



Rajasthan

JET - UG

Swami Keshwanand Rajasthan Agricultural University (SKRAU)

Agriculture

Volume - 2



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II UNIT

Importance of Fruits and Vegetables Production, Present Status and Future Scope

- Fruits and vegetables are an integral part of horticulture, which has emerged as a high-value, nutrition-oriented and income-generating sector of agriculture.
- In India, this sector plays a dominant role due to favorable agro-climatic conditions and increasing demand for diversified diets.
 - ✓ India is the second largest producer of fruits and vegetables in the world.
 - ✓ Fruits and vegetables contribute about 90% of total horticulture production.

Importance of fruits and vegetables production:

(A) Nutritional Importance

- ✓ Fruits and vegetables are rich sources of vitamins (A, C, E), minerals, antioxidants, and dietary fiber.
- ✓ They help in preventing malnutrition, anemia, night blindness, and lifestyle diseases.
- ✓ They improve immunity and overall health, especially important in rural and urban populations.

(B) Economic Importance

- ✓ High-value crops → more income per unit area than cereals.
- ✓ Contribute about 33% to agriculture Gross Value Added (GVA).
- ✓ Generate higher profit margins and quick returns (especially vegetables).
- ✓ Promote commercial agriculture and diversification.

(C) Employment Generation

- ✓ Labour-intensive sector → creates jobs in:
 - Nursery raising
 - Cultivation
 - Harvesting
 - Grading, packaging
 - Processing and marketing
- ✓ Important for rural employment in Rajasthan.

(D) Role in Food and Nutritional Security

- ✓ Helps ensure balanced diet beyond cereals.
- ✓ Essential for tackling hidden hunger (micronutrient deficiency).
- ✓ Supports year-round availability of food.

(E) Industrial and Processing Importance

- ✓ Raw material for agro-industries: Juice, jam, jelly, pickle, ketchup, dehydration
- ✓ Boosts food processing industries and exports.

(F) Export and Foreign Exchange Earnings

- ✓ India exports fruits and vegetables to countries like UAE, Bangladesh, etc.
- ✓ High export potential for:
 - Mango
 - Grapes
 - Pomegranate
 - Onion
- However, export share is still low (~1% global share).

(G) Environmental Importance

- ✓ Orchard crops reduce soil erosion
- ✓ Improve soil structure and biodiversity
- ✓ Help in carbon sequestration

(H) Suitability for Small and Marginal Farmers

- ✓ Requires less land but gives higher returns
- ✓ Ideal for intensive farming systems

Present Status of Fruits and Vegetables Production (India)

(A) Production Statistics

- ✓ Total horticulture production \approx 367.7 million tonnes (2024–25)
- ✓ Fruits production \approx 114.5 million tonnes
- ✓ Vegetables production \approx 219.7 million tonnes
 - This shows rapid growth compared to past decades.

(B) Area and Productivity

- ✓ Area under horticulture \approx 25 million hectares
- ✓ Productivity higher than cereals:
 - Fruits: \sim 15.8 t/ha
 - Vegetables: \sim 18.4 t/ha

(C) Global Position

- ✓ 2nd largest producer after China
- ✓ Leading producer of:
 - Banana
 - Mango
 - Papaya
 - Okra

(D) Growth Trends

- ✓ Growth rate \sim 6% annually (higher than food grains)
- ✓ Horticulture production has surpassed food grain production in India

(E) Major Producing Regions

- ✓ Fruits:
 - Mango \rightarrow UP, Andhra Pradesh
 - Banana \rightarrow Tamil Nadu, Maharashtra
- ✓ Vegetables:
 - Potato \rightarrow UP
 - Onion \rightarrow Maharashtra

(F) Contribution to Economy

- ✓ About 33% contribution to agricultural GVA
- ✓ Important driver of agricultural growth and diversification

(G) Major Constraints (Important for JET)

1. Post-harvest losses (25–30%)
2. Lack of cold storage
3. Poor transportation
4. Small land holdings
5. Price fluctuations
6. Climate change effects

Future Scope of Fruits and Vegetables Production

(A) Increasing Demand

- ✓ Rising population → higher demand
- ✓ Changing food habits → more fruits & vegetables
- ✓ Health awareness increasing consumption

