

HORTICULTURE

AT YOUR

FINGERTIPS

COMPLETE **REVISION NOTES** SPECIALLY DESIGNED FOR
DSSSB SO & BPSC BHO EXAMS

GENERAL HORTICULTURE >

FLORICULTURE >

FRUIT PRODUCTION >

MEDICINAL & AROMATIC
PLANTS >

VEGETABLE PRODUCTION >

SPICES PRODUCTION >

ORNAMENTAL LANDSCAPING >

POST HARVEST MGMT >

INCLUDING PROTECTED CULTIVATION & MICROIRRIGATION
FREE TOPIC WISE QUESTION BANKS

DEMO: GENERAL HORTICULTURE**Nursery and Its Types**

1. Definition: A nursery is a place where young crop plants are raised under intensive care to be transplanted in the field after a period of time.
2. Types of nurseries based on size of production:
 - a. Small scale nursery
 - b. Private nursery
 - c. Commercial nursery
3. Types of nurseries based on irrigation facilities:
 - a. Dry nursery
 - b. Wet nursery
4. Types of nurseries based on the kind of plant parts used for raising:
 - a. Fruit plant nursery
 - b. Vegetable nursery
 - c. Flower nursery
 - d. Medicinal/Aromatic plant nursery
 - e. Forest nursery
 - f. Hi-tech nursery
5. Methods of irrigation followed in nurseries:
 - a. Flood irrigation
 - b. Furrow irrigation
 - c. Overhead irrigation:
 - i. Drip system
 - ii. Sprinkler system
 - pH of water: 5.5-7 and salt less than 400 ppm is preferred
 - To raise 1 lakh plants in dry areas in summer, the amount of water required is 20-25 cc/plant/day, and during winter, it is 10 cc/plant/day

Irrigation Management**Distribution of Water Resources on Earth**

- **97.2% in oceans (saline)**
- **2.8% fresh water**
 - 2.2% in polar ice caps and glaciers
 - 0.6% usable fresh water
 - Surface water: 0.02% (lakes, rivers, streams)

- Sub-surface/groundwater: 0.58%

Hydrologic Cycle

1. Precipitation

- Atmospheric moisture condenses and reaches earth as rain, snow, hail, frost, or dew.
- Ocean evaporation provides ~90% of precipitation.

2. Runoff

- Water flows across land after a storm event.
- Forms rills, gullies, channels, streams, rivers.
- Geographical area contributing to river flow = watershed.

3. Storage

- **Surface:** Lakes, reservoirs, wetlands.
- **Sub-surface:** Groundwater.
- Groundwater storage is much greater than surface water.

4. Evapotranspiration

- **Evaporation:** Liquid to vapor from water and land surfaces.
- **Transpiration:** Water leaves plants to the atmosphere.
- Includes all evaporation and plant transpiration.

Water Resource Classification

1. Surface Water

- Found on the planet's surface (rivers, lakes, streams, reservoirs, wetlands, oceans).
- Used for drinking, public uses, irrigation, thermoelectric cooling.

2. Sub-surface Water

- Groundwater is an important part of the water cycle.

Functions of Water in Plants

- Essential for seed germination and plant growth.

- Comprises over 90% of the plant body by fresh weight.
- Reactant in photosynthesis to make carbohydrates.
- Solvent for transporting dissolved soil nutrients into roots.
- Medium for chemical transport to/from cells.
- Provides pressure for plant structure firmness.
- Enables aquatic life.
- Facilitates transpiration for nutrient absorption.
- Regulates temperature and cooling.

Irrigation

- **Definition:** Artificial application of water to soil to supplement rain for crop growth.
- **Purpose:** Used when soil water availability is limited to meet plant needs.

Irrigation Management

- **Objective:** Timing and regulating irrigation to satisfy crop needs without waste.
- **Considerations:** Soil properties, plant biology, water quantity, application timing.
- **Alternative Name:** Irrigation Agronomy.

