

Crop Production and Management Slides (Earlier Class 8 NCERT)

LESSON SLIDES

# Crop Production and Management

Earlier NCERT Class 8 Science · From preparing the soil to storing the harvest



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## Crop Production and Management

### SPEAKER NOTES

Hold up a roti or a handful of rice and ask: how many steps did this take before it reached your plate? Collect guesses, then tell the class that today they will follow a crop from the empty field to the storehouse.

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## By the end of this lesson you can

- 🎯 Sort crops into kharif and rabi
- 🎯 List the agricultural practices in order
- 🎯 Compare manure and fertilisers
- 🎯 Compare old and new ways of irrigation
- 🎯 Explain weed control, harvesting and storage

## By the end of this lesson you can

### SPEAKER NOTES

Read the objectives aloud and ask if anyone has helped on a farm or seen one up close. Invite them to share one farm tool they know; it will come up later in the lesson.

## What is a crop?

- Plants of the same kind grown on a large scale in one place
- Cereals: wheat, rice, maize; pulses: gram, pea, moong
- Also vegetables, fruits, oilseeds and fibre crops like cotton
- Growing crops needs planned work across a whole season

## What is a crop?

### SPEAKER NOTES

Explain that settled farming began when people learnt to grow food instead of only gathering it. Ask students to name one crop grown near their home. Mention that animals reared on farms for food, called animal husbandry, are another source of food.

## Two main crop seasons

### Kharif crops

- Sown with the rainy season, about June to September
- Paddy, maize, soyabean, groundnut, cotton
- Need plenty of water

### Rabi crops

- Grown in winter, about October to March
- Wheat, gram, pea, mustard
- Harvested around April, as summer begins

## Two main crop seasons

### SPEAKER NOTES

The months are approximate and shift a little from region to region. Paddy needs standing water, which is why it is grown when the monsoon brings rain. Ask: what would happen if wheat were sown in the rainy season? It would not grow well, because it needs a cool, drier season.

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## The agricultural practices, in order

- Prepare the soil, then sow the seeds
- Add manure and fertilisers; irrigate regularly
- Protect the crop from weeds (and pests)
- Harvest the crop, then store the grain safely

## The agricultural practices, in order

### SPEAKER NOTES

Write the seven steps down one side of the board and keep them there for the whole lesson. Tick each one as you teach it. Ask students which step they think takes the longest; irrigation and weed control continue for most of the season.

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## Step 1: Preparing the soil

- Ploughing (tilling) turns and loosens the soil
- Roots go deeper and breathe more easily
- Earthworms and microbes thrive and add humus
- Tools: plough, hoe and tractor-drawn cultivator
- Levelling the field helps water spread evenly

## Step 1: Preparing the soil

### SPEAKER NOTES

Nutrient-rich soil from below is brought up to the surface when the soil is turned. If the soil is very dry, farmers may water it before ploughing. Ask why earthworms are called the farmer's friends.

## Step 2: Sowing the seeds

- Choose clean, healthy seeds of a good variety
- Damaged seeds are hollow and float in water
- Traditional funnel-shaped tool drops seeds into furrows
- A seed drill sows at equal depth and spacing
- Paddy seedlings are raised in a nursery, then transplanted

## Step 2: Sowing the seeds

### SPEAKER NOTES

Try the float test in class with a bowl of water and a handful of gram or wheat seeds. Explain that the seed drill covers seeds with soil, which protects them from birds. Correct spacing stops overcrowding, so every plant gets enough sunlight, water and nutrients.

## Step 3: Manure or fertiliser?

### Manure

- Natural: decomposed plant and animal waste
- Adds humus and improves soil texture
- Helps soil hold water; supports friendly microbes

### Fertiliser

- Made in factories, e.g. urea, NPK
- Rich in one or a few nutrients
- Overuse harms soil and pollutes water

## Step 3: Manure or fertiliser?

### SPEAKER NOTES

NPK stands for nitrogen, phosphorus and potassium. Fertilisers helped increase yields of wheat, paddy and maize, but using too much reduces soil fertility over time. Ask students which they would choose for a kitchen garden and why.

