higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

# MARKING GUIDELINE

## NATIONAL CERTIFICATE (VOCATIONAL)

## ADVANCED PLANT PRODUCTION
## NQF LEVEL 4

## 7 November 2022

**This marking guideline consists of 7 pages.**

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## QUESTION 1

| | | | | |
|---|---|---|---|---|
| 1.1 | 1.1.1 | vegetative | | |
| | 1.1.2 | Biological control | | |
| | 1.1.3 | Trench layering | | |
| | 1.1.4 | Weeds | | |
| | 1.1.5 | clean | | |
| | 1.1.6 | Ventilation | | |
| | 1.1.7 | air layering | | |
| | 1.1.8 | horticultural fleece | | |
| | 1.1.9 | transplanting | | |
| | 1.1.10 | nodal cuttings | | |
| | | | (10 × 1) | (10) |
| 1.2 | 1.2.1 | C | | |
| | 1.2.2 | F | | |
| | 1.2.3 | B | | |
| | 1.2.4 | K | | |
| | 1.2.5 | E | | |
| | 1.2.6 | G | | |
| | 1.2.7 | H | | |
| | 1.2.8 | N | | |
| | 1.2.9 | J | | |
| | 1.2.10 | L | | |
| | | | (10 × 1) | (10) |
| 1.3 | 1.3.1 | Layering | | |
| | 1.3.2 | Vermiculture | | |
| | 1.3.3 | Hardwood | | |
| | 1.3.4 | Even span | | |
| | 1.3.5 | Ethelene | | |
| | 1.3.6 | Gibberellins | | |
| | 1.3.7 | Greenhouse/Nursery/Tunnel | | |
| | 1.3.8 | Budding | | |
| | 1.3.9 | Insects | | |
| | 1.3.10 | Powdery mildew | | |
| | | | (10 × 1) | (10) |
| | | | | **[30]** |

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## QUESTION 2

2.1 2.1.1 Air layering (1)

2.1.2
- Remove the bark from the stem✓ to be layered.
- Enclose the cut with moist sphagnum moss or similar rooting medium.✓
- Use a polyethylene film or layering plastic to cover✓ the growth medium.
- The plastic must be tight✓ to avoid drying out.
- Always monitor✓ to check root development.
- Support the branch.✓ (6)

2.1.3 Spring or late summer on shoots produced during the previous season (1)

2.1.4 In spring or late summer temperatures✓ are lower and the rainfall✓ is adequate for rooting. (2)

2.1.5 The bark is more loose and easier to remove (1)

2.2
- Disease-resistant
- Frost-resistant
- Certain size, colour and texture
- Good yield
- Must have a fruiting season
- Consistent height and position of the fruit or cob (making it easier to harvest)
- Colour of the flower
- Ability to grow indoors under low light intensity (Any 6 × 1) (6)

2.3
- Drainage.
- Water holding capacity.
- pH.
- Cation exchange capacity
- Soluble salts.
- Aeration
- Bulk density.

(Any 4 × 1) (4)

2.4
- Weather: Plants dry out faster in warm, dry weather than during cold weather.
- Time of year: During the rest period (winter) plants should be kept just damp. In the active growing seasons plants must be watered more often.
- Type of plant: Drought-resisting plants (xerophytes) such as succulents need much less water than plants from temperate zones, while tropical plants need abundant water during the growing period.
- Indoor conditions: If the nursery is heated or if fans are installed to create air movement, the air will become dry. This will necessitate more regular watering.
- Soil (growth medium and type of container): A coarse medium will allow water to drain easily and will require water more frequently than a growth medium with a sizeable proportion of peat or compost. Porous containers need more frequent watering (5)

2.5
- Most fruits produced by using stimulants do not have seeds.
- Fruit produced by using stimulants have a poorer shape than normal.
- Fruit produced by using stimulants have a shorter shelf life.
- The sugar and acid content is less favourable/tasty. (4)

**[30]**

**QUESTION 3**

3.1 3.1.1
- Production can be done all year round/ out of season
- Factors influencing plant growth can be manipulated. (2)

3.1.2
- Use a footbath before entering the nursery.
- Wash hands regularly before and after using equipment or chemicals.
- Sterilise equipment.
- Change protective clothing when moving from one tunnel to the next.
- Use protective wear at all times. (5)

3.2
- Cheap
- Recyclable
- Light (3)

3.3 Put a bed of gravel (or stones) deep in the bottom of the container before adding the soil. (2)

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3.4
- Clean and dry the container before use.
- Ensure there is enough drainage holes in the container to suit the size of it.
- Cover the drainage holes with some material like small stones.
- Do not fill the container with soil to the brim, but leave some space for water.
- Use a tool or your thumbs to press down soil around the sides of the container.
- As soon as the roots of the plant fill the container, it should be replanted into a bigger container. (Any 3 × 1) (3)

3.5 3.5.1 Prevents wilting, reduces evaporation or water loss and promotes vigorous growth which will provide some protection against diseases and pests.

