

SRI VENKATESWARA UNIVERSITY
B.Sc. DEGREE COURSE IN HORTICULTURE
IV - SEMESTER
(Under CBCS W.E.F. 2021-22)
Horticulture Core Course - 4
Basics of Fruit Science (Pomology)
(Total hours of teaching – 60 @ 04 Hrs./Week)

Theory :

Learning Outcomes: On successful completion of this course, the students will be able to:

- Realize the value of fruits in terms of human nutrition and economy of nation.
- Explain the potential fruit zones in various states of our country.
- Classify the fruiting plants based on temperature requirements.
- Acquire knowledge related to various cultivation practices for different fruit crops
- Demonstrate the special intercultural operations done in fruit crops
- Comprehend the knowledge on varieties of different fruit crops.
- Examine the pests and diseases of fruit crops and develop skills to manage the same,
- Explain about Integrated Orchard Management
- Develop knowledge on various entrepreneurial skills related to fruit science.

Unit – 1 : Introduction to Fruit crops

12 Hrs.

1. Importance of fruit growing in India and Andhra Pradesh.
2. Nutritive value of fruits.
3. Area and production of India and Andhra Pradesh.
4. Export and import potential of fruits in India. Constraints in fruit production and remedies to overcome them.

Unit – 2 : Tropical Fruit Crops

12 Hrs.

Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation,

intercropping, harvesting and yield, diseases and pests of the following tropical fruit crops:

- (a) Mango (b) Guava and (c) Papaya

Unit – 3 : Sub-tropical and temperate fruit crops

12 Hrs.

Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield, diseases and pests of the following sub-tropical and temperate fruit crops:

- (a) Grapes (b) Pomegranate (c) Citrus and (d) Apple

Unit – 4 : Arid and minor fruit crops

12 Hrs.

Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield, diseases and pests of the following arid fruit crops:

- (a) Amla (b) Dates and (c) Wood apple

Unit – 5 : Management practices for fruit crops

12 Hrs.

1. Sustainable Production Practices for Local Fruit Production.
2. Integrated Orchard Management/Principles of IPM.
3. Harvesting and Labor Concerns
4. Grading, packing, storage and marketing of fruits.

CBCS/SEMESTER SYSTEM (w.e.f. 2020-21 Admitted Batch)

IV-Semester/Horticulture Core Course – 4

Basics of Fruit Science (Pomology)

MODEL QUESTION PAPER

Max. Time : 3 Hrs

Max. Marks : 75M

SECTION-A

Answer ALL the following Questions.

(5x2=10M)

ప్రతి ప్రశ్నకు జవాబులు వ్రాయుము.

1. Export value of Fruit Crops
పండ్ల పంటల ఎగుమతుల విలువ
2. Papaya Manuring
బొప్పాయిలో ఎరువులు
3. Soil and Climate in Apple
ఆపిల్ సాగుకు కావలసిన వాతావరణం మరియు నేలలు
4. Harvesting of Dates
కర్జూరలో పంటకోత
5. IPM (Integrated Pest Management)
ఇంటిగ్రేటెడ్ పెస్ట్ మేనేజ్మెంట్

SECTION-B

Answer any THREE of the following Questions. Draw a label diagram wherever necessary.

(3x5=15M)

క్రింది వాటిలో ఏవైనా మూడింటికి సమాధానాలు వ్రాయుము. అవసరమైన చోట బొమ్మలు గీయుము.

1. Write constraints and remedies in fruit production.
పండ్ల ఉత్పత్తిలో గల సమస్యలు మరియు నివారణోపాయాలు తెలుపుము.
2. Write in detail about Papain extraction.
పప్సైన్ తీత గురించి తెలుపుము.
3. Write types of Citrus Species.
నిమ్మజాతి రకాలను తెలుపుము.
4. Write Soil, Climate and Manuring in Dates.
కర్జూర సాగులో నేలలు, వాతావరణం మరియు ఎరువులు తెలుపుము.
5. Post harvest practices of Fruits.
పండ్ల కోత తరువాత తీసుకోవలసిన జాగ్రత్తలు.