(B) Scope for Export Expansion

- ✓ Huge potential due to:
 - Quality produce
 - Diverse crops
- ✓ Need improvement in:
 - Cold chain
 - Packaging
 - Certification

(C) Processing and Value Addition

- ✓ Only small % processed currently
- ✓ Scope for:
 - Food processing industries
 - Agro-based industries
- ✓ Reduces post-harvest losses

(D) Scope of Protected Cultivation

- ✓ Polyhouse, greenhouse, shade net
- ✓ Off-season vegetable production
- ✓ Higher productivity and quality

(E) Organic Farming Opportunities

- ✓ Increasing demand for organic fruits and vegetables
- ✓ Rajasthan has high scope due to low chemical usage

(F) Employment and Entrepreneurship

- ✓ Scope in:
 - Nursery business
 - Floriculture
 - Processing units
 - Export units

(G) Government Initiatives

- ✓ MIDH (Mission for Integrated Development of Horticulture)
- ✓ National Horticulture Mission
- ✓ Subsidies for drip irrigation, polyhouse
 - These schemes promote expansion of the sector.

(H) Scope in Rajasthan (Very Important for JET)

- ✓ Suitable for:
 - Ber, pomegranate, aonla
 - Onion, tomato, chilli
- ✓ Expansion in arid horticulture
- ✓ Drip irrigation and water-efficient crops

(I) Technological Advancements

- ✓ Hybrid seeds
- ✓ Tissue culture plants
- ✓ Precision farming
- ✓ Use of AI and IoT in agriculture

Important MCQs

1. Fruits and vegetables are known as:

- (A) Energy foods (B) Body building foods
(C) Protective foods (D) Fodder crops

Ans: (C)

2. Fruits and vegetables are rich in:

- (A) Proteins only (B) Vitamins and minerals
(C) Fats only (D) Starch only

Ans: (B)

3. Which vitamin is mainly supplied by fruits?

- (A) Vitamin A (B) Vitamin C
(C) Vitamin D (D) Vitamin K

Ans: (B)

4. Which disease is prevented by adequate fruit consumption?

- (A) Rickets (B) Scurvy
(C) Beriberi (D) Pellagra

Ans: (B)

5. Fruits and vegetables help in preventing:

- (A) Only infections (B) Only genetic diseases
(C) Lifestyle diseases (D) None

Ans: (C)

6. Fruits and vegetables provide:

- (A) Low income (B) High income per unit area
(C) No income (D) Only seasonal income

Ans: (B)

7. Horticulture contributes approximately how much to agricultural GVA?

- (A) 10% (B) 20%
(C) 33% (D) 50%

Ans: (C)

8. Fruits and vegetables are suitable for:

- (A) Only large farmers (B) Only irrigated land
(C) Small and marginal farmers (D) Desert areas only

Ans: (C)

9. Which sector generates maximum rural employment?

- (A) Forestry (B) Horticulture
(C) Fisheries (D) Mining

Ans: (B)

10. India ranks _____ in fruits and vegetables production in the world.

- (A) First (B) Second
(C) Third (D) Fourth

Ans: (B)

11. India is the largest producer of:

- (A) Apple (B) Mango
(C) Banana (D) Orange

Ans: (C)

12. Total horticulture production in India is approximately:

- (A) 100 million tonnes (B) 200 million tonnes
(C) 367 million tonnes (D) 500 million tonnes

Ans: (C)

13. Fruits and vegetables contribute about _____ to total horticulture production.

- (A) 50% (B) 70%
(C) 90% (D) 30%

Ans: (C)

14. Which crop is a major vegetable in India?

- (A) Wheat (B) Rice
(C) Potato (D) Barley

Ans: (C)

15. Major problem in fruits and vegetables sector is:

- (A) Overproduction (B) Post-harvest losses
(C) Excess irrigation (D) High rainfall

Ans: (B)

16. Approximate post-harvest loss is:

- (A) 5–10% (B) 10–15%
(C) 25–30% (D) 50%

Ans: (C)

17. Lack of which facility causes major losses?

- (A) Fertilizers (B) Cold storage
(C) Seeds (D) Labour

Ans: (B)

18. Demand for fruits and vegetables is increasing due to:

- (A) Decreasing population (B) Health awareness
(C) Lack of cereals (D) Industrialization

Ans: (B)

