on enhancing natural biological processes above and below the ground. Interventions such as mechanical soil tillage are reduced to an absolute minimum and the use of external inputs such as agrochemicals and nutrients of mineral or organic origin are applied at an optimum level and in a way and quantity that does not interfere with or disrupt the biological processes. It is characterized by three principles which are linked to each other, namely:

1. Continuous minimum mechanical soil disturbance
2. Permanent organic soil cover
3. Diversified crop rotations in the case of annual crops or plant associations in case of perennial crops

### Definition

- Conservation agriculture is defined as minimal soil disturbance (no-till) and permanent soil cover (mulch) combined with rotations, is a recent agricultural management system that is gaining popularity in many parts of the world (FAO 2006).
- A sustainable agriculture production system comprising a set of farming practices adapted to the requirements of crops and local condition of each region, whose farming and soil management techniques protect the soil from erosion and degradation, improve its quality and bio-diversity and contribute to the preservation of the natural resources, water and air, while optimizing yield.

### Characteristic features of conventional & conservation agricultural system

S. No.	Conventional Agriculture	Conservation Agricultural
1.	Cultivating land, using science and technology to dominate nature	Least interference with natural processes
2.	Excessive mechanical tillage and soil erosion	No-till or drastically reduced tillage (biological tillage)
3.	High wind and soil erosion	Low wind and soil erosion
4.	Residue burning or removal (bare surface)	Surface retention of residues (permanently covered)
5.	Water infiltration is low	Infiltration rate of water is high

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6.	Use of <i>ex-situ</i> FYM/composts	Use of <i>in-situ</i> organics/composts
7.	Green manuring (incorporated)	Brown manuring/cover crops (surface retention)
8.	Kills established weeds, but stimulates more weed seeds to germinate	Weeds are a problem in the early stages of adoption but decrease with time
9.	Free-wheeling of farm machinery, increased soil compaction	Controlled traffic, compaction in tramline, no compaction in crop area
10.	Monocropping /culture, less efficient	Diversified and more efficient rotations
11.	Heavy reliance on manual labor, uncertainty of operations	Mechanized operations, ensure timeliness of operations
12.	Poor adaptation to stresses, yield losses greater under stress conditions	More resilience to stresses, yield losses are less under stress conditions
13.	Productivity gains in long-run are in declining order	Productivity gains in long-run are in incremental order