SECTION-C

Answer any FIVE of the following Questions. Draw a label diagram wherever necessary. (5x10=50M)

క్రీందే నాటిలో ఏదైనా అయిదు ప్రశ్నలకు సమాధానాలు వ్రాయుము. అవసరమైన చోట బొమ్మలు గీయుము.

Select one question from each unit.

ప్రతి యూనిట్ నుంచి ఒక సమాధానము వ్రాయుము.

UNIT-I

1. (a) Write in detail about economical importance and nutritive value of fruit crops.
పండ్ల పంటల యొక్క ఆర్థిక ప్రాముఖ్యత మరియు పోషక విలువలు తెలుపుము.

OR

- (b) Write about area and production of fruit crops in India and Andhra Pradesh.
భారతదేశం మరియు ఆంధ్రప్రదేశ్ లో పండ్ల పంటల యొక్క విస్తరణ మరియు ఉత్పత్తిని తెలుపుము.

UNIT-II

2. (a) Write the Cultivation process of Mango.
మామిడి సాగు పద్ధతులను క్లుప్తంగా వివరింపుము.

OR

- (b) Write the cultivation practices of Guava.
జామ సాగు పద్ధతులను క్లుప్తంగా వివరింపుము.

UNIT-III

3. (a) Write the cultivation practices of Pomogranate.
దానిమ్మ సాగు పద్ధతులను క్లుప్తంగా వివరింపుము.

OR

- (b) Write the cultivation process of Grapes.
గ్రాప్ సాగు పద్ధతులను క్లుప్తంగా వివరింపుము.

UNIT-IV

4. (a) Write cultivation process of Wood Apple.
విలగపండు సాగు పద్ధతులను క్లుప్తంగా వివరింపుము.

OR

- (b) Write the cultivation process of Amla.
ఉసిరి సాగు పద్ధతులను క్లుప్తంగా వివరింపుము.

UNIT-V

5. (a) Write in detail about Grading, Packing, Storage and Marketing of fruits.
పండ్ల గ్రేడింగ్, ప్యాకింగ్, నిలువ మరియు మార్కెటింగ్ గురించి తెలుపుము.

OR

- (b) Write in detail about integrated Orchard Management.
పండ్ల తోటల ఏకీకృత నిర్వాహకమును గురించి వివరింపుము.

B.Sc. DEGREE COURSE IN HORTICULTURE
IV - SEMESTER
(Under CBCS W.E.F. 2021-22)
Practical syllabus of Horticulture Core Course - 4
Basics of Fruit Science (Pomology)
(Total hours of teaching – 30 @ 02 Hrs./Week)

1. Study of varieties of Mango, Papaya and Guava.
2. Study of varieties of Grape, Pomegranate, Citrus and Apple.
3. Study of varieties of Amla, Dates and Wood apple.
4. Manure and fertilizer application including biofertilizers in different fruit crops
5. Methods of application, calculation of the required quantity of manure and fertilizers based on the nutrient content.
6. Use of growth regulators in fruit crops.
7. Identification and collection of important pests in fruit crops.
8. Identification and collection of important diseases in fruit crops and Herbarium preparation.
9. Visit to a fruit market/commercial orchids.

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B.Sc. DEGREE COURSE IN HORTICULTURE
IV - SEMESTER
(Under CBCS W.E.F. 2021-22)
Model Question Paper for Practical Examination

Horticulture Core Course - 4

Basics of Fruit Science (Pomology)

Max. Time: 3 Hrs.

Max.Marks: 50

- | | |
|--|--------------|
| 1. Describing cultivation practice for a fruit crop. | 10 M |
| 2. Identification with remarks on Mango/ Guava/Papaya variety. | 5 M |
| 3. Identification with remarks Grape/Pomegranate/Citrus/Apple variety. | 5 M |
| 4. Identification with remarks Amla, Dates and Wood apple. | 5 M |
| 5. Identify the disease and pest symptoms and write its causal organism. | 2 X 5 = 10 M |
| 6. Record + Viva Voice | 10 + 5=15 M |

Text books :

- **Chattopadhyay, T.K.1997.** Text book on Pomology (Fundamentals of fruit growing), Kalyani Publishers, Hyderabad.
- **Chundawat, B.S. 1990.** Arid Fruit Culture, Oxford and IBH, New Delhi.
- **Gourley J H 2009.** Text book of Pomology, Read Books Publ.