India Rainfall Seasons

Season	Months	Characteristics
--------	--------	-----------------

Winter	Jan-Feb	Cold dry period
--------	---------	-----------------

Summer	Mar-May	Hot weather
--------	---------	-------------

Kharif	Jun-Sep	SW monsoon, 70% of rainfall
--------	---------	-----------------------------

Rabi	Oct-Dec	NE monsoon, 60% of TN rainfall
------	---------	--------------------------------

Water Budget

- **Definition:** Compares water supply and demand inflow/outflow through an area.
- **Purpose:** Identifies excess and deficit precipitation periods.

India Water Budget:

- Total area: 328M ha

- Average annual rainfall: 1190mm
- Rainfall volume: 390 M ha m
- Snowfall: 8 M ha m
- Total: 400 M ha m
- <2.5mm daily rain doesn't count (evaporates, no groundwater recharge).
- Effective rain days: 75 out of 130 rain days/year.
- Losses:
 - Evapotranspiration: 70 M ha m
 - Surface runoff: 115 M ha m
 - Soil infiltration: 215 M ha m

Total Surface Runoff:

- From rain: 115 M ha m
- From external streams/rivers: 20 M ha m
- Groundwater regeneration to streams/rivers: 45 M ha m
- Total: 180 M ha m

Key Irrigation Terms

- **Matric Potential:** Total water potential from solid soil matrix.
- **Capillary Potential:** Energy holding water in soil.
- **Seepage:** Horizontal water flow from channels; main irrigation loss.
- **Infiltration:** Water entry into soil surface; occurs in unsaturated soil.
- **Percolation:** Saturated water flow down through soil; from unsaturated to saturated zones.
- **Leaching:** Nutrients/salts moving down with water past the root zone.
- **Saturation Capacity:** Maximum water holding ability; all soil pores water-filled.
- **Field Capacity (FC):** Water left after 2-3 days of drainage post-saturation; upper plant-available limit.
- **Permanent Wilting Point (PWP):** Water level where wilt is irreversible without

added water; lower plant-available limit; occurs at -15 bars.

- **Wilting Coefficient:** Root zone moisture percentage at PWP.
- **Plant-Available Water:** FC water minus PWP water.
- **Ultimate Wilting Point:** Water level at plant death; occurs at -60 bars.
- **Soil Moisture Tension:** Tenacity of soil water retention.
- **Soil Water Potential:** Water energy status and movement tendency.

Components:

- Gravitational, osmotic, matric.
- $\Psi_t = \Psi_g + \Psi_o + \Psi_m$.
- Osmotic and matric are negative potentials/suction.

Two Scales:

1. **pF:** Log of water column height (cm); FC at pF 2.5, PWP at pF 4.2.

2. **Atmospheric Pressure:** FC at 0.33 bar, PWP at 15 bar.

- **Moisture Equivalent:** Lab measure of FC.
- **Pudding:** Pre-sow irrigation to cut percolation.
- **Duty of Water:** Water volume to mature crop; gross includes conveyance loss.
- **Base Period:** Days water delivered to crop.
- **Delta:** Total water depth for crop.
- **Kor Watering:** First post-sow irrigation.
- **Rostering:** Irrigation delivery scheduling.
- **Palco Irrigation:** First pre-sow irrigation for germination.
- **Moisture Regime:** Soil moisture percentage at air pressure.

Irrigation Project Classification

- **Major:** >Rs. 50M, >10,000 ha command.
- **Medium:** Rs. 2.5-50M, 2,000-10,000 ha.
- **Minor:** <Rs. 2.5M, <2,000 ha.

Irrigation Methods

1. Surface

- **Flood:** Uncontrolled flow; for lowland rice; 15cm bunds help.
- **Basin:** Flat banded areas; filled and hold water for infiltration.
 - **Check Basins:** Small basins in checks/levees, especially for paddy.
 - **Ring Basins:** Around orchard trees; separate or shared basins.
- **Border Strip:** Long sloped strips between ridges; for close crops.
 - Border width 3-15m per slope.
- **Furrow:** Small channels on slope between crop ridges; for row crops and those sensitive to flooding.
 - Straight or contour type.
 - Deep furrows for wide crops; corrugations (small furrows) for close crops.
- **Surge:** Intermittent water pulses on surface; alternates wet/dry.

2. Sub-surface

- Water below surface directly to roots.
- Artificial water table 30-75 cm deep.
- Moisture rises by capillary action.
- Via underground channels 15-30 m apart.

