

FARMING FOR THE LONG HAUL

How conservation agriculture works

1

RETIRE THE PLOW

Use a seed drill to insert seeds into the soil without tilling. The disturbed area of soil should be less than 15 centimeters wide or 25 percent of the cultivated area—whichever is less.

3

SWITCH CROPS

Ideally, rotate between three different crops. This helps prevent a buildup of pests and diseases in the soil.

2

KEEP IT COVERED

Leave the residues of the preceding crop on the field to act as mulch. Keeping the soil covered—permanently—helps prevent erosion, retain water, and encourage beneficial microorganisms and earthworms.

YIELDS

Yield increases may not be immediate, but studies have shown that crop yields can rise by 20–120 percent.

WEEDS

Weeds can be a problem, especially when a farmer is transitioning a field from tillage to no-tillage farming. Herbicides and herbicide-resistant crops may be necessary.

TREES

Agroforestry—planting trees beside and among field crops—can complement conservation agriculture by preventing soil erosion and boosting soil fertility. Trees can also provide fuelwood, fodder, and medicinal products.

FUEL

Farmers' fuel savings can be significant: they can stop using fuel for plowing and reduce the amount of fuel used to pump water.

LABOR

Conservation agriculture can cut the cost, time, and drudgery associated with plowing, especially where people till the land by hand or with animals. This is a big advantage in areas with scarce labor.

SOIL

Conservation agriculture helps increase soil organic matter—microorganisms, plant residues, and humus—which makes soil less compacted and better at holding moisture.

FERTILIZER

Conservation agriculture can make more efficient use of fertilizer because the seed drill allows fertilizer to be placed precisely where it's needed. In India's rice-wheat farming areas, fertilizer efficiency has improved by 10–15 percent.

WATER

Because conservation agriculture helps soil retain moisture, it requires less irrigation water, allowing groundwater to be used for other purposes like drinking. Water savings of 15–50 percent have been reported.