

SMART AGRICULTURE



MAURITIUS INSTITUTE OF EDUCATION under the aegis of



MINISTRY OF EDUCATION AND HUMAN RESOURCE



ACKNOWLEDGE

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IMPORTANCE OF SMART TOOLS FOR PRECISION AGRICULTURE

Lesson 15:
Importance of Smart Tools for
Precision Agriculture



Duration:
35 minutes



Grade:
7





Importance of Smart Tools for Precision Agriculture

Lesson Aim

The aim of this lesson is to develop learners' understanding of the importance of smart tools in precision agriculture and how they contribute to improve farming practices.

Lesson Overview

In this lesson, learners build on their knowledge from Lessons 1 and 2 to explore why smart tools are important in modern farming. Learners will review previously introduced tools (e.g., drones, smart irrigation, GPS tractors), understand how they help farmers work more efficiently and demonstrate their understanding through matching activities and reflections. The focus is on how precision agriculture allows farmers to make better decisions through the right use of smart tools at the right time and place.

Lesson Objectives

At the end of this lesson, learners will be able to:

1. Recall and name at least three smart tools used in precision agriculture.
2. Describe the functions and benefits of selected smart tools (e.g., saving water, increasing efficiency).
3. Match smart tools with their names and correct agricultural use through a guided activity. (Applying)
4. Reflect on their learning by selecting or illustrating a smart tool and stating its usefulness.

Link to Previous Lessons

- **Lesson 1:** Introduced the concept of emerging agricultural technologies through basic examples.
- **Lesson 2:** Explored specific smart tools in precision agriculture and how they help farmers work smartly.
- **Lesson 3 (current):** Builds on this by analysing the importance of these tools and reinforcing understanding through hands-on and reflective activities.



Importance of Smart Tools for Precision Agriculture

Materials Required

- Pictures or real-life samples of smart tools (drones, weather apps, etc.)
- Flashcards with tool names and images
- Video showing drone in action
- Printed student journal worksheet
- Teacher observation sheet

Lesson Procedure

1. Brainstorming Warm-Up Activity

Purpose: Activate prior knowledge and create links to Lessons 1 and 2

Description: Long ago, farmers did everything by hand. They used simple tools like hoes and buckets. This took a lot of time and energy. Sometimes, they used too much water or planted seeds in the wrong place.

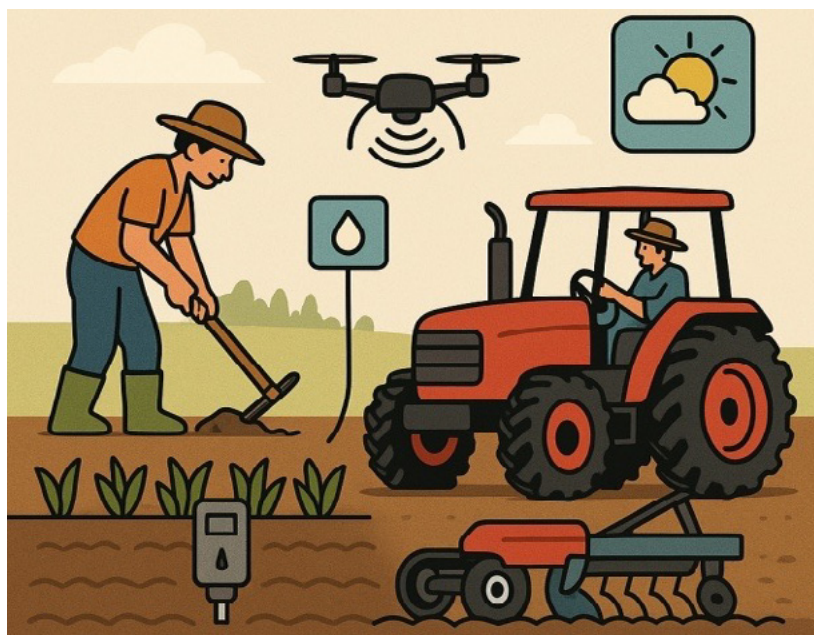


Figure 1: Smart Tools use in Precision Agriculture



Importance of Smart Tools for Precision Agriculture

Learning Activity

Today, farmers use **smart tools** to help them work better and faster. These tools are machines or devices that use **technology** to help farmers.

Smart tools can:

- **Tell** the farmer when the soil is dry.
- **Show** where the plants are sick.
- **Help** plant seeds in straight lines.
- **Save** water, seeds, and time.