3. Pressurized/Microirrigation

- **Sprinkler:** Pressurized spray or mist; for most crops/soils; can prevent frost.
 - 25-50% vs. flood, >1000 L/hr, 60% efficiency, 40% labor savings.
- **Drip:** Precise water to plant root zone; for wide crops under scarce water.
 - Developed in Israel; most used in Rajasthan.
 - 60-70% vs. flood, 1-8 L/hr; best for scarce water, steep lands, costly crops.

Sprinkler vs. Drip Comparison

Factor	Sprinkler	Drip
Form	Spray/mist	Drops
Rate	>1000 L/hr	1-4 L/hr
Water Savings	25-50%	60-70%
Land Savings	10-16%	-
Uniformity	Even (up to 10m)	At roots
Uses	Uneven/sandy soil, scarce water/labor, saline soil	Wide crops, gardens, severe scarcity

Crop-Specific Irrigation Methods

Crop	Best Irrigation Method
Rice, jute	Flooding
Groundnut, pulses, millet	Check basin
Close crops	Border strip
Cotton, maize, tobacco, potato, sorghum, sugarcane, veggies	Furrow
Maize, sorghum	Surge
Wheat, groundnut, fox millet	Corrugation
Sugarcane	Drip
Fruit, veggies	Sprinkler

Crop Water Needs

- **Definition:** Water quantity for normal crop growth over a period.
- **Sources:** Precipitation and irrigation.
- **Uses:** Evaporation, transpiration, metabolic use (Consumptive Use).
- **Formula:** Water Req = Irrigation + Effective Rain + Soil storage.

Water Use Efficiency (WUE)

- **Definition:** Yield per unit water. kg/ha-mm.
- **Field WUE Formula:** Yield / (ET + Soil + Deep Percolation).
- **Crop WUE Formula:** Yield / (Evaporation + Transpiration + Metabolism).

Consumptive Use Efficiency

- **Definition:** Ratio of crop consumptive use to applied irrigation.
- **Formula:** Consumptive Use (CU) = Evapotranspiration + Metabolism (<1% of ET).
- In practice, CU = ET.

Irrigation Efficiency

- **Definition:** Ratio of crop irrigation use to source supply.
- **Formula:** $E_i = (\text{Crop Consumed} / \text{Source Supplied}) * 100$.
- Efficiency ranges from 12-34% in most projects.

Water Storage Efficiency

- **Definition:** Ratio of applied root zone storage to needed root zone storage at FC.
- **Formula:** $E_s = (\text{Stored} / \text{Needed}) * 100$.
- Also known as Water Storage Factor.

Conveyance Efficiency

- **Definition:** Ratio of field delivered water to diverted source water.
- **Formula:** $E_c = (\text{Field Delivered} / \text{System Input}) * 100$.
- Generally low, with 21% loss in earthen channels alone.

Fertigation

- **Definition:** Fertilizer application through irrigation.

Irrigation Water Quality

- **Factors:** Level and type of salts, effects on plants.
- **Impact:** High salt changes osmotic pressure, hindering root uptake.
- **Quality Measures:** pH, EC, RSC, SAR, PI, TH, specific ions.
- **Basis:** Soil effects and yield impacts.

Residual Sodium Carbonate (RSC)

- **Definition:** Carbonate binds Ca/Mg, replaced by Na, causing hazards.
- **Categories:**
 - RSC >2.5 meq/L: Not suitable, needs gypsum.
 - RSC 1.25-2.5 meq/L: Marginal, needs gypsum.
 - RSC <1.25 meq/L: Safe.

Sodium Adsorption Ratio (SAR)

- **Definition:** Compares Na to Ca+Mg.
- High SAR leads to high soil Na over time, causing infiltration & aeration issues.
- **Formula:** SAR = [Na] / sqrt([Ca]+[Mg]) for meq/L, or SAR = [Na] / sqrt(([Ca]+[Mg])/2) for mmol/L.
- **Categories:**
 - Low Hazard: SAR <10.
 - Medium Hazard: SAR 10-18.
 - High Hazard: SAR 18-26.
 - Very High Hazard: SAR 26-31.

