

Unit 2: Field Crops Production and Management

Cereal Crops Production and Management

Introduction to Cereal Crops

- Cereal crops are essential plants grown primarily for their edible seeds.
- They are a major source of food for humans and have other uses such as animal feed and raw materials in various industries.

Key Concepts

1. **Types of Cereal Crops:** These are grasses cultivated for their grain, which is a staple food in many parts of the world. Examples include:
 - **Teff**
 - **Maize**
 - **Wheat**
 - **Barley**
 - **Sorghum**
2. **Factors Influencing Crop Production:**
 - **Site Selection:** Choosing the right location based on soil type, water availability, and climate.
 - **Soil Properties:** Different crops require different soil types. For example, loamy soils are suitable for many cereal crops.
 - **Management Practices:** These include planting time, spacing, pest control, and harvesting techniques.
 - **Inputs:** Farmers need to manage inputs like fertilizers, irrigation, and lime to adjust soil pH.
3. **Uncontrollable Factors:** Some factors, like unexpected weather changes or pest invasions, are beyond the farmer's control and can affect crop yield.

Cereal Crop Examples and Management

1. **Teff:**
 - Native to Ethiopia, highly nutritious, and gluten-free.
 - Grows in a wide range of environments and is less prone to pests.
 - Requires smooth, well-prepared seedbeds and is usually planted by broadcasting seeds.
2. **Maize:**

- Originated in Central America, maize is now widely grown around the world.
 - Known for its high yield and is used as food, animal feed, and in industrial products.
 - Requires well-prepared soil, proper spacing during planting, and timely fertilization.
3. **Wheat:**
- Likely originated in Asia and is one of the most important global cereal crops.
 - Grows in cooler climates and is used for making bread, pasta, and other products.
 - Requires well-drained loamy soils and is usually rotated with other crops like lentils and teff.
4. **Barley:**
- Originated in the Middle East, used for food, livestock feed, and malting in alcohol production.
 - Grows in high altitudes with well-drained loamy soils.
 - Requires similar cultivation practices as wheat.
5. **Sorghum:**
- A drought-resistant crop native to Africa, often called "the camel crop" for its resilience.
 - Grows well in poor soils where other crops may fail.
 - Used for food, animal feed, and construction materials in rural areas.

General Management Practices for Cereal Crops:

- **Land Preparation:** Plowing and preparing the soil properly is essential.
- **Planting:** Correct spacing and depth during planting help ensure good crop growth.
- **Fertilization:** Adjusting fertilizer application based on soil fertility.
- **Weed and Pest Control:** Manual weeding, crop rotation, and using resistant varieties are crucial to maintaining healthy crops.
- **Harvesting:** Timing the harvest correctly to ensure maximum yield and quality.

Conclusion: Understanding the basics of cereal crop production and management is crucial for successful farming. Proper site selection, soil management, and timely interventions can lead to better yields and more sustainable agriculture.

Haricot Beans (*Phaseolus vulgaris* L.)

Introduction: Haricot beans, also known as common beans, originated in Mexico and have spread to various parts of the world. They are primarily grown for their edible seeds, and their immature pods are also consumed as a vegetable. Additionally, haricot beans can be used as animal feed.

Growing Conditions:

- Haricot beans thrive in a wide range of soil types.
- They are typically grown at altitudes between 1400 and 2000 meters above sea level.
- The crop can be grown as a monocrop or mixed with cereals like maize and sorghum.
- Haricot beans are often rotated with other crops such as teff, maize, and sorghum.

Seed Characteristics: Haricot bean seeds come in various colors, including red, brown, white, and gray. They are an essential export crop for Ethiopia.

Planting:

- Haricot beans can be sown either by broadcasting seeds or planting them in rows.
- When planted in rows, the recommended spacing is 40 cm between rows and 10 cm between plants.
- In intercropping systems, haricot beans are planted between rows of maize or sorghum, maintaining the 10 cm spacing between plants.
- Animal manure is commonly used as fertilizer.

Weed and Pest Management:

- Weed control is crucial for haricot bean production. A clean seedbed is necessary, and manual weeding should be done within four weeks of planting.
- The crop is vulnerable to storage pests, particularly weevils. To protect the beans, they should be dried until their moisture content is below 12%, and chemical treatments may be applied to the grains.

Harvesting:

- Haricot beans typically mature within 3 to 4 months.
- The crop is ready for harvest when the leaves fall off, and the pods turn yellow and start to dry.

- If harvested as a vegetable, the pods should be picked while still green (immature).
- The average national yield for haricot beans is 14 quintals (1.4 tons) per hectare.