Suggested co-curricular activities for Horticulture Core Course - 4 inSemester- IV :

A. Measurable :

a. Student seminars:

1. Nutritional value of fruits growing in India and Andhra Pradesh
2. Production Technology of major Tropical fruit crops
3. Production Technology of major Subtropical and Temperate fruit crops
4. Production Technology of major Arid and Minor fruit crops
5. Special intercultural operations in Fruit crops
6. Intercropping in fruit crops
7. Methods of Irrigation of fruit crops

8. Methods of fertilizer application of fruit crops
9. Major Pests and Diseases of Fruit crops and their management
10. Maturity and Harvesting indices of fruit crops
11. Principles of Integrated Orchard Management (IOM).

b. Student Study Projects:

1. Identification and Herbarium preparation of disease symptoms of fruit crops
2. Identification and Herbarium preparation of pest symptoms of fruit crops
3. Different methods of Irrigation of fruit crops
4. Different methods of fertilizer application of fruit crops

c. Assignments: Written assignment at home / during 'O' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.
2. Visit to Horticulture University/ Research Station/ Orchard.

IV - SEMESTER
(Under CBCS W.E.F. 2021-22)
Horticulture Core Course - 5
Pests and Diseases of Horticulture Plants and their Management
(Total hours of teaching – 60 @ 04 Hrs./Week)

THEORY :

Learning Outcomes: On successful completion of this course, the students will be able to:

- Develop a critical understanding of insect pests and plant disease symptoms.
- Examine and identify the pests and diseases of vegetable crops and their management
- Examine and identify the pests and diseases of ornamental crops and their management
- Examine and identify the pests and diseases of fruit crops and their management
- Identify and classify various insect pests on horticulture plants.
- Justify the significance of Integrated Plant Disease Management for horticultural crops.
- Classify the pesticides based on use, chemical nature, formulation, toxicity and action.

Unit – 1 :Basics of Entomology and Plant Pathology

1. Classification of Insects upto orders and families of economic importance; Study of insect pests (Distribution, host range, biology, nature of damage and management) in horticultural crops.
2. Disease triangle and disease pyramid; Plant Pathology : Definition
3. A general account on symptoms of plant diseases caused by Viruses and Bacteria.
4. A general account on symptoms of plant diseases caused by Fungi.

Unit – 2 :Pests and diseases of Vegetables crops

1. Bhendi: Spotted boll worms, Red cotton bug, Yellow vein mosaic.

2. Cucurbits: Fruit flies, Pumpkin beetles; Downy and powdery mildews.
3. Potato: Potato tuber moth, Golden cyst nematode; Late blight.
4. Sweet Potato: Sweet potato weevil, Vine borer; Mottled necrosis.

Unit – 3 : Pests and diseases of Fruit crops

1. Coconut :.Rhinoceros beetle, Burrowing nematode; Ganoderma root rot, Grey blight
2. Banana :Banana weevil, banana aphids; Panama wilt. Bunchy top
3. Cashew : Tea mosquito bug. Cashew stem borer; Anthracnose, 2.Pink disease
4. Custard apple : Mealy bug, Fruit boring caterpillar; Anthracnose, Glomerella fruit rots.

Unit – 4 : Pests and diseases of Commercial Flower crops

1. Rose :Rose aphid,Dieback, and black spot
2. Marigold :Aphids, leaf spot, and bud rot
3. Gerbera :Thrips, white flies and Blossom blight
4. Gladiolus :Cut worms, leaf eating caterpillar and corm rot.

Unit – 5 : Management of Pests and Diseases

1. Principles and methods of plant disease management.
2. Integrated Plant disease management.
3. Fungicides classification based on chemical nature; commonly used insecticides, fungicides, bactericides and nematicides.
4. Preparation of fungicidal solutions, slurries, pastes and their application.