Boron Hazard**Hazard Boron (ppm) Suitability**

Normal	<3	All crops & soils
Low	3-4	All crops, medium & heavy soils
Medium	4-5	Most heavy soil crops
Boron	5-10	Semi-tolerant & tolerant heavy soil crops
High	>10	Not suitable

Systems of Planting in Orchard

1. Square system:
 - Simplest system, widely adopted

- Plot divided into squares, trees planted at four corners in straight rows at right angles
 - Facilitates intercultural operations, spraying, harvesting, and intercrops like vegetables, ginger, turmeric, cumin, coriander, and spices
 - Two-way irrigation possible
 - Examples: Papaya, banana, guava
2. Rectangular system:
- Similar to square system, but plot divided into rectangles instead of squares
 - Trees planted at four corners of the rectangle in straight rows at right angles
 - Accommodates more plants in the row by keeping more space between rows
3. Hexagonal system:
- Trees planted at corners of an equilateral triangle, with six trees forming a hexagon and a seventh tree at the center
 - Accommodates 15% more trees per unit area compared to square system
 - Difficult to layout and cultivate
4. Quincunx system/Diagonal system:
- Similar to square system, with an additional fifth tree planted at the center of each square
 - Almost doubles the tree number per unit area compared to square system
 - Additional tree in the center is known as "filler"
5. Triangular system:
- Trees planted as in square system, but those in even-numbered rows are midway between those in odd rows
 - Each tree occupies more area compared to square system, accommodating fewer trees per hectare
6. Contour system:
- Followed on hills with high slopes, suitable for undulated topography
 - Minimizes land erosion and conserves soil moisture, making slopes fit for growing fruits

7. High Density Planting:

- High density planting is a gardening and agricultural technique that involves growing crops or plants in close proximity to maximize yield and efficiently utilize available space.
- High density planting can lead to increased yields, more efficient use of space, and reduced weed growth due to the close spacing of plants.

**TO PURCHASE COMPLETE REVISION NOTES
“HORTICULTURE AT YOUR FINGERTIPS” WITH
QUESTION BANK**

VISIT [WWW.INDIANIQ.COM](http://www.indianiq.com)

DEMO: POST HARVEST MANAGEMENT & PROCESSING OF FRUITS AND VEGETABLES**I. Introduction**

- **Importance:** Fresh or processed fruits and vegetables are crucial for our diet.
- **India's Position:** India is the top global producer of both fruits and vegetables.
- **Current Waste:** 70-80% of production is wasted during transportation and storage.
- **Significance:** Understanding biochemical and physiological changes during post-harvest operations is key to minimizing losses.

II. Harvesting or Maturity Indices of Fruits and Vegetables

- **Importance:** Harvesting stage affects market life, storage, transport, eating, and processing quality.
- **Types of Maturity:**
 - **Physiological Maturity:** Maximum growth and maturation, usually full-ripening followed by senescence.
 - **Commercial Maturity:** Harvest time related to market requirements.
- **Maturity Criteria:**
 - **Consumer Condition:** Peak condition upon reaching the consumer.
 - **Flavor and Appearance:** Acceptable development.
 - **Size:** Market-required size.
 - **Safety:** Non-toxic.
 - **Shelf-life:** Adequate.
- **Indices Based on Physico-Chemical Characteristics:**
 - **Characteristics:** Weight, fullness, total soluble solids, sugar to acid ratio, color, heat units, period after blooming.
 - **Common Criteria:**
 - **Days:** Days from bloom to harvest.
 - **Heat Unit:** Heat unit measurement.
 - **Visual:** Skin color, plant part persistence/drying, fruit fullness.

- **Physical Methods:** Separation ease, pressure test, density, grading.
- **Chemical Methods:** Total solids, sugars, acid, sugar-to-acid ratio, starch content.
- **Physiological Methods:** Respiration.

III. Factors Affecting Postharvest Quality of Fruits and Vegetables

- **Biological or Internal Factors:**

- **Respiration Rate:** Continues post-harvest; depends on maturity, injury, storage atmosphere. High respiration rate shortens storage life.
- **Ethylene Production:** Regulates growth and senescence; biosynthesis starts with methionine.
- **Transpiration or Water Loss:** Main cause of deterioration; regulated by outer protective coverings and can be controlled by treatments or environmental manipulation.
- **Physiological Disorders:** Include chilling injury, freezing injury, heat injury, nutrient imbalances, breakdowns due to low/high O₂ and CO₂ levels.
- **Physical Damage:** Major cause of loss, includes surface injuries and bruising during various stages.
- **Pathological Breakdown:** Decay follows mechanical injury or physiological breakdown.