3.5.2 Produces healthy and pest disease free plants

3.5.3 Reduce plant stand to improve aeration and absorption

3.5.4 Replanting of plants unable to germinate to improve plant stand (4 × 2) (8)

3.6
- More productive per square meter of flower bed
- More resistant to diseases and pests
- More resistant heat and drought
- Can combine qualities of two varieties (Any 3 × 1) (3)

3.7 3.7.1 Should the temperature rise, more water will be required during hot days and less water on cool days.

3.7.2 Some plants are dry or arid surviving and have a fleshy, sunken root system that stores water while some plants have the ability to store water in their stems and roots and therefore require less water. (2 × 2) (4)

**[30]**

## QUESTION 4

4.1 4.1.1 Perennials are plants that live for an indefinite time (more than two years) and flower repeatedly,✓ while annuals are plants that complete a life cycle in one season.✓

4.1.2 Bulbs are swollen underground stems used for storing food✓ and corms are flattened stems in the shape of a globe where new corms form on top of the old ones.✓

4.1.3 Shrubs are plants with woody stems, shorter than a tree and usually with several separate stems from the roots✓.
Hedges are dense rows of bushes or tall shrubs that are cut level at the top, forming a boundary for a field or garden.✓ (3 × 2) (6)

4.2 Plant health: Keep plants clean,✓ remove debris,✓ weeds,✓ remove pests✓ from leaves and use biological disease control✓

Worker hygiene: Workers should sanitise,✓ wear appropriate protective clothes,✓ be careful not to transport✓ diseases from one area to another✓ and regularly change,✓ wash and disinfect clothes, especially shoes.✓

(Any 3 + any 3) (6)

4.3
- Bacterial leaf spot: Dark spots✓ on tips and margins✓ of leaves
- Bacterial canker: Yellowing✓ on shoot and or branch, gum✓ comes out of bark and turns brownish (2 × 2) (4)

4.4
4.4.1 Roots (1)
4.4.2 Bacterial (1)
4.4.3 Foul smell of roots (1)

4.4.4
- Infected plants can be saved by cutting✓ out the diseased parts leaving only the healthy tissue.✓
- All wounds during pruning or otherwise should be treated with copper-containing fungicides✓ as a preventative measure.✓
- Ensure a good drainage of the soil✓ by applying a moderate amount of compost of farm manure.✓ (3 × 2) (6)

4.5 They feed on an infected plant by sucking✓ sap as well as the virus ✓ then leave to feed on another plant thereby transferring the virus to a healthy plant. (2)

4.6
- Reduce competition for water and nutrients
- Weeds can harbour pests and diseases
- Weeds should be destroyed before they flower as not to reproduce (3)

**[30]**

## QUESTION 5

5.1
- Carnations
- Roses
- Lilies
- Chrysanthemums
- Gladioli
- Proteas
- Gerberas (Any 4 × 1) (4)

5.2
- Unfavourable climatic conditions can be avoided when using a nursery.
- A nursery produces flowers of good quality.
- Most flowers are shade-loving plants.
- The environment in a nursery can be controlled using a fan or heater.
- Many insects cannot enter the nursery because the net can prevent them.
- In a nursery the spread of diseases can be prevented. (Any 4 × 1) (4)

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5.3
- Container flowers
- Fresh/ cut flowers (2)

5.4
- Creates jobs
- Contributes to the GDP by exporting
- Medicinal purposes
- Perfumes and domestic use (4)

5.5 5.5.1 Before 10:00 (1)

5.5.2
- Buckets/ containers with fresh water
- Pallets
- Sharp, clean knives
- Sharp, clean shears or secateurs (4)

5.5.3
- Average stem length
- Bright colour
- Healthy stem and flower
- Free from disease (Any 3 × 1) (3)

5.6
- Bunching
- Grading
- Storage
- Cooling
- Packaging
- Germicide treatment (Any 5 × 1) (5)

5.7
- Stunted growth/ malformed flowers
- Yellowing of leaf tissue
- Plant tissues turn brown and dies
- Colouration abnormalities (Any 3 × 1) (3)

**[30]**

**TOTAL: 150**

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