CBCS/SEMESTER SYSTEM (w.e.f. 2020-21 Admitted Batch)

IV-Semester/Horticulture Core Course – 5

Pests and Diseases of Horticulture Plants and their Management

MODEL QUESTION PAPER

Max. Time : 3 Hrs

Max. Marks : 75M

SECTION-A

Answer ALL the following Questions.

(5x2=10M)

ప్రతి ప్రశ్నకు జవాబులు వ్రాయుము.

1. Pathology and Entomology
శీల శాస్త్రం మరియు కీటక శాస్త్రం
2. Sweet Potato and Weevil
చిలకడ దుంప పురుగు (వీవిల్)
3. Fruit boring caterpillar in custard apple
సీతాఫలంలో కాయతొలుచు పురుగు.
4. Corm rot in Gladiolus
గ్లాడియోలస్ లో దుంప కుళ్ళు
5. Fungicidal Paste
శీతీంద్రనాశిని పిండి

SECTION-B

Answer any THREE of the following Questions. Draw a label diagram wherever necessary.

(3x5=15M)

క్రింది వాటిలో ఏదైనా మూడింటికి సమాధానాలు వ్రాయుము. అవసరమైన చోట బొమ్మలు గీయుము.

1. Classification of Pesticides.
వివిధ రకాల కీటక నాశక పురుగు మందులు.
2. Fruit flies and pumpkin beetles in cucurbits.
పండు ఈగ మరియు గుమ్మడికాయ బీటిల్స్ ను వివరించండి.
3. Cashew stem borer and Tea mosquito bug.
జీడి మామిడి కాండం తొలుచు పురుగు మరియు తేయాకు దోమ గురించి వివరించండి.
4. Aphids and leaf spot in marigold.
బంతిలో పేనుబంక మరియు ఆకుమచ్చ పురుగు గురించి వివరించండి.
5. Integrated pest management in flower crops.
పూల మొక్కలలో సమగ్ర కీటక యాజమాన్యం పద్ధతులను తెలుపుము.

SECTION-C

Answer any **FIVE** of the following Questions. Draw a label diagram wherever necessary. (5x10=50M)

క్రీంద్ర వాటిలో ఏదైనా అయిదు ప్రశ్నలకు సమాధానాలు వ్రాయుము. అవసరమైన చోట బొమ్మలు గీయుము.

Select one question from each unit.

ప్రతి యూనిట్ నుంచి ఒక సమాధానము వ్రాయుము.

UNIT-I

1. (a) Write in detail about symptoms of bacterial diseases in Horticultural Crops.
ఉద్యానవన పంటలో బ్యాక్టీరియా వ్యాధుల లక్షణాల గురించి క్లుప్తంగా తెలుపుము.

OR

- (b) Write in detail about symptoms of viral diseases in Horticultural Crops.
ఉద్యానవన పంటలో వైరస్ వ్యాధుల లక్షణాల గురించి క్లుప్తంగా తెలుపుము.

UNIT-II

2. (a) Write pest, diseases and their management in Bhendi Crop.
బెండలో సస్యరక్షణ నిర్వాహకమును తెలుపుము.

OR

- (b) Write pest, diseases and their management in Potato Crop.
బంగాళదుంపలో సస్యరక్షణ నిర్వాహకమును తెలుపుము.

UNIT-III

3. (a) Write pest, diseases and their management in Coconut Crop.
కొబ్బరిలో సస్యరక్షణ నిర్వాహకమును తెలుపుము.

OR

- (b) Write pest, diseases and their management in Banana Crop.
అరటి పంటలో సస్యరక్షణ నిర్వాహకమును తెలుపుము.

UNIT-IV

4. (a) Write pest, diseases and their management in Rose.
రోజాలో సస్యరక్షణ నిర్వాహకమును తెలుపుము.

OR

- (b) Write pest, diseases and their management in Gerbera.
జెర్బెరలో సస్యరక్షణ నిర్వాహకమును తెలుపుము.