- **Environmental or External Factors:**

- **Temperature:** Most crucial factor, affects respiration and microbial growth.
- **Relative Humidity (RH):** Influences water loss rate.
- **Air Movement:** Affects temperature and RH uniformity.
- **Atmospheric Composition:** Reduced O₂ and elevated CO₂ can benefit or harm depending on various factors.
- **Ethylene:** Low concentrations can cause softening in certain fruits; used for ripening but can also accelerate senescence.

Post Harvest Processing-

I. Storage of Fruits and Vegetables

- **Purposes:**

- Orderly marketing.
- Extending availability.
- Evening out supply to processing factories.
- Constant raw material supply.
- **Types of Storage Systems:**
 - **Evaporative Cooling and Storage:** Low cost, environmentally friendly, short-term storage; cools air via water evaporation.
 - **Controlled Atmosphere (CA) and Modified Atmosphere (MA) Storage:** Different from normal air, reduces respiration and inhibits microbial growth.

II. Post Harvest Processing-

I. Introduction

- **Purposes:** Removing contaminants, increasing shelf life, and preparing value-added products.
- **Processing Methods:** Include low temperature, thermal treatment, concentration, freezing, and irradiation.

II. Post Harvest Preliminary Processing Operations

- **Sorting and Grading:** Separating based on physical properties and quality.
- **Washing:** Essential for microbiological quality; methods include soaking, spraying, and disinfection.
- **Size Reduction:** Includes peeling, coring, and sizing.
- **Blanching:** Mild heat treatment to inactivate enzymes, improve color, flavor, and nutritional quality.
- **Ripening:** Ethylene treatment for certain fruits, temperature, and humidity control for optimal ripening.

Canning and Other Methods of Thermal Processing

I. Canning

- **Definition:** Hermetically sealing and heat-sterilizing food for long storage.
- **Process Flow:**
 - **Raw Material Selection:** Washing, sorting, grading, blanching.

- **Can Filling:** Aseptic filling and can preparation.
- **Syruping and Brining:** Added for flavor and heat transfer.
- **Exhausting:** Removing air to prevent corrosion and strains.
- **Processing (Retorting):** Heating to inactivate bacteria.
- **Cooling:** Immediate cooling after processing.

II. Freezing: Principle, Methods, and Applications

I. Introduction to Freezing

- **Definition:** Preservation method converting liquid content into ice crystals, lowering water activity and arresting microbial growth.
- **Process:**
 - **Stages:** Supercooling, nucleation, crystal growth, progressive freezing.
 - **Advantages:** No nutrient loss, retains freshness, color, and flavor.

II. Freezing Methods

- **Factors in Selection:** Product dimension, piece thickness, freezing rate, packaging, components.
- **Types:**
 - **Air Freezing:** Uses cool air for heat transfer.
 - **Plate Freezing:** Refrigerant-cooled plate surfaces.
 - **Liquid Immersion Freezing:** Uses liquids as refrigerants.
 - **Cryogenic Freezing:** Uses cryogenics for rapid freezing.

**TO PURCHASE COMPLETE REVISION NOTES
“HORTICULTURE AT YOUR FINGERTIPS” WITH
QUESTION BANK**

VISIT WWW.INDIANIQ.COM

HORTICULTURE AT YOUR FINGERTIPS BY INDIAN IQ QUESTION BANK DEMO

1. Which of the following is NOT a recommended variety of mango for export?

- a) Alphonso
- b) Banganapalli
- c) Mulgoa
- d) Sendura
- e) Kesar

Answer: c) Mulgoa

2. High density planting of banana at 1.8 x 3.6 m accommodates how many plants per hectare?

- a) 1,543
- b) 2,222
- c) 3,086
- d) 4,600
- e) 5,000

Answer: d) 4,600

3. Pineapple is propagated through:

- a) Suckers and slips
- b) Corms and cormels
- c) Tubers
- d) Cuttings
- e) Seeds