19. Which method helps in off-season vegetable production?

- (A) Dry farming (B) Mixed cropping
(C) Protected cultivation (D) Broadcasting

Ans: (C)

20. Polyhouse is used for:

- (A) Storage (B) Processing
(C) Protected cultivation (D) Irrigation

Ans: (C)

21. Which sector has high export potential?

- (A) Food grains (B) Fruits and vegetables
(C) Pulses (D) Oilseeds

Ans: (B)

22. Which fruit is suitable for arid Rajasthan?

- (A) Apple (B) Ber
(C) Banana (D) Pineapple

Ans: (B)

23. Which vegetable is widely grown in Rajasthan?

- (A) Cabbage (B) Onion
(C) Spinach (D) Broccoli

Ans: (B)

24. Which irrigation method is best for horticulture in Rajasthan?

- (A) Flood irrigation (B) Drip irrigation
(C) Furrow irrigation (D) Basin irrigation

Ans: (B)

25. MIDH stands for:

- (A) Mission for Industrial Development of Horticulture (B) Mission for Integrated Development of Horticulture
(C) Modern Irrigation Development Hub (D) None

Ans: (B)

26. National Horticulture Mission promotes:

- (A) Food grains (B) Horticulture crops
(C) Livestock (D) Fisheries

Ans: (B)

27. Which is NOT a benefit of fruits and vegetables?

- (A) Nutritional security (B) Soil erosion control
(C) Low profitability (D) Employment generation

Ans: (C)

28. Which technology improves quality planting material?

- (A) Broadcasting (B) Tissue culture
(C) Ploughing (D) Harvesting

Ans: (B)

29. Which factor is most important for export?

- (A) Quantity (B) Quality and grading
(C) Labour (D) Rainfall

Ans: (B)

30. Horticulture sector growth rate is approximately:

- (A) 2% (B) 3%
(C) 6% (D) 10%

Ans: (C)

Nursery Management, Propagation and Transplanting of Saplings

- Nursery management is the scientific raising and care of seedlings/saplings under controlled conditions until they are ready for field planting.
- It is a very important component of horticulture and crop production, ensuring healthy, vigorous, disease-free planting material.
- Nursery = “foundation of successful crop production”

Objectives of Nursery Raising-

- ✓ To produce healthy and uniform seedlings
- ✓ To ensure better germination and survival
- ✓ To provide controlled conditions for early growth
- ✓ To reduce seed wastage and input cost
- ✓ To facilitate timely sowing and transplanting
- ✓ To produce disease-free planting material

Types of nursery:

(A) Based on Duration

1. Temporary nursery – Prepared for a single season crop
2. Permanent nursery – Established for long-term use (fruit crops)

(B) Based on Structure

1. Open nursery – Raised in open field
2. Protected nursery – Under shade net, polyhouse, greenhouse

(C) Based on Crop Type

- ✓ Vegetable nursery
- ✓ Fruit nursery
- ✓ Flower nursery
- ✓ Forest nursery

Site Selection for Nursery

- ✓ Well-drained, fertile soil (sandy loam preferred)
- ✓ Near water source
- ✓ Good sunlight exposure
- ✓ Protected from strong winds
- ✓ Free from pests and diseases
- ✓ Easily accessible location
- ✓ Avoid waterlogging and saline soils (important for Rajasthan)

Nursery bed preparation:

(A) Types of Nursery Beds

1. Raised beds (most common)
2. Flat beds
3. Sunken beds (for dry areas)

(B) Ideal Dimensions

- ✓ Width: 1–1.2 m
- ✓ Length: 3–5 m
- ✓ Height: 10–15 cm

(C) Soil Preparation

- ✓ Fine tilth by ploughing and harrowing
- ✓ Mix with:
 - FYM (well decomposed)
 - Sand (for aeration)
 - Compost

(D) Soil Sterilization

- ✓ Solarization (polythene sheet covering)
- ✓ Chemical treatment (formalin)
- ✓ Fungicides
- ✓ Prevents damping-off disease

Seed Sowing In Nursery

- ✓ Use certified and treated seeds
- ✓ Methods:
 - Broadcasting
 - Line sowing (preferred)
- ✓ Depth: 2–3 times the seed size
- ✓ Cover with fine soil or compost
- ✓ Light irrigation after sowing