UNIT-V

5. (a) Write principles and methods of plant disease management.
మొక్కలలో వ్యాధుల నిర్వాహక సూత్రాలు మరియు పద్ధతులను తెలుపుము.

OR

- (b) Write insects, pest in Horticultural Crops and their management.
ఉద్యానవన పంటలో కీటకాల, పురుగుల బెడద మరియు నిర్వాహకమును గురించి తెలుపుము.

SRI VENKATESWARA UNIVERSITY

B.Sc. DEGREE COURSE IN HORTICULTURE

IV - SEMESTER

(Under CBCS W.E.F. 2021-22)

Practical syllabus of Horticulture Core Course – 5

Pests and Diseases of Horticulture Plants and their Management

(Total hours of teaching – 30 @ 02Hrs./Week)

1. Study of characteristics of insect pests, microbial pathogens, nematodes causing disease on different plants given in the theory syllabus.
2. Identification of disease symptoms on different plants given in the theory syllabus.
3. Observing and acquiring knowledge on pesticides, fungicides etc.,
4. Acquaintance with methods of application of common fungicides.
5. Field visit and acquaintance with disease of crops

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IV - SEMESTER
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Model Question Paper for Practical Examination

Horticulture Core Course - 5

Pests and Diseases of Horticulture Plants and their Management

Max. Time: 3 Hrs.

Max. Marks: 50

1. Identify and comment on insect diseases A & B 2 x 5 = 10 M
2. Identify and comment on microbial diseases C & D 2 x 5 = 10 M
3. Identify and comment on nematodal diseases E & F 2 x 5 = 10 M
4. Identify and comment on Pesticide/ Fungicides G & H 2 x 4 = 6 M
5. Record + Herbarium + Viva Voice 10 + 4 = 14 M

Text books :

- **Verma L R and R C Sharma 1999.** Diseases of Horticultural Crops – Fruits, Indus Publishing, New Delhi.
- Diseases of Horticulture Crops and their management, TNAU Publ. Agrimoon.Com
- **Jagatap G P, D N Dhutraj and UtpalDey. 2001.** Diseases of Horticultural crops and their management, Agrobios Publications

Suggested co-curricular activities for Semester- V :

A. Measurable :

a. Student seminars :

1. Disease symptoms and their management of vegetable crops
2. Disease symptoms and their management of ornamental crops
3. Disease symptoms and their management of fruit crops
4. Disease symptoms of nematode and their management in horticultural crops
5. Role of Integrated Pest Management (IPM) in horticultural crops
6. Role of Integrated Disease Management (IDM) in horticultural crops
7. Classification of insecticides
8. Classification of fungicides

b. Student Study Projects:

1. Identification and Herbarium preparation of disease symptoms of vegetable crops.

2. Identification and Herbarium preparation of disease symptoms of ornamental crops.
3. Identification and Herbarium preparation of disease symptoms of fruit crops.
4. Preparation of laminated photos of major diseases of horticultural crops.
5. Preparation of laminated photos of major fungicides used in horticultural crops.
6. Preparation of laminated photos of major insecticides used in horticultural crops.

c. Assignments: Written assignment at home / during 'O' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.
2. Visit to Horticulture University/ Research Station/Horticultural fields.
3. Visit to Pesticide industries/shops.

RECOMMENDED ASSESSMENT OF STUDENTS:

Recommended continuous assessment methods for all courses:

Some of the following suggested assessment methodologies could be adopted. Formal assessment for awarding marks for Internal Assessment in theory.

(a) Formal:

1. The oral and written examinations (Scheduled and surprise tests),
2. Simple, medium and Critical Assignments and Problem-solving exercises,
3. Practical assignments and laboratory reports,
4. Assessment of practical skills,
5. Individual and group project reports,
6. Seminar presentations,
7. Viva voce interviews.

(b) Informal:

1. Computerized adaptive testing, literature surveys and evaluations,
2. Peers and self-assessment, outputs form individual and collaborative work
3. Closed-book and open-book tests,