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## Keeping the soil fertile

- Growing crop after crop uses up soil nutrients
- Crop rotation: grow different crops in turn
- Legumes such as gram and moong host Rhizobium bacteria
- Rhizobium in root nodules fixes nitrogen from the air
- Leaving a field fallow also lets soil recover

## Keeping the soil fertile

### SPEAKER NOTES

A field left fallow is left uncultivated for a season. Rotating a cereal with a legume adds nitrogen back naturally, reducing the need for fertiliser. Ask students to explain in one sentence why a pulse crop is good for the next wheat crop.

## Step 4: Irrigation, old and new

### Traditional

- Moat (pulley system)
- Chain pump
- Dhekli and rahat (lever system)
- Often worked by people or cattle

### Modern

- Sprinkler: rotating nozzles spray like rain
- Drip: water falls drop by drop at the roots
- Save water; suit dry or uneven land

## Step 4: Irrigation, old and new

### SPEAKER NOTES

Sources of irrigation water include wells, tubewells, ponds, lakes, rivers, dams and canals. The government's 'Per Drop More Crop' programme promotes drip and sprinkler irrigation to use water efficiently. Ask why fields need watering more often in summer: more water evaporates in the heat.

## Step 5: Protecting the crop from weeds

- Weeds are unwanted plants growing among crops
- They compete for water, nutrients, space and light
- Remove by hand, with a khurpi, or by tilling
- Best removed before they flower and make seeds
- Weedicides such as 2,4-D kill weeds but not the crop

## Step 5: Protecting the crop from weeds

### SPEAKER NOTES

Farmers spraying weedicides should cover their nose and mouth, because the chemicals can harm their health. Crops also need protection from pests and diseases, which farmers control with pesticides. Ask: why remove weeds before they make seeds?

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## Step 6: Harvesting, threshing and winnowing

- Harvesting: cutting the mature crop with a sickle or harvester
- Threshing: separating grain from the chaff
- A combine harvests and threshes in one go
- Winnowing uses wind to blow away the lighter chaff

## Step 6: Harvesting, threshing and winnowing

### SPEAKER NOTES

Small farmers often winnow by hand, pouring grain from a height so the wind carries the husk away. Connect this to harvest festivals celebrated across India, such as Pongal, Baisakhi and Bihu. Ask students which harvest festival their family celebrates.

## Step 7: Storing the grain safely

- Freshly harvested grain holds extra moisture
- Dry it in the sun before storing
- Moist grain attracts insects, rats and microbes
- At home: jute bags or metal bins, often with dried neem leaves
- Large stores: silos and granaries with pest control

## Step 7: Storing the grain safely

### SPEAKER NOTES

Explain that stored grain must stay safe for months, so both drying and pest control matter. Ask students how their family stores rice, wheat or dal at home. Big godowns use specific chemical treatments, which must be handled by trained workers.

 **Example**

## A year on a paddy-wheat farm in Punjab

- 1 June-July: paddy seedlings are transplanted from a nursery
- 2 Canals and tubewells top up the monsoon rain
- 3 Autumn: paddy is harvested, often with a combine
- 4 The field is ploughed and wheat is sown for winter
- 5 April: the wheat harvest, celebrated with Baisakhi

## A year on a paddy-wheat farm in Punjab

### SPEAKER NOTES

Punjab grows paddy in kharif with the help of canals and tubewells, and wheat is its main rabi crop. Ask students to map each bullet to one of the seven agricultural practices. Point out that growing only paddy and wheat year after year uses up soil nutrients and a lot of water, which is why crop rotation and water-saving irrigation matter.

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 **Quick check**

**Which of these is a rabi crop?**

**A** Paddy

**B** Maize

**C** Soyabean

**D** Wheat

## Quick check

### SPEAKER NOTES

Answer: D, wheat, which is grown in the cool winter season. Paddy, maize and soyabean are kharif crops sown with the monsoon. Ask a student to name one more rabi crop, such as gram, pea or mustard.

## Key takeaways

- ✓ Kharif crops grow in the rains; rabi crops in winter
- ✓ Seven practices take a crop from soil to store
- ✓ Manure, fertilisers and crop rotation feed the soil
- ✓ Drip and sprinkler irrigation save water
- ✓ Weed control, drying and safe storage protect the harvest

## Key takeaways

### SPEAKER NOTES

Ask students to recall the seven practices in order without looking at the board. Then move to the five-question quiz. Homework: interview a family member or neighbour about how grain is stored at home.