Answer: a) Suckers and slips

4. The recommended spacing for planting banana under high density planting system is:

- a) 1.5 x 1.5 m
- b) 1.8 x 3.6 m
- c) 2.1 x 2.1 m
- d) 2.0 x 3.0 m
- e) 2.4 x 2.4 m

Answer: b) 1.8 x 3.6 m

5. Bacterial blight tolerant varieties of pomegranate are:

- a) Jyoti and Ganesh
- b) Nayana and Kalpitiya
- c) Nana and Daru
- d) Jyoti and Arakta
- e) Mridula and Ganesh

Answer: b) Nayana and Kalpitiya

6. Match the following banana varieties with their appropriate characteristic:

- | | |
|------------------|--|
| I. Poovan | P. Grown for leaf industry |
| II. Nendran | Q. Moderately resistant to leaf spot |
| III. Rasthali | R. Suitable for drought prone areas |
| IV. Karpuravalli | S. Tolerant to Banana Bunchy Top Virus |

- a) I-Q, II-R, III-S, IV-P
- b) I-R, II-P, III-Q, IV-S
- c) I-S, II-Q, III-P, IV-R
- d) I-Q, II-P, III-S, IV-R
- e) I-R, II-S, III-Q, IV-P

Answer: d) I-Q, II-P, III-S, IV-R

7. Consider the following statements about papaya cultivation:

- I. Seeds are treated with Captan @ 2 g/kg before sowing.
- II. The seedlings are raised in protected structures to avoid Papaya Ring Spot Virus incidence.
- III. CO 2 is a dual-purpose variety suitable for table and papain production.

Which of the statements given above is/are correct?

- a) I only
- b) II only
- c) I and II only
- d) II and III only
- e) I, II and III

Answer: e) I, II and III

8. The recommended dose of NPK fertilizer per hectare for hybrid chilli is:

- a) 30:60:30 kg
- b) 30:80:80 kg

- c) 60:120:60 kg
- d) 75:75:75 kg
- e) 90:90:90 kg

Answer: b) 30:80:80 kg

9. Downy mildew in bitter melon can be managed by spraying:

- a) Carbendazim
- b) Mancozeb
- c) Ametoctradin + dimethomorph
- d) Copper oxychloride
- e) Dinocap

Answer: c) Ametoctradin + dimethomorph

10. The critical period of weed-competition in potato is up to:

- a) 30 days
- b) 45 days
- c) 60 days
- d) 75 days
- e) 90 days

Answer: c) 60 days

11. The major planting season for small onion (Aggregatum) is:

- a) January – February
- b) March – April
- c) June – July
- d) August – September
- e) October – November

Answer: e) October – November

12. Curry leaf varieties suitable for high density planting are:

- a) DWD-1 and DWD-2
- b) Senkaampu and DWD-1
- c) DWD-2 and CO-2
- d) PKM-1 and Senkaampu
- e) CO-2 and PKM-1

Answer: a) DWD-1 and DWD-2

13. Arrange the following capsicum varieties in the increasing order of their fruit size:

- I. California Wonder
- II. Arka Gaurav
- III. Arka Basant
- IV. Arka Mohini

- a) I, II, III, IV
- b) II, III, I, IV
- c) III, II, I, IV
- d) IV, I, II, III
- e) III, I, II, IV

Answer: c) III, II, I, IV

14. Which of the following is a perennial moringa type?

- a) PKM-1
- b) PKM-2
- c) MO-1
- d) MO-2
- e) CO-1

Answer: c) MO-1

15. The variety of amaranthus suitable for grain production is:

- a) CO-1
- b) CO-2
- c) CO-3
- d) CO-4
- e) CO-5

Answer: d) CO-4

16. Which of the following is an incorrect statement about curry leaf production?

- a) The crop is susceptible to citrus butterfly.
- b) Bordeaux paste is applied on the trunk region to control stem borer.
- c) The crop is propagated by stem cuttings.
- d) The crop is a shade loving crop.
- e) The crop performs well in a pH range of 5.5 to 7.0.

Answer: b) Bordeaux paste is applied on the trunk region to control stem borer.

