**RATU NAVULA COLLEGE**

**YEAR 10 NOTES AND ACTIVITY 2021 – WEEK 5**

**AGRICULTURAL SCIENCE**

**C.L.O 10.3.2.1**: **Demonstrate cultivation practices on selected vegetables**

The crops discussed in this lesson are vegetables that need **seedbed** or **transplanting**.

The four crops are **Chinese cabbage, English cabbage, Tomatoes** **and Lettuce**.

**Lesson 41**: Cultivation, management, harvesting and marketing of transplanted vegetables.

**Learniong Outcome**: Describe the cultivation, management, harvesting and marketing of vegetables.

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|  | **English cabbage** | **Chinese cabbage** | **Lettuce** | **Tomatoes** |
| **Scientific name** | ***Brassica oleracea*** | ***Brassica chinensis*** | ***Lectusa sativa*** | ***Lycopesicum esculentum*** |
| **Varieties** | Green cross/ resist crown  Sri gowa/ KKcross  KY Cross | Pak choi  Won bok  Saladeer | Great lake/ boxhill  Butter crunch  Coral lettuce  Rapid  Green mignonette | Alton/ Alafua large  Valley pride  Redland summer taste  Raising sun 2 |
| **Planting season** | All year round  Best result during cool and dry season | All year round  Best result in the cool season | All year round  Cool season | All year round. Best result in the cool season |
| **Land prep** | Prepare land well. Mark plots. Dig soil and make fine tilth. Add manure ( leave for 2 weeks).  Prepare seedbed | Two ploughs/two harrows for good tilth.  Add manure and leave for 2 weeks. Prepare seedbed.  Ready in 3-4 weeks | Prepare soil to fine tilth  Prepare plots.  Add manure and leave for 2 weeks. Prepare seedbed(3-4weeks) | Two ploughs/two harrows for good tilth.  Add manure (leave for 2 weeks) prepare plots.  Prepare seedbed(3-4week |
| **Planting** | Transplant in 3-4 weeks  75cm bet rows/45-60cm bet plants. 2500 plant/ha | 75cm bet rows/ 30-40cm bet plants | 75cm bet rows  30-40cm bet plants | 1.5m bet rows  45-60cm bet plants  1500plants/ha |
| **Management** | Inter-row cultivation  hilling / watering | Inter-row cultivation  Mulching/fertilizer | Inter-row cultivation  mulching/hilling/fertilizer | weeding/hilling/staking  mulching/fertilizer |
| **Pest/disease** | **Pest:** aphids/black moth  **Disease** :black rot | **Pest:** moth/aphids  **Disease**: black/soft rot | **Pest**: caterpillar/thrips  **Disease**: soft rot/mildew | **Pest:** nematode  **Disease**: wilt/mould |
| **Harvest / market** | Mature in 60-90 days after transplanting. Cut stalks. Mature when head is firm .local market.  15-20ton/ha | **Mature** in 4-6 weeks.  Cut stalks. Have wide green leaves. Local market.  10-15ton/ha | Mature in 12 weeks  Cut stalks.  Mature when leaves are wide/green  8-10ton/ha | Mature in 12 weeks  Hold fruit well.  Harvest when fruit base turns yellow. 10-15ton/ha  Local market |
| **Post-harvest** | Store in cool temperature | Keep in cool place | Store in cool place | store in cool place |

**Note: Seedbed preparation procedure**

* **Clear** area to be used properly.
* Mark out the required **size** of the seedbed (2m x 1m) (3m x 1m).
* Dig soil and break to **fine tilth**, remove stones, roots and debris.
* Mix topsoil with **organic matter**.
* Put some **small stones** on the topsoil to ***help in drainage*** (if soil has poor drainage)
* Construct wooden frame around seedbed to avoid soil from slipping off.
* Mix seeds with sand so that seeds are spread evenly in the seedbed.

**Activity**

1. What is the best time for growing these vegetables in order to have great result?
2. What is the botanical of the four crops?
3. Explain the importance of spacing out the plants at planting.
4. Why do you need to water seedbed before removing the seedlings?
5. State the maturity time for the four crops.

**Lesson 42**: Cultivation, management, harvesting and marketing of directly planted vegetables.

**Learning Outcome**: Describe the cultivation, management, harvesting and marketing of three directly planted vegetables.

The three vegetables discussed in this lesson are **directly planted** so there is no need for a seedbed. They are **Long bean, French bean and cucumber**.

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|  | **Long bean** | **French bean** | **Cucumber** |
| **Scientific/Botanical name** | ***Vigna sesquipedalis*** | ***Phaseolus vulgaris*** | ***Cucumis sativa*** |
| **Varieties** | Snake yard long  Local white  Sobi | Contender  Butter bean  Labrador | Supermarket  Progress  Early set |
| **Planting season** | All year round  Best result during hot/wet season | All year round  Best result in cooler months | All year round  Best result in the cool and dry season. |
| **Land preparation** | Clear land well, mark plot size and dig soil into fine tilth. Remove debris, level plot well. | Clear land well.  Plough and prepare soil to fine tilth.  Remove debris, level  plot well | Clear area well and mark plot size. Dig and prepare soil to fine tilth. Remove debris, level plot. |
| **Planting** | Use healthy seeds.  Spacing is 90 x 100cm in rows and 30cm in plants.  2-3 seeds per drill | Use healthy seeds.  2 rows 50cm apart  15-20cm between plants | Use healthy seeds.  Plat 2-3 seeds /drill. 2 rows 10cm apart and 30cm between plants.  Can use mounds too. |
| **Management** | Watering daily until flowering. Inter row cultivation to control weeds and aerate soil.  Staking to support vine growth. | Watering daily during dry weather. Inter row cultivation to control weeds and aerate soil.  Hilling and mulching  Control use of inorganic manure. | Inter row cultivation to control weeds and aerate soil. Watering during dry season. Hilling and mulching.  Control use of inorganic manure. |
| **Pest and disease control** | *Pest*: caterpillar/bugs  *Control*: apply Orthene 20g in 14l of water.  *Disease*: powdery mildew/ root and stem rot. *Control*: Apply Milcurb (fungicide)  Crop rotation | *Pest*: aphids  *Ctrl*: apply Dimethioate 15ml in 15l of water.  *Disease*: powdery mildw, rust, rot and leaf spot. *Ctrl*: apply Benlate 10g/15l of water. | *Pest*: aphids  *Ctrl*: apply Rogor  *Disease*: Blossom rot/ anthracnose  *Ctrl*: use healthy seeds in planting  Spray with Diathane M-45. |
| **Harvesting/ marketing** | Matures in 6-8 weeks after planting.  Pick well filled pods that snap easily  Harvest before seeds over mature.  5-8 ton/ha  Sold to local market @ $2/bundle in season $4/bundle off season | Mature in 42-56 days after planting. Pick well filled pods that snap easily.  Harvest before seeds mature. Pick with care.  Sold @ $2/heap | Mature in 6-8 weeks after planting.  Clip fruits when skin is uniformly green.  Yellow fruits are over mature. Do not bruise the fruits.  Sold in local market @ $2/heap |
| **Post-harvest management** | Store in cool temperature | Store in cool temperature | Store fruits in cool place. Can be stored for 2 weeks at 10 degrees. |

**Activity**

1. State the botanical names of cucumber, French bean and long bean.
2. How will you know when the cucumbers are ready for harvesting?
3. What is the purpose of staking long bean?
4. Explain one reason why a farmer should control the use of inorganic manure.
5. Practice to grow some of these vegetables at home.