

21PATH371

DISEASES OF FIELD AND HORTICULTURAL CROPS AND THEIR MANAGEMENT- I (Kharif Crops)

Hours Per Week :

L	T	P	C
2	-	2	3

Total Hours :

L	T	P
30	-	30



Source:

https://en.wikipedia.org/wiki/Puccinia_jaceae_var._solstitialis

Course Description and Objectives:

The course makes the students to learn and understand various diseases of field and horticultural crops, disease symptoms and management practices to control the disease

Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Understand the etiology and identifying various diseases caused by fungi, bacteria and viruses in different crops
2	Learn prevention and control measures during the disease spread, disease cycle and integrated pest management of horticultural crops
3	Assess the impacts of the diseases on field and horticultural crops and formulate eco-friendly and economically sustainable disease management strategies

SKILLS:

- ✓ Identify diseases of field and Horticultural crops
- ✓ Understand biology, nature of damage and symptoms of damage of pathogens
- ✓ Suggest better management practices for diseases of field and Horticultural crops
- ✓ Prepare IDM modules for different diseases of field and Horticultural crops

ACTIVITIES:

- o Field visit for the diagnosis of field problems
- o Collection and preservation of plant diseased specimens for Herbarium
- o Depth understanding of epidemiology of pathogens

UNIT - 1

Cereals and Millets: Rice-blast, brown spot, sheath rot, stem rot, narrow brown leaf spot, sheath blight, false smut, bacterial leaf blight, Ufra and white tip nematode, root knot nematode, Bacterial leaf streak, tungro and Khaira; Sorghum - anthracnose, rust, ergot, grain mold, leaf blight, smuts, Charcoal rot, downy mildew, lesion and cyst nematode and Striga; Maize - stalk rots, downy mildew, leaf spots, banded leaf and sheath blight and blights; Bajra - downy mildew, ergot, rust and smut; Finger millet - Blast and leaf spot, smut and mosaic; Post harvest diseases

.UNIT - 2

Cash crops: Cotton - anthracnose, vascular wilts, leaf spots, rust and black arm; Sugarcane - red rot, smut, wilt, rust, ring spot, mosaic, grassy shoot, ratoon stunting and Pokkah Boeng; Tobacco - Damping off, frog eye leaf spot, Brown spot, black shank, black root rot and mosaic, leaf curl and Orobanchae; Tea - blister blight, red rust; Coffee - rust

UNIT - 3

Oil seeds: Groundnut- early and late leaf spots, Collar rot, pepper leaf spot, *Sclerotium* wilt, rust, PBNB, PSND and Kalahasti malady; Sesamum - Phyllody, *Alternaria* leaf spot, Powdery mildew, *Macrophomina* stem rot and bacterial leaf spot; Castor - *Phytophthora* blight, grey mold, root rot, bacterial leaf spot, seedling blight, rust and wilt; Sunflower - Downy mildew, powdery mildew head rot, rust, mosaic, necrosis, *Sclerotinia* stem rot and *Alternaria* blight; Safflower - wilt, *Alternaria* leaf spot, mosaic and rust; Mustard - *Alternaria* blight, white rust, downy mildew, powdery mildew and *Sclerotinia* stem rot

UNIT - 4

Pulses: Pigeonpea - *Phytophthora* blight, wilt and sterility mosaic, bacterial leaf spot, cyst nematode; Gram - rust, dry root rot, wilt, grey mould and *Ascochyta* blight; Black gram and Green gram - *Cercospora*, *Corynospora* leaf spot, bacterial leaf spot, angular black spot, anthracnose, powdery mildew, rust, web blight, yellow mosaic, leaf crinkle and cuscuta; Pea - downy mildew, powdery mildew and rust; Soybean - *Rhizoctonia* blight, bacterial spot, seed and seedling rot, rust and mosaic; Cowpea mosaic virus disease, Lentil - rust and wilt; Post harvest diseases; Symptoms, etiology, disease cycle and management of major diseases of following horticultural crops (Grown during *Kharif*)

UNIT - 5

Fruits & Vegetables: Guava - wilt and anthracnose; Banana - Panama wilt, bacterial wilt, Sigatoka and bunchy top; Ber - powdery mildew; Papaya - foot rot, anthracnose, leaf curl and mosaic and powdery mildew; Pomegranate - Anthracnose and bacterial blight; Sapota - Flat limb Cruciferous vegetables - Club root, *Alternaria* leaf spot and black rot damping off, downy mildew, black leg, black rot, head rot and leaf blight; Okra - Yellow vein mosaic, Leaf spot; Beans - anthracnose and bacterial blight; Brinjal - *Phomopsis* blight and fruit rot and *Sclerotinia* blight, little leaf disease; Tomato - damping off, wilt, early and late blight, buck eye rot and leaf curl and mosaic; Cucurbits – downy mildew, powdery mildew, wilt, leaf spot, viral diseases; Colocasia - *Phytophthora* blight; Onion and garlic: purple blotch, and *Stemphylium* blight; chilli - anthracnose and fruit rot, wilt and leaf curl, mosaic; Amaranthus & leafy vegetables - white rust, leaf blight; Coriander- stem gall; Potato - late blight, early blight, wart, black scurf, bacterial wilt, viral diseases; Ginger - soft rot; Post harvest diseases; Nematode problems in protected cultivation

LABORATORY EXPERIMENTS

LIST OF EXPERIMENTS

1. Rice diseases
2. Sorghum and Bajra diseases
3. Maize and Fingermillet diseases
4. Field visits for the diagnosis of crop diseases
5. Sugarcane diseases
6. Tobacco diseases
- 6 Groundnut diseases
- 7 Sunflower, Castor, Mustard and Sesamum diseases
- 8 Field visits for the diagnosis of crop diseases
- 9 Cotton diseases
- 10 Redgram, greengram and blackgram, Cowpea and soybean diseases
11. Diseases of cruciferous vegetables
- 12 Okra, Brinjal and Tomato diseases
- 13 Potato and Ginger diseases
- 14 Cucurbits, Colocasia, Onion and Garlic
- 15 Chilli, Amaranthus and Leafy vegetables and visits for the diagnosis of crop diseases

REFERENCES:

1. Ravichandra, N.G. 2013. *Fundamentals of Plant Pathology*. PHILearning Pvt Ltd. 639 p.
2. Walkey, D. G. 1991. *Applied Plant Virology* (2nd Ed.). Springer, 352p.
3. Webster, J. and Weber, R. W. S.2007. *Introduction to Fungi*.(3rd Ed.).Cambridge University press. 817p.