17. The optimum stage of harvesting nutmeg is when:

- a) The fruits turn yellow
- b) The fruits split open
- c) The aril turns red
- d) The seed inside rattles
- e) The fruits fall off from the tree

Answer: b) The fruits split open

18. Which of the following is NOT a characteristic of tamarind variety PKM-1?

- a) Suitable for dry land conditions
- b) Yields dark brown pods
- c) Precocious and prolific bearer
- d) Pods are bold with high pulp content
- e) Resistant to pest and diseases

Answer: b) Yields dark brown pods

19. The recommended fertilizer dose for clove is:

- a) 10:10:100 g NPK/tree/year
- b) 20:20:200 g NPK/tree/year
- c) 30:30:300 g NPK/tree/year
- d) 40:40:400 g NPK/tree/year
- e) 50:50:500 g NPK/tree/year

Answer: c) 30:30:300 g NPK/tree/year

20. Which of the following crops is dioecious in nature?

- a) Clove
- b) Cinnamon
- c) Nutmeg
- d) All spices
- e) Tamarind

Answer: d) All spices

21. The wilt disease in turmeric can be managed by:

- a) Seed treatment with *Trichoderma asperellum*
- b) Soil application of *Pseudomonas fluorescens*
- c) Drenching with carbendazim
- d) Spraying with mancozeb
- e) All of the above

Answer: e) All of the above

22. Foot rot disease in black pepper can be controlled by:

- a) Spraying Bordeaux mixture
- b) Drenching with copper oxychloride
- c) Applying neem cake and *Trichoderma*
- d) Seed treatment with *Pseudomonas fluorescens*
- e) All of the above

Answer: c) Applying neem cake and *Trichoderma*

23. X and Y are popular varieties of cardamom. X is a high yielding variety with bold capsules, while Y is known for its high quality green capsules. Identify X and Y.

- a) X-Mudigere 1, Y-Njallani
- b) X-PV 1, Y-ICRI 2
- c) X-IISR Avinash, Y-Njallani
- d) X-Malabar, Y-Vazhukka
- e) X-Mysore, Y-IISR Vijetha

Answer: c) X-IISR Avinash, Y-Njallani

24. The variety of fenugreek resistant to powdery mildew disease is:

- a) CO 1
- b) Rajendra Kranti
- c) Lam Sel 1
- d) Kasuri
- e) Rmt 1

Answer: b) Rajendra Kranti

25. Consider the following statements about coriander cultivation:

- I. The seeds are soaked for 6 hours before sowing.
- II. Fluchloralin is used as a pre-emergence herbicide.
- III. The crop requires a cool and comparatively humid climate.

Which of the statements given above is/are correct?

- a) I only
- b) II only
- c) III only
- d) I and II only
- e) II and III only

Answer: e) II and III only

26. Which of the following spice crops is grown under shade?

- a) Cardamom
- b) Black pepper
- c) Ginger
- d) Coriander
- e) Turmeric

Answer: a) Cardamom

27. The harvesting of small cardamom starts from _____ year onwards.

- a) First
- b) Second
- c) Third
- d) Fourth
- e) Fifth

Answer: c) Third

28. The recommended spacing for planting mango under high density planting system is:

- a) 5 m x 5 m
- b) 6 m x 6 m
- c) 7 m x 7 m
- d) 8 m x 8 m
- e) 10 m x 10 m

Answer: a) 5 m x 5 m

29. The micronutrient that helps in reducing fruit cracking in litchi is:

- a) Zinc
- b) Boron

- c) Iron
- d) Manganese
- e) Copper

Answer: b) Boron

30. The major pest affecting ber is:

- a) Fruit fly
- b) Stem borer
- c) Bark eating caterpillar
- d) Fruit borer
- e) Leaf folder

Answer: a) Fruit fly

31. The optimum stage for harvesting mango fruits is when:

- a) The shoulders are in line with the pedicel
- b) The colour changes from dark green to light green
- c) The fruit starts falling from the tree
- d) The specific gravity of the fruit is 1.0
- e) The fruit gives a metallic sound when tapped