Nursery Management Practices

(A) Irrigation

- ✓ Light and frequent irrigation
- ✓ Avoid overwatering
- ✓ Use sprinkler or rose can

(B) Weeding

- ✓ Remove weeds regularly
- ✓ Prevent competition for nutrients

(C) Shade Management

- ✓ Use shade nets or straw
- ✓ Protect from excessive sunlight

(D) Plant Protection

- ✓ Control pests and diseases
- ✓ Use fungicides/insecticides when necessary

(E) Hardening of Seedlings (Very Important)

- ✓ Gradual exposure to sunlight and reduced watering
- ✓ Prepares seedlings for field conditions

(F) Nutrient Management

- ✓ Application of liquid fertilizers
- ✓ Use of compost and vermicompost

Propagation of Plants

Propagation is the process of multiplying plants.

(A) Sexual Propagation (By Seeds)

Characteristics:

- ✓ Genetic variation
- ✓ Used for annual crops

Advantages:

- ✓ Easy and economical
- ✓ Strong root system

Disadvantages:

- ✓ Non-uniform plants
- ✓ Late bearing in fruit crops

(B) Asexual / Vegetative Propagation

Methods:

1. Cutting
 - ✓ Stem, root or leaf cuttings
 - ✓ Example: Rose, sugarcane
2. Layering
 - ✓ Inducing roots on stem while attached
 - ✓ Types: Air layering, mound layering
 - ✓ Example: Litchi, guava
3. Grafting
 - ✓ Joining scion and rootstock
 - ✓ Example: Mango
4. Budding
 - ✓ Bud inserted into rootstock
 - ✓ Example: Citrus
5. Tissue Culture (Micropropagation)
 - ✓ In vitro plant production
 - ✓ Produces disease-free plants

Transplanting of Saplings

Transplanting is the process of shifting seedlings from nursery to main field.

(A) Advantages

- ✓ Better plant population
- ✓ Efficient use of seeds
- ✓ Uniform growth
- ✓ Early maturity

(B) Suitable Stage for Transplanting

- ✓ 3–5 true leaves stage
- ✓ Healthy, disease-free seedlings

(C) Time of Transplanting

- ✓ Early morning or evening
- ✓ Avoid hot and windy conditions

(D) Method of Transplanting

1. Irrigate nursery before uprooting
2. Carefully uproot seedlings with roots intact
3. Trim roots if necessary
4. Plant in prepared field
5. Firm soil around roots
6. Irrigate immediately

(E) Spacing

- ✓ Depends on crop type
- ✓ Maintain recommended spacing

(F) Aftercare

- ✓ Light irrigation
- ✓ Shade if required
- ✓ Gap filling
- ✓ Pest and disease control

Special Practices In Rajasthan

- ✓ Use of drip irrigation due to water scarcity
- ✓ Raising seedlings in polybags
- ✓ Use of mulching to conserve moisture
- ✓ Selection of drought-tolerant varieties

Common Problems In Nursery

1. Damping-off disease
2. Poor germination
3. Pest attack
4. Nutrient deficiency
5. Water stress

Solutions:

- ✓ Proper drainage
- ✓ Seed treatment
- ✓ Soil sterilization
- ✓ Balanced nutrition

Importance of Nursery Management

- ✓ Ensures high survival rate
- ✓ Produces quality planting material
- ✓ Saves time, labour and cost
- ✓ Essential for commercial horticulture

Important MCQs**1. Nursery is defined as:**

- (A) Place for harvesting crops
(B) Place for raising seedlings
(C) Place for storage
(D) Place for irrigation

Ans: (B)

2. Main objective of nursery raising is:

- (A) Increase weeds
(B) Produce healthy seedlings
(C) Reduce irrigation
(D) Delay crop growth

Ans: (B)

3. Which soil is best for nursery raising?

- (A) Clay soil (B) Sandy soil
(C) Sandy loam soil (D) Saline soil

Ans: (C)

4. Ideal width of nursery bed is:

- (A) 0.5 m (B) 1–1.2 m
(C) 2–3 m (D) 5 m

Ans: (B)

5. Raised nursery beds are preferred because they:

- (A) Retain water (B) Prevent waterlogging
(C) Increase weeds (D) Reduce aeration

Ans: (B)

