

## Strand 4: Production techniques

### 4.1: Grafting in plants

#### Section A

1. B.
2. B.
3. C.
4. D.
5. C.

#### Section B

1. Rootstock and scion.
2. Grafting tape, polythene strip or string.
3. A correctly labelled diagram should show: the scion (upper part with leaves/stem), the rootstock (lower part with roots), the graft union (point where the scion and rootstock are joined), and the tying material (tape/string wrapped around the union to hold it firmly in place).
4.
  - Improves desirable traits such as better fruits, high yields, disease and pest resistance and early maturity.
  - Restores plants whose stems or branches have been damaged.
  - Makes old or unproductive fruit trees productive again.
  - Improves the appearance of plants.
  - Transfers desirable qualities such as drought, pest or disease resistance from the rootstock to the grafted plant.
5.
  - (a) A sharp grafting knife; grafting tape or polythene strip or string; grafting wax; healthy rootstock; scion plants.
  - (b) Handle the sharp cutting tools carefully to avoid injury. This is done by cutting away from the body and keeping tools pointed downward when not in use.
6. The rootstock and scion must be healthy, disease-free and compatible (closely related plant species).
7.
  - (a) The scion and rootstock may have been incompatible; the graft union may not have been tied firmly enough; the graft union was not protected from drying out (no grafting wax applied).
  - (b) Ensure the graft union is tied firmly, sealed with grafting wax and the plant is kept in a shaded, moist environment during healing.
8.
  - To produce disease and pest-resistant fruit trees.
  - To produce high-yielding fruit trees.

- To restore fruit trees with broken or damaged stems or branches.
- To rejuvenate old, unproductive fruit trees.
- To combine desirable qualities of the rootstock (for example, drought resistance) with those of the scion (for example, good fruit quality).

9.

- The rootstock and scion must be compatible.
- The plants must be healthy and disease-free.
- Clean and sharp tools must be used.
- The graft union must be tightly secured and protected from drying out.

## 4.2: Homemade sun dryer

### Section A

1. C.
2. B.
3. A.
4. C.

### Section B

1. Drying reduces the moisture content in vegetables, thus minimising the activities of micro-organisms that cause spoilage.
2. Attack by insects; contamination from dust.
3.
  - (a) A - Outlet vent B – Drying tray or rack C – Inlet vent
  - (b) A – For placing vegetables and allowing free movement of air.  
 B – To let in fresh air into the sun dryer.  
 C- To let out warm air from the sun dryer.
  - (c) Wood is mostly preferred because it a poor conductor of heat hence retains heat from the sun for drying vegetables. It is free from chemicals that may react with natural acids found in vegetables. Wood is affordable, easily available and easy to cut and assemble.
  - (d)
    - Black polythene sheet is suitable for the drying rack because it absorbs heat from the sun and dissipates it through the vegetables being dried.

- The thin mesh allows free circulation of air around the vegetables; allows moisture to escape; prevents the vegetables from falling through; helps the vegetables dry evenly.

(e) Handsaw, hammer, nails, wire mesh, clear polythene sheet, black polythene sheet, small hinges, thumb pins, tin snip or pliers and a tape measure.

I.

- Wash the vegetables in clean cold water to remove all dirt.
- Drain excess water from the vegetables and chop them into suitable pieces.
- Dip the chopped vegetables in hot boiling water for about one minute. Remove the vegetables from the hot water and immediately dip them in cold water for 2 minutes.
- Drain excess water from the vegetables and spread them uniformly on a clean surface. Allow the water to drain.
- Place the vegetables on the rack inside the sun dryer.
- Transfer the homemade sun dryer to an area where there is sufficient sunlight and allow it to stay there for about 4 to 12 hours depending on the kind of vegetable, size and weather conditions.
- Check if the vegetables have dried by squeezing them between your fingers.
- Put the dried vegetables in a clean, airtight container or in a plastic bag.
- Store the dried vegetables in a clean, dry place.