This is called Precision Agriculture – it means doing the right thing, at the right time, in the right place.

Begin by displaying images of both traditional farming tools (e.g., hoe, watering can) and smart tools (e.g., drone, soil sensor).

Ask prompting questions such as:

- “What is this tool called?”
- “Have you seen it before?”
- “What does it do?”

Encourage students to respond orally or by pointing to the correct image.

Use guiding prompts (e.g., “It flies and takes pictures...” for drone).

This activity helps review vocabulary and sets the stage for understanding.



Learning Activity

2. Recap of Smart Tools

Purpose: Reinforce the concept of smart tools introduced in earlier lessons



Drones



GPS-guided tractors



Smart Irrigation System



Weather sensor



Soil sensor



Drones

Figure 2: Smart tools used for precision agriculture



Importance of Smart Tools for Precision Agriculture

Learning Activity

Use real objects (if available), large images, or a short 1-minute video to reintroduce 3–4 smart tools:

1. Drones
2. GPS-guided tractors
3. Smart irrigation systems
4. Weather or soil sensors

Explain in simple terms:

- “This is a drone. It flies over the farm and takes pictures to help the farmer see the crops.”
- “This smart irrigation tool gives water only when the plant needs it.”

Allow students to interact by holding flashcards or pointing to visuals.



Importance of Smart Tools for Precision Agriculture

Learning Activity

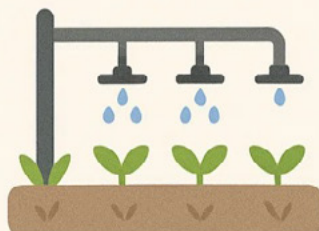
3. Importance of Smart Tools (10 minutes)

Purpose: Help learners understand why smart tools are important in farming



Drones:
Monitor crops from above.

GPS-guided tractors:
Perform precise field work.



Smart irrigation systems:
Water crops efficiently.

Weather sensors:
Measure weather conditions.



Soil sensor:
Analyse soil properties.



Importance of Smart Tools for Precision Agriculture

Learning Activity

Description:

- Use a simple, visual benefits chart showing:
 - o Save water (e.g., picture of a smart irrigation system)
 - o Grow more crops (e.g., drone spraying plants)
 - o Save time and effort (e.g., GPS tractor working a large field)

Explain with relatable examples:

- “Before, farmers used buckets to water. Now, a smart tool gives water only when needed.”
- “Drones help farmers see their entire field in minutes instead of hours.”

Engage students by asking:

- “Do you think this tool helps save time?”
- “How does this tool help the farmer work better?”



Importance of Smart Tools for Precision Agriculture

Learning Activity

4. Interactive Activity: Match the Tool (7 minutes)

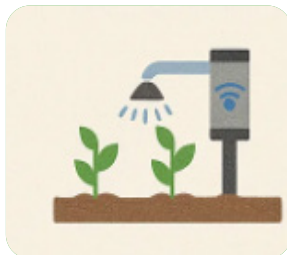
Purpose: Reinforce knowledge through hands-on engagement



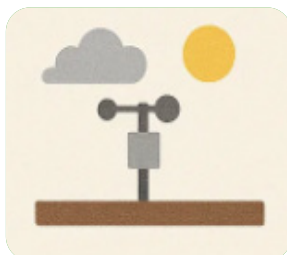
Smart irrigation controls watering.



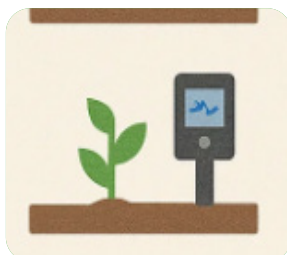
A soil sensor checks moisture level.



GPS-guided tractors help with harvesting.



Drones are used to monitor crops.



A weather sensor measures the temperature and rainfall.

Disclaimer: This image was generated by Sora, Generative AI.



Importance of Smart Tools for Precision Agriculture

Learning Activity

Description:

- Prepare two sets of cards:
 1. One with pictures of smart tools
 2. One with the names and functions (e.g., “Drone – flies over crops and takes pictures”)
- Learners work in pairs or small groups to match the image with the correct name and use.
- As each pair completes the matching exercise, they raise their hand to have their exercise checked.
- Praise correct answers and provide support for the students to make corrections.
- Provide verbal applause for successful matches.