Answer: a) The shoulders are in line with the pedicel

32. The recommended dose of Ethrel for increasing the yield in pineapple is:

- a) 50 ppm
- b) 100 ppm
- c) 150 ppm
- d) 200 ppm
- e) 250 ppm

Answer: e) 250 ppm

33. The variety of papaya resistant to papaya ring spot virus is:

- a) CO-2
- b) CO-3
- c) CO-4
- d) CO-6
- e) CO-7

Answer: d) CO-6

34. Which of the following is NOT a variety of banana resistant to Fusarium wilt?

- a) Neypoovan
- b) Rasthali
- c) Red Banana
- d) Karpuravalli
- e) Monthan

Answer: e) Monthan

35. Banana bunchy top virus is transmitted by:

- a) Aphids
- b) Mealybugs
- c) Thrips
- d) Whiteflies
- e) Leafhoppers

Answer: a) Aphids

36. The canopy management practice followed in grapes is:

- a) Centering
- b) Coppicing
- c) Pollarding
- d) Smudging
- e) Thinning

Answer: e) Thinning

37. The major pest of citrus that causes fruit drop is:

- a) Citrus leaf miner
- b) Citrus psylla
- c) Citrus blackfly
- d) Citrus whitefly
- e) Citrus thrips

Answer: b) Citrus psylla

38. Which of the following is a variety of apple suitable for high altitudes?

- a) Irish Peach

- b) Red Fuji
- c) Granny Smith
- d) Anna
- e) Dorsett Golden

Answer: a) Irish Peach

39. The optimum stage of harvesting sapota fruits is when:

- a) The colour changes from green to brown
- b) The fruit softens
- c) The fruit gives a hollow sound when tapped
- d) The specific gravity of the fruit is 1.02
- e) The fruit starts falling from the tree

Answer: a) The colour changes from green to brown

40. The major disease affecting guava is:

- a) Anthracnose
- b) Wilt
- c) Stem canker
- d) Fruit rot
- e) Bacterial leaf spot

Answer: a) Anthracnose

41. The micronutrient that helps in improving the yield and quality of sapota is:

- a) Zinc
- b) Boron
- c) Iron
- d) Manganese
- e) Copper

Answer: a) Zinc

42. The recommended spacing for planting jackfruit is:

- a) 6 m x 6 m
- b) 7 m x 7 m
- c) 8 m x 8 m
- d) 9 m x 9 m
- e) 10 m x 10 m

Answer: c) 8 m x 8 m

43. The variety of litchi suitable for dry areas is:

- a) Dehradun
- b) Shahi
- c) China
- d) Early Seedless
- e) Kasba

Answer: b) Shahi

44. The time taken for harvesting of custard apple from flowering is:

- a) 2-3 months
- b) 3-4 months
- c) 4-5 months
- d) 5-6 months
- e) 6-7 months

Answer: c) 4-5 months

45. The optimum stage of harvesting aonla fruits is when:

- a) The colour changes from green to yellow
- b) The fruit softens
- c) The specific gravity of the fruit is 1.02
- d) The fruit starts falling from the tree
- e) The fruit gives a metallic sound when tapped

Answer: a) The colour changes from green to yellow

46. Which of the following is a variety of pear suitable for low chilling areas?

- a) Punjab Beauty
- b) Patharnakh
- c) Baggugosha
- d) Kashmiri Nakh
- e) Gola

Answer: a) Punjab Beauty

47. The variety of strawberry suitable for protected cultivation is:

- a) Chandler
- b) Douglas
- c) Camarosa
- d) Sweet Charlie
- e) Festival

Answer: d) Sweet Charlie

48. The major pest of kiwifruit is:

- a) Fruit fly
- b) Stem borer
- c) Leaf roller
- d) Thrips
- e) Mealybug

Answer: e) Mealybug

49. Which of the following is a variety of walnut suitable for higher altitudes?

- a) Gobind
- b) Sulaiman
- c) Eureka
- d) Placentia
- e) Franquette

Answer: e) Franquette

50. The recommended dose of potassium for improving the yield and quality of banana is:

- a) 100 g/plant
- b) 200 g/plant
- c) 300 g/plant
- d) 400 g/plant
- e) 500 g/plant

Answer: c) 300 g/plant

TO PURCHASE REVISION NOTES & QUESTION BANK FOR BPSB BHO/DSSSB SO, VISIT OUR COURSES SECTION OF WWW.INDIANIQ.COM