

Ministry of Education
Curriculum Planning & Development Division

Level: Forms 4 & 5

CSEC Agricultural Science Syllabus

SECTION B: CROP PRODUCTION

5. Crop management

Specific objective(s):

5.1 Cultivate a fruit, root, and leaf crop;

Leaf crop – for example, lettuce, cabbage, Chinese cabbage (pakchoi), spinach,
seasoning herbs. (CHIVE)

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 Seasoning Herbs: Chives



How To Grow Chive

Allium schoenoprasum

Objectives

Explain the cultivation of Chive under the following headings:

1. Land preparation
2. Planting and Spacing requirements
3. Cultural practices:
 1. Irrigation
 2. Moulding
 3. Mulching
 4. Weed control
 5. Pest Control
 6. Disease Control
4. Fertilizer Application
5. Harvesting and Preparation for market

Land Preparation

Chives can grow in all soil types provided they are rich, well drained, moist, and fertile.

- ▶ Land Preparation:

- ▶ Before planting

- ▶ Incorporate 10 cm of well-composted organic matter
 - ▶ Apply 100 to 150 g of NPK fertilizer (16-16-8) per square meter planting area
 - ▶ Incorporate the compost and basal fertilizer into the soil to a depth of 15 cm



Planting material and recommended spacing

- ▶ Planting material for chive can be grown from seedlings or from tillers (side shoots from parent plants)
- ▶ Transplanting should be done late in the afternoon.
- ▶ Required Spacing:
 - ▶ Seedlings - 10 cm In Rows, 25 -30 cm between rows
 - ▶ Tillers - 20 cm In Rows, 30 cm Between Rows



Preparation of Planting Material

- ▶ If using off-shoots (tillers) as planting material
 - ▶ trim roots to 2.5 cm before planting
 - ▶ removed the top about 2.5 cm above where the last blade separates from the pseudo stem.



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
- Moisten the soil thoroughly when watering.

Chives will survive periods of drought stress but growth and productivity will decrease



Application of Inorganic Fertilizers

► After transplanting

- Apply fertilizer e.g. 12:24:12 at 5 g (1 tsp) per plant around the base using (ring method)

► Foliar Fertilizers

- Apply a foliar fertilizer e.g. *Nutrex*, *Fertex* or *Phostrogen* at the rate of 3 g per litre of water (1 litre of solution is sufficient for 10 plants)



Application of Inorganic Fertilizers

- ▶ Every 2 to 3 weeks after transplanting
 - ▶ Fertilize using a fertilizer such as 20:10:10 or Calcium Nitrate at the rate of 5 g per plant



Pest

- ▶ Although seasoning herbs such as chive do not attract insect pests due to their strong aroma, a good crop management programme will involve regular monitoring of the crop

Disease Control e.g. Root Rot

- ▶ Generally chive does not have any major diseases but **root rot** can occur if the soil remains waterlogged for a long time
- ▶ Management of root rot in chives:
 - ▶ Ensure soil is well-drained and aerated as this prevents waterlogging and facilitates the plant's natural resistance to disease.
 - ▶ Removal and destruction of crop residues.
 - ▶ The prompt removal of diseased plants.
 - ▶ Use of an intercropping or a crop rotation regimen to break the life cycle of the disease causing organism

Cultural Practices - Weed Control

- ▶ Weeds can be controlled by:
 - ▶ Hand pulling
 - ▶ Using a Selective Herbicide to chemically control weeds
 - ▶ Chive is shade tolerant and can be grown as companion crops to other crops especially those susceptible to mite or insect attack

Cultural Practices - Moulding

- ▶ Each week, lightly mould the soil around the plant
- ▶ Moulding also
 - ▶ Removes weeds
 - ▶ Breaks up any surface crust allowing more water and fertilizers to reach the roots.

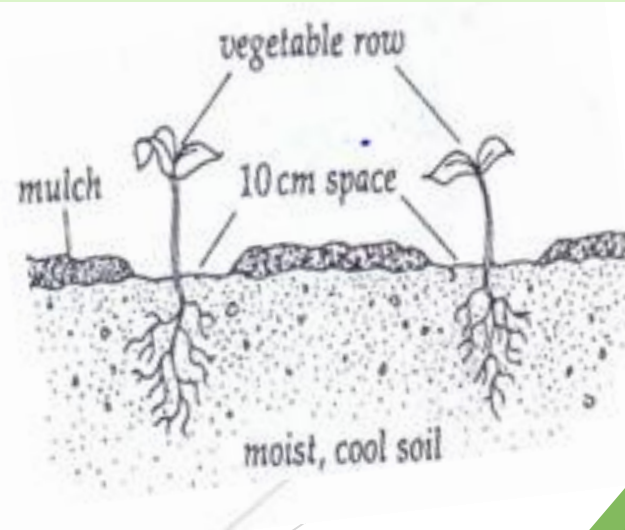


<https://www.homedepot.com/c/ah/how-to-use-a-garden-hoe/9ba683603be9fa5395fab901f40e52f4>

Cultural Practices- Mulching

Chives thrive well in soil that is well drained and moist

- ▶ Mulching
 - ▶ conserves soil moisture during the dry season
 - ▶ Reduces soil water loss due to evaporation
 - ▶ Protects the plant from soil borne diseases spread by soil splash.
 - ▶ Controls weeds during the rainy season
- ▶ Apply mulch around the base of plants, ensuring the mulching material does not come into direct contact with the plant.



Harvesting and Preparation for Market

► Harvesting

- The entire plant can be harvested or leaf blades can be cut.
- Leaf blades can be harvested leaving at least three (3) blades per plant, cutting 2.5 cm above where the blades separate from the pseudo stem.

► Preparation for Market

- Trim off excess roots
- Remove dead and damaged stems
- Wash and allow to air dry
- Place in plastic bags
- Store in a cool dry place or refrigerate for prolonged storage



EVALUATION

1. What are the different types of planting material you can use when planting chive?
2. What is the recommended spacing for planting chive?
3. Outline FOUR practices that are used to control the spread of pests and diseases when cultivating chive.
4. Define the term “mulching” and identify TWO benefits of mulching.
5. Outline the steps required to plant chives from land preparation to planting.

ANSWERS

1. What are two types of planting material you can use when planting chive?

Planting material for chive can be acquired from nursery plants or from tillers.

2. What is the recommended spacing for planting chive?

Nursery plants - 10 cm In Rows, 25 -30 cm between rows, Tillers - 20 cm In Rows, 30 cm Between Rows.

ANSWERS

3. Outline FOUR practices that are used to control the spread of pests and diseases when cultivating chive.

- The prompt removal of diseased plants.
- The regular watering of plants as this facilitates the plant's natural resistance to disease.
- Destruction of crop residues.
- Use of an intercropping or a crop rotation regimen

ANSWERS

4. Define the term “mulching” and identify TWO benefits of mulching.

Mulching is the application of material (organic or inorganic) on soil surface in an attempt to control soil moisture during the dry season.

Two benefits of Mulching: Mulching reduces soil water loss due to evaporation. It also protects the plant from soil borne diseases spread by soil splash.

ANSWERS

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

1. Land Preparation: Before planting, incorporate 10 cm of well-composted organic matter. Apply 100 to 150 g of NPK fertilizer (16-16-8) per square meter planting area. Incorporate the compost and basal fertilizer into the soil to a depth of 15 cm.
2. Transplant seedlings - 10 cm In Rows, 25 -30 cm between rows or tillers - 20 cm In Rows, 30 cm between rows