

Ministry of Education
Curriculum Planning and Development Division

Level: CSEC

Subject Area: Agricultural Science

SECTION B: CROP PRODUCTION

5. Crop management

Specific objective(s):

5.1 Cultivate a fruit, root, and leaf crop;

SBA Skills:

6. Demonstrate land preparation techniques:

(a) land clearing; (b) primary and secondary tillage; (c) drain formation; and, (d) ridges and furrows.

#11. Transplanting and proper spacing.

#12. Demonstrate cultural practices associated with crop production:

(a) moulding; (b) mulching; (c) staking; (d) pruning; (e) irrigating; (f) weed control; and, (g) pests and diseases control.

Crop Management

Cultivating A Root Crop: Radish

How To Grow Radish

Raphanus sativus



Objectives

Explain the cultivation of Radish under the following headings:

1. Radish varieties
2. Land preparation and the formation of Ridges and Furrows
3. Planting and Spacing requirements
4. Cultural practices:
 1. Irrigation
 2. Banking of soil
 3. Weed control
 4. Pest Control
 5. Disease Control
5. Fertilizer Application
6. Harvesting and Preparation for market

Radish Varieties

- ▶ Scientific name :
Raphanus sativus
- ▶ Family : Cruciferae
- ▶ Varieties: Ming Hu,
Daikon, Scarlet Buttons,
Scarlet Globe



Land Preparation- Land Clearing

- ▶ Remove Weeds and crops residues either:
 - ▶ Manually using cutlass or
 - ▶ Mechanically using a mechanical brush cutter or
 - ▶ Chemically using weedicides



Land Preparation- Tillage

► PRIMARY TILLAGE

- Break up soil into large clumps using a garden fork

► SECONDARY TILLAGE

- Refine soil into a fine tilth, either manually using rakes and hoes or mechanically using a mechanical rotovator
- At this stage, well-rotted pen manure can be incorporated into the soil.



Land Preparation- Drain and Bed Formation



- Using a Spade, Cut drains 30 cm wide and form raised beds approximately 1m x 5m.

Land Preparation- Formation of Ridges and Furrows



- Before the sowing of radish seeds, ridges must be formed to a dimension of 45-60cm apart and 20-30cm high. The ridges provide sufficient root room and encourages tuber formation. The drains between the ridges are called furrows

Land Preparation- Formation of Ridges and Furrows



- Before the sowing of radish seeds, create a seed bed on top of the ridge and place a 3cm to 5 cm layer of moist promix. This layer provides a suitable environment for the radish seedlings to germinate.

Planting material and recommended spacing



- Place 2-3 seeds into promix in holes approx. 20-25 cm apart and cover with mulch since light inhibits germination of radish.

Thinning out of Seedlings



- Thin out seedlings 7-10 days after germination to prevent the plants from competing for nutrients. Insufficient space would result in very small tubers.

Application of Inorganic Fertilizers

- ▶ Apply 12:12:17+2 before sowing, at the side of the seed bed.
- ▶ After germination apply a nitrogenous fertilizer, e.g. Calcium nitrate or Urea or 20:10:10 as a top dressing, every 10 days, until roots are mature.



Drainage and Irrigation

Soils need to be well drained and moisture levels maintained close to field capacity.

► Irrigation

- Water regularly as needed throughout the growing season, manually using watering can. Automated sprinkler systems can also be used.
- Moisten the soil thoroughly when watering.
- Consistent, frequent, light watering is necessary for good growth.



Cultural Practices - Weed Control



- Weeds can be controlled manually by hand pulling

Cultural Practices - Banking of Soil



- ▶ The soil should be banked over the growing tubers using a hoe so that the tubers are covered at all times. Tubers become cracked when exposed to direct sunlight

Pests



Source: <http://freespiritgardens.org/leaf-miners-and-garden-loss/>

- Caterpillar, leaf miners and aphids attack can be controlled using an insecticide e.g. Fastac at a rate of 5ml/litre of water

Disease Control e.g. Root Rot



Source: <https://pnwhandbooks.org/plantdisease/host-disease/radish-raphanus-sativus-black-root>

- Fungal infection e.g. Rhizoctonia fungus which attacks the tuber causing rot, can be controlled using a fungicide e.g. Banrot at a rate of 15gm/litre of water

Harvesting



- ▶ Radish matures in 26-50 days. The whole plant is harvested early in the morning by gently removing the plant using a garden fork.

Preparation for Market



- The leaves are removed and the tubers cleaned and thoroughly washed to remove all dirt

Preparation for Market



- ▶ The radish is then dried and packed in well ventilated boxes and stored in a cool dry place.

EVALUATION

1. What are THREE varieties of Radish cultivated in Trinidad and Tobago?
2. Why are ridges formed when cultivating Radish?
3. Explain the importance of 'thinning out' Radish seedlings.
4. Identify TWO pests of Radish and the treatment for these pests.
5. Outline the steps required to plant Radish from land preparation to planting.

ANSWERS

1. What are THREE varieties of Radish cultivated in Trinidad and Tobago?

Varieties: Ming Hu, Daikon, Scarlet Buttons, Scarlet Globe

2. Why are ridges formed when cultivating Radish?

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ANSWERS

3. Explain the importance of 'thinning out' Radish seedlings.

Thin out seedlings 7-10 days after germination to prevent the plants competing for nutrients. Insufficient space would result in very small tubers.

ANSWERS

4. Identify TWO pests of Radish and the treatment for these pests.

Caterpillar, leaf miners and aphids attack can be controlled using an insecticide e.g. Fastac at a rate of 5ml/litre of water

ANSWERS

5. Outline the steps required to plant Radish from land preparation to planting.

1. Remove Weeds and crops residues Manually using cutlass or Mechanically using a mechanical brush cutter or Chemically using weedicides
2. Using a Spade, Cut drains 30 cm wide and form raised beds approximately 1m x 5m.
3. Before the sowing of radish seeds, ridges must be formed to a dimension of 45-60cm apart and 20-30cm high.
4. Place 2-3 seeds into promix in holes approx. 20-25 cm apart and cover with mulch since light inhibits germination of radish.