Learning Activity

5. Reflection in Personal Journal (5 minutes)

Purpose: Support personal understanding and reflection

- **Description:**

Distribute simple, visual worksheets with the following prompts:

- “Draw your favourite smart tool.”
 - “Match the tool to what it does” (line matching or circle correct image).
 - “Tick the benefits of smart tools” (with small icons for water, time, crops).
- Learners may write, draw, or orally share answers with the teacher, depending on ability.
 - Provide encouragement and one-on-one support to learners who need help.



Importance of Smart Tools for Precision Agriculture

Learning Activity

MY PERSONAL LEARNING JOURNAL: IMPORTANCE OF SMART TOOLS IN AGRICULTURE

Name: _____

Date: _____

Draw Your Favorite Smart Tool

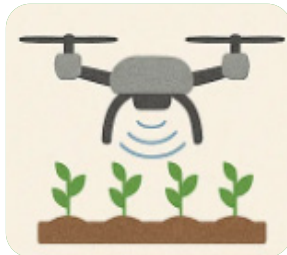
(Draw a picture of a smart tool used in farming, such as drones, irrigation systems, weather trackers, or planting machines.)



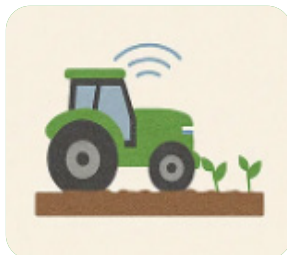
Importance of Smart Tools for Precision Agriculture

Learning Activity

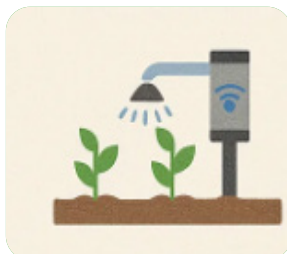
3. Match the Tool to What It Does.
(Draw a line to connect each tool to its correct function.)



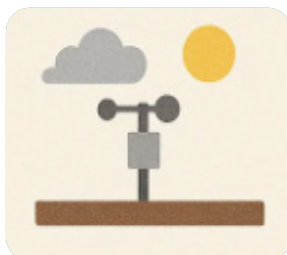
Smart irrigation controls watering.



A soil sensor checks moisture level.



GPS-guided tractors help with harvesting.



Drones are used to monitor crops.



A weather sensor measures the temperature and rainfall.



Importance of Smart Tools for Precision Agriculture

Learning Activity

4. Tick the Benefits of Smart Tools

(Students can tick the correct boxes. Small icons can be used next to each benefit, such as for water, for time, and for crops.)

SMART TOOLS IN AGRICULTURE



Higher yields.

☐

Saves water.

☐

Less pesticide use.

☐

Lower costs.

☐

Reduces waste.

☐

More profits

☐



Teacher Review and Wrap-Up

6. Teacher Review and Wrap-Up

Purpose: Reinforce key learning and conduct informal assessment

Description:

- Ask yes/no or one-word answer questions:
- “Do smart tools help farmers?”
- “Can drones fly over crops?”
- Praise effort and participation
- Note observations on a simple checklist (participation, understanding, support needed).

Teacher’s Responsibilities

- Explain the concept of smart tools in simple words.
- Show clear pictures of each smart tool.
- Demonstrate how each tool is used in farming.
- Provide step-by-step guidance and examples.
- Give encouragement and support during activities.



Teacher Observation Checklist

1. Student Engagement & Participation

Good Average Low

Demonstrates interest in the topic (smart farming tools).

☐☐☐

Actively participates in discussions about drones, smart irrigation, and GPS tractors.

☐☐☐

Asks relevant questions or shares prior knowledge from Lessons 1 & 2.

☐☐☐

Engages in group activities or partner discussions.

☐☐☐

2. Develop understanding of concepts

Good Average Low

Can accurately describe the role of smart farming tools.

☐☐☐

Demonstrates a basic understanding of precision agriculture.

☐☐☐

Correctly matches tools to their respective functions.

☐☐☐

Explains why using the right tool at the right time is important.

☐☐☐

3. Application & Critical Thinking

Good Average Low

Shows ability to connect learning to real-world farming scenarios.

☐☐☐

Applies knowledge in visual reflection activities (e.g., diagrams, drawings, written explanations).

☐☐☐

Identifies advantages of smart farming tools.

☐☐☐



Teacher Observation Checklist

4. Collaboration & Communication	Good	Average	Low
Shares ideas clearly in group discussions.	☐	☐	☐
Works cooperatively during matching and reflection activities.	☐	☐	☐
Asks relevant questions or shares prior knowledge from Lessons 1 & 2.	☐	☐	☐
Listens actively to peers and responds appropriately.	☐	☐	☐

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