6. Soil sterilization is done to control:

- (A) Nutrients (B) Diseases
(C) Water (D) Sunlight

Ans: (B)

7. Which method is used for soil sterilization?

- (A) Flooding (B) Solarization
(C) Broadcasting (D) Ploughing

Ans: (B)

8. Damping-off disease occurs mainly in:

- (A) Mature plants (B) Nursery seedlings
(C) Fruits (D) Roots

Ans: (B)

9. Light irrigation in nursery is done by:

- (A) Flood method (B) Sprinkler or rose can
(C) Furrow method (D) Basin method

Ans: (B)

10. Hardening of seedlings means:

- (A) Increasing water supply (B) Gradual exposure to field conditions
(C) Keeping plants in shade (D) Adding fertilizers

Ans: (B)

11. Nursery prepared for one season is called:

- (A) Permanent nursery (B) Temporary nursery
(C) Protected nursery (D) Forest nursery

Ans: (B)

12. Nursery under shade net is called:

- (A) Open nursery (B) Temporary nursery
(C) Protected nursery (D) Natural nursery

Ans: (C)

13. Propagation by seeds is called:

- (A) Asexual propagation (B) Vegetative propagation
(C) Sexual propagation (D) Artificial propagation

Ans: (C)

14. Which is a method of vegetative propagation?

- (A) Seed sowing (B) Cutting
(C) Pollination (D) Fertilization

Ans: (B)

15. Grafting involves:

- (A) Root cutting (B) Joining scion and rootstock
(C) Leaf cutting (D) Seed treatment

Ans: (B)

16. Budding is commonly used in:

- (A) Wheat (B) Rice
(C) Citrus (D) Maize

Ans: (C)

17. Tissue culture is also known as:

- (A) Soil culture (B) Water culture
(C) Micropropagation (D) Air layering

Ans: (C)

18. Transplanting means:

- (A) Sowing seeds (B) Moving seedlings to main field
(C) Irrigating plants (D) Harvesting crops

Ans: (B)

19. Ideal stage for transplanting seedlings is:

- (A) Germination stage (B) 1 leaf stage
(C) 3–5 true leaf stage (D) Flowering stage

Ans: (C)

20. Best time for transplanting is:

- (A) Noon (B) Midnight
(C) Morning or evening (D) Afternoon

Ans: (C)

21. Before transplanting, nursery should be:

- (A) Dried (B) Irrigated
(C) Burnt (D) Fertilized heavily

Ans: (B)

22. After transplanting, first step is:

- (A) Fertilization (B) Irrigation
(C) Weeding (D) Harvesting

Ans: (B)

23. Transplanting ensures:

- (A) Uneven plant growth (B) Uniform plant population
(C) Low yield (D) Weed growth

Ans: (B)

24. Nursery raising helps in:

- (A) Increasing seed rate (B) Saving seeds
(C) Increasing weeds (D) Reducing yield

Ans: (B)

25. Which irrigation method is best for nursery in Rajasthan?

- (A) Flood irrigation (B) Drip irrigation
(C) Basin irrigation (D) Furrow irrigation

Ans: (B)

26. Polybag nursery is useful for:

- (A) Large trees only (B) Easy transplanting
(C) Increasing pests (D) Reducing growth

Ans: (B)

27. Which is NOT a vegetative propagation method?

- (A) Cutting (B) Layering
(C) Grafting (D) Seed sowing

Ans: (D)

28. Which condition is harmful for nursery?

- (A) Good drainage (B) Waterlogging
(C) Sunlight (D) Fertility

Ans: (B)

29. Which factor is most important for seed germination?

- (A) Colour (B) Moisture
(C) Shape (D) Size

Ans: (B)

30. Main benefit of hardening is:

- (A) Faster flowering (B) Better survival after transplanting
(C) Increased seed size (D) More irrigation

Ans: (B)

Selection of Site and Planning for Fruit Orchard –

➤ Orchard establishment is a long-term investment and once planted, fruit trees remain productive for many years. Therefore, proper selection of site and scientific planning are extremely important to ensure high yield, quality produce, and economic profitability.

