

**I.**

# **Product Knowledge**

## **Topic 18**

### **Types of Seeds**

# FACT SHEET

## I. Product Knowledge

### Topic 18: Types of Seeds

**Types of seeds** can be divided into two areas:

- Seeds for different types of plants or crops.
- Seeds for one type of plant or crop.

#### **Seeds for different types of plants and crops**

Each plant species has its own type of seed. Roses cannot be grown from maize seeds or pumpkins from sorghum seeds. For each crop a farmer grows, he/she needs that crop's seeds.

#### **Seeds for one type of plant or crop**

There are several types of seeds that can produce the same crop. We will focus on two types:

- **Open-pollinated seeds** (also called heirloom seeds)  
Open-pollinated seeds are **saved seeds** from the strongest crops. Through seed saving, the characteristics of the strong plants are carried over to the next season. These seeds are **open pollinated**, which means that plant pollination takes place naturally with the help of the wind or insects.

The **advantages** of open-pollinated seeds are:

- Better resistance against drought.
- Grow well without high fertilizer inputs.
- Less expensive than hybrid seeds.
- Can be used for 2–3 years.

The **disadvantages** of open-pollinated seeds are:

- Often, seeds are not well cleaned, leading to problems with weeds, plant diseases, and yields.
- If seeds are used for many years, they get mixed or deteriorate from crossing with surrounding inferior varieties.
- Lower yields.
- Less responsive to fertilizers.
- Lower resistance to diseases.

- **Hybrid seeds**

Hybrid seeds are seeds produced by **artificially pollinated plants**. Two different parent genes (genetically different varieties of the same class) are matched to create a seed. Hybrids are developed to improve certain characteristics of the plant, such as improved yield, healthy color, and resistance to certain diseases. Hybrid seeds cannot be saved like farmers do with heirloom seeds. Farmers must purchase new seeds for each planting season.

The **advantages** of hybrid seeds are:

- Higher yields.
- Better response to fertilizers.
- Better resistance to diseases.
- Uniform and healthy-looking crops.

The **disadvantages** of hybrid seeds are:

- More expensive.
- Cannot be reused.
- Need fertilizers, pesticides, herbicides, and lots of water to achieve high yields.



# ADDITIONAL INFORMATION

## I. Product Knowledge

### Topic 18: Types of Seeds

In addition to open-pollinated and hybrid seeds, other types of seeds include:

#### **Organic seeds**

Organic seeds are very similar to heirloom seeds except that all parent plants come from an **organic environment** (no chemical fertilizers, pesticides, or herbicides were used to produce the plants). These organic seeds are more expensive than other seeds.

The advantages of organic seeds are that they can be used by organic farmers to produce crops for a premium.

#### **Genetically Modified Organism (GMO) Seeds**

Genetic modification is the transfer of specific genes into the plant in a laboratory. These genes may come from distant species of plants, bacteria, or even animals.

# INSTRUCTIONS

## I. Product Knowledge

### Topic 18: Types of Seeds

#### Materials needed

- Flip-sheet board with flip-sheets
- Markers (5 black, 1 blue, 1 green, 1 red)
- Colored cards
- Sachet with maize seeds

**Time needed:** 45 minutes

- Preparations:**
- Flip-sheet with the heading: *Types of Seeds and Their Advantages*
  - Flip-sheet with the heading *Types of seeds* and the following bullets:
    - *Open-pollinated seeds: saved seeds from the strongest crops*
    - *Hybrid seeds: artificially pollinated plants from two genetically different varieties of the same class*
  - Flip-sheets with the following headings:
    - *Advantages open-pollinated*
    - *Disadvantages open-pollinated*
    - *Advantages hybrid*
    - *Disadvantages hybrid*

## Set up

**Attention:** Ask participants if it is possible to produce a duck from an egg of a chicken. They will answer: No. Ask the participants: Why

not? They will answer that a duck can only grow from a duck's egg.

- Title:** Tell participants the title while showing the flip-sheet with the title: *Types of Seeds*.
- Credibility:** Explain your experience in the seed industry.
- Objectives:** To define heirloom and hybrid seeds and to explain the advantages and disadvantages of each.
- Benefits:** Understanding different types of seeds will help the participants understand the seed industry.
- Direction:** During this session, we will focus on two types of seeds: heirloom and hybrid. We will not discuss organic seeds or Genetically Modified Organism (GMO) seeds.

## Delivery

### Explanation, Demonstration, Exercise, and Guidance:

1. Ask for a **volunteer**. Hand him/her some maize seeds. Tell the volunteer that you would like to grow tomatoes and ask for help. He/she will tell you that these are maize seeds. They cannot produce tomatoes.
2. Look very confused. Turn to the rest of the participants and ask them if they heard what this volunteer just said. They (hopefully) will confirm that maize seeds cannot produce tomatoes.
3. Tell the participants that they are 100% correct. Maize seeds cannot produce tomatoes. Tell them that **every type of crop has its own unique seeds**.
4. Ask the participants to name the **seeds** that they know. Do not write the names, but just repeat them. Do not discuss any of the seeds in detail.
5. Tell the participants that we've learned that every crop has its own unique seeds. These make up the first type of seeds, but there are also other types of seeds. These are different seeds for one crop. Ask if anyone can name a type of seed. The two types we will discuss are: **open-pollinated seeds** (heirloom seeds) and **hybrid seeds**.
6. Ask if anyone can explain what **open-pollinated seeds** are. Open-pollinated seeds are **saved seeds** from the strongest crops. Ask what **hybrid seeds** are. Hybrid seeds are artificially pollinated plants from two genetically different varieties of the same class. Show the flip-sheet with the definition of open-pollinated and hybrid seeds.
7. Divide the participants into four groups. Give each group a black marker and a flip-sheet with one of the headings on advantages/disadvantages of pollinated or hybrid seeds. Let the groups list the advantages or disadvantages for their type of seed.

8. Let each group paste its results on the wall and discuss the flip-sheets one by one. Ask for explanations and add disadvantages or advantages when necessary. The results should be as follows:

The **advantages** of open-pollinated seeds are:

- Better resistance against drought.
- Grow well without high fertilizer inputs.
- Less expensive than hybrid seeds.
- Can be used for 2–3 years.

The **disadvantages** of open-pollinated seeds are:

- Often, seeds are not well cleaned, leading to problems with weeds, plant diseases, and yields.
- If seeds are used for many years, they get mixed or deteriorate from crossing with surrounding inferior varieties.
- Lower yields.
- Less responsive to fertilizers.
- Lower resistance to diseases.

The **advantages** of hybrid seeds are:

- Higher yields.
- Better response to fertilizers.
- Better resistance to diseases.
- Uniform and healthy-looking crops.

The **disadvantages** of hybrid seeds are:

- More expensive.
- Cannot be reused.
- Need fertilizers, pesticides, herbicides, and lots of water to achieve high yields.

## Finish

**Summary:** Give a summary by naming the advantages and disadvantages of open-pollinated and hybrid seeds, using the flip-sheets.

**Questions:** Ask if anyone has a question or comment.

**Evaluation:** Ask participants to name the different types of seeds. Ask them to define hybrid seeds. Ask them why we use hybrid seeds.

**Next step:** In this session, we learned about pollinated and hybrid seeds. In the next session, we will discuss seed classification.

Distribute the **fact sheet** to all participants.