- ✓ “Right site + proper planning = successful orchard”

Importance of Site Selection

- ✓ Determines growth, yield, and longevity of fruit trees
- ✓ Influences quality of fruits
- ✓ Affects irrigation, drainage, and management practices
- ✓ Minimizes risk of crop failure
- ✓ Ensures better returns and sustainability

Factors affecting selection of site:

(A) Climate

- ✓ Temperature (optimum range varies with crop)
- ✓ Rainfall (moderate, well distributed)
- ✓ Frost-free conditions (especially for mango, citrus)
- ✓ Wind (strong winds cause fruit drop and damage)
- ✓ Humidity (affects flowering and fruiting)

Example:

- ✓ Arid climate → Ber, pomegranate (Rajasthan)
- ✓ Moderate climate → Mango, citrus

(B) Soil Characteristics

1. Soil Type
 - ✓ Sandy loam to loam soil is best
 - ✓ Deep and fertile soil preferred
2. Soil Depth
 - ✓ Minimum 1–1.5 m for proper root growth
3. Soil Drainage
 - ✓ Well-drained soil is essential
 - ✓ Avoid waterlogging
4. Soil pH
 - ✓ Ideal range: 6.0–7.5
 - ✓ Slightly alkaline soils tolerated in Rajasthan

(C) Topography (Land Situation)

- ✓ Level or gently sloping land preferred
- ✓ Avoid steep slopes
- ✓ Slope helps in drainage

(D) Water Availability

- ✓ Assured irrigation source (canal, well, tube well)
- ✓ Good quality water (low salinity)
- ✓ Essential for fruit crops
- ✓ Important for Rajasthan: water scarcity → drip irrigation recommended

(E) Transportation and Market Access

- ✓ Near roads and markets
- ✓ Reduces transportation cost
- ✓ Prevents spoilage of fruits

(F) Availability of Labour

- ✓ Skilled and unskilled labour required
- ✓ For pruning, harvesting, grading, etc.

(G) Protection from Hazards

- ✓ Protection from:
 - Frost
 - Hailstorms
 - Strong winds
- ✓ Windbreaks should be planned

(H) Availability of Inputs

- ✓ Fertilizers, pesticides, planting material
- ✓ Nearby agricultural facilities

Planning of Fruit Orchard

Proper planning ensures efficient use of land, labour, and resources.

(A) Layout of Orchard

- ✓ Scientific arrangement of plants
- ✓ Roads, irrigation channels, buildings included

(B) Systems of Planting

1. Square System
 - ✓ Equal spacing in both directions
 - ✓ Easy intercultural operations
 - ✓ Most common system
2. Rectangular System
 - ✓ Row-to-row distance more than plant-to-plant
 - ✓ Suitable for mechanization
3. Hexagonal System
 - ✓ Plants arranged in hexagon shape
 - ✓ Accommodates more plants
4. Quincunx System
 - ✓ One filler plant in center
 - ✓ Used for temporary crops
5. Contour System
 - ✓ Used in hilly areas
 - ✓ Prevents soil erosion

(C) Spacing

- ✓ Depends on:
 - Crop type
 - Variety
 - Soil fertility
- ✓ Proper spacing ensures:
 - Light penetration
 - Air circulation
 - Better growth

(D) Windbreak and Shelterbelt

- ✓ Trees planted around orchard
- ✓ Protect from strong winds
- ✓ Reduce evaporation
- ✓ Common trees: Eucalyptus, Neem

(E) Irrigation Planning

- ✓ Layout of irrigation channels
- ✓ Drip irrigation preferred in Rajasthan
- ✓ Efficient water use

(F) Drainage System

- ✓ Essential to remove excess water
- ✓ Prevent root diseases

(G) Roads and Paths

- ✓ For easy movement of labour and machinery
- ✓ Should be properly aligned

(H) Fencing

- ✓ Protects orchard from animals and theft

Types:

Barbed wire

Live fencing (karonda, agave)

(I) Buildings and Structures

- ✓ Store room
- ✓ Office
- ✓ Labour shed
- ✓ Tool room

(J) Selection of Crops and Varieties

- ✓ Based on climate and soil
- ✓ High yielding and disease-resistant varieties
- ✓ Market demand

(K) Pollination Planning

- ✓ Some fruit crops need cross-pollination
- ✓ Proper arrangement of pollinizers
- ✓ Important for crops like apple, almond

(L) Intercropping

- ✓ Growing short-duration crops between trees
- ✓ Provides additional income
- ✓ Efficient land use
 - Example: vegetables, legumes

Special Considerations For Rajasthan

- ✓ Selection of drought-resistant crops: Ber, aonla, pomegranate
- ✓ Use of drip irrigation
- ✓ Mulching to conserve moisture
- ✓ Windbreaks essential due to desert winds
- ✓ Soil management for alkaline soils

Common Mistakes In Orchard Planning

1. Poor site selection
2. Improper spacing
3. Lack of irrigation planning
4. No wind protection
5. Ignoring soil testing

Advantages of Proper Orchard Planning

- ✓ Higher productivity
- ✓ Efficient resource use
- ✓ Reduced losses
- ✓ Better management
- ✓ Long-term profitability

Important MCQs

1. Orchard establishment is considered a:

- (A) Short-term investment (B) Seasonal activity
(C) Long-term investment (D) Temporary practice

Ans: (C)

2. Most important factor for site selection is:

- (A) Colour of soil (B) Climate
(C) Shape of land (D) Crop height

Ans: (B)

3. Ideal soil for fruit orchard is:

- (A) Clay soil (B) Sandy soil
(C) Sandy loam (D) Saline soil

Ans: (C)

4. Minimum soil depth required for orchard is:

- (A) 30 cm (B) 50 cm
(C) 1–1.5 m (D) 5 cm

Ans: (C)

5. Ideal soil pH for most fruit crops is:

- (A) 4–5 (B) 5–6
(C) 6–7.5 (D) 8–9

Ans: (C)

6. Waterlogging in orchard leads to:

- (A) Better growth (B) Root damage
(C) Increased yield (D) Faster flowering

Ans: (B)

7. Best irrigation method for Rajasthan orchards is:

- (A) Flood irrigation (B) Basin irrigation
(C) Drip irrigation (D) Furrow irrigation

Ans: (C)

8. Good drainage is required to:

- (A) Increase weeds (B) Prevent root diseases
(C) Increase salinity (D) Reduce aeration

Ans: (B)

9. Best land for orchard establishment is:

- (A) Steep slope (B) Rocky land
(C) Level or gently sloping land (D) Marshy land

Ans: (C)

10. Frost is harmful because it:

- (A) Increases growth (B) Damages flowers and fruits
(C) Improves quality (D) Helps pollination

Ans: (B)

11. Strong winds cause:

- (A) Better pollination (B) Fruit drop and damage
(C) Increased yield (D) More irrigation

Ans: (B)

12. Most common system of planting is:

- (A) Hexagonal (B) Square
(C) Contour (D) Triangular

Ans: (B)

13. In square system, spacing is:

- (A) Unequal (B) Equal in both directions
(C) Only row spacing equal (D) Random

Ans: (B)

14. Hexagonal system accommodates:

- (A) Less plants (B) Same plants
(C) More plants (D) No plants
Ans: (C)

15. Contour system is used in:

- (A) Plains (B) Deserts
(C) Hilly areas (D) Wetlands
Ans: (C)

16. Quincunx system includes:

- (A) No extra plant (B) One central filler plant
(C) Two filler plants (D) Only border plants
Ans: (B)

17. Windbreak is used to:

- (A) Increase wind speed (B) Protect orchard from strong winds
(C) Reduce irrigation (D) Increase pests
Ans: (B)

18. Fencing is required for:

- (A) Irrigation (B) Protection from animals
(C) Soil fertility (D) Pollination
Ans: (B)

19. Intercropping means:

- (A) Growing only trees (B) Growing crops between trees
(C) Removing weeds (D) Harvesting crops
Ans: (B)

20. Proper spacing ensures:

- (A) Competition (B) Better light and air circulation
(C) More weeds (D) Less growth
Ans: (B)

21. Orchard roads are used for:

- (A) Irrigation (B) Transport and movement
(C) Fertilization (D) Pollination
Ans: (B)

22. Pollinizer plants are required for:

- (A) Irrigation (B) Cross-pollination
(C) Harvesting (D) Storage
Ans: (B)

23. Selection of varieties depends on:

- (A) Colour (B) Climate and market demand
(C) Height (D) Shape
Ans: (B)

24. Suitable fruit crop for arid Rajasthan is:

- (A) Apple (B) Ber
(C) Peach (D) Plum
Ans: (B)