Understanding insect pests and diseases

D.Balaraju

Krishi Vigyan Kendra

Yagantipalle

भाकृअनुप
ICAR
Krishi Vigyan Kendra,
Yagantipalle

Jeevo Jeevasya jeevanam… Nature principles

Food chain & Food web

Food pvramid

Basic principles

- Maintain diversity
- Better soil management
- Encourage natural enemies
- Understanding pest behaviour
- using natural principles and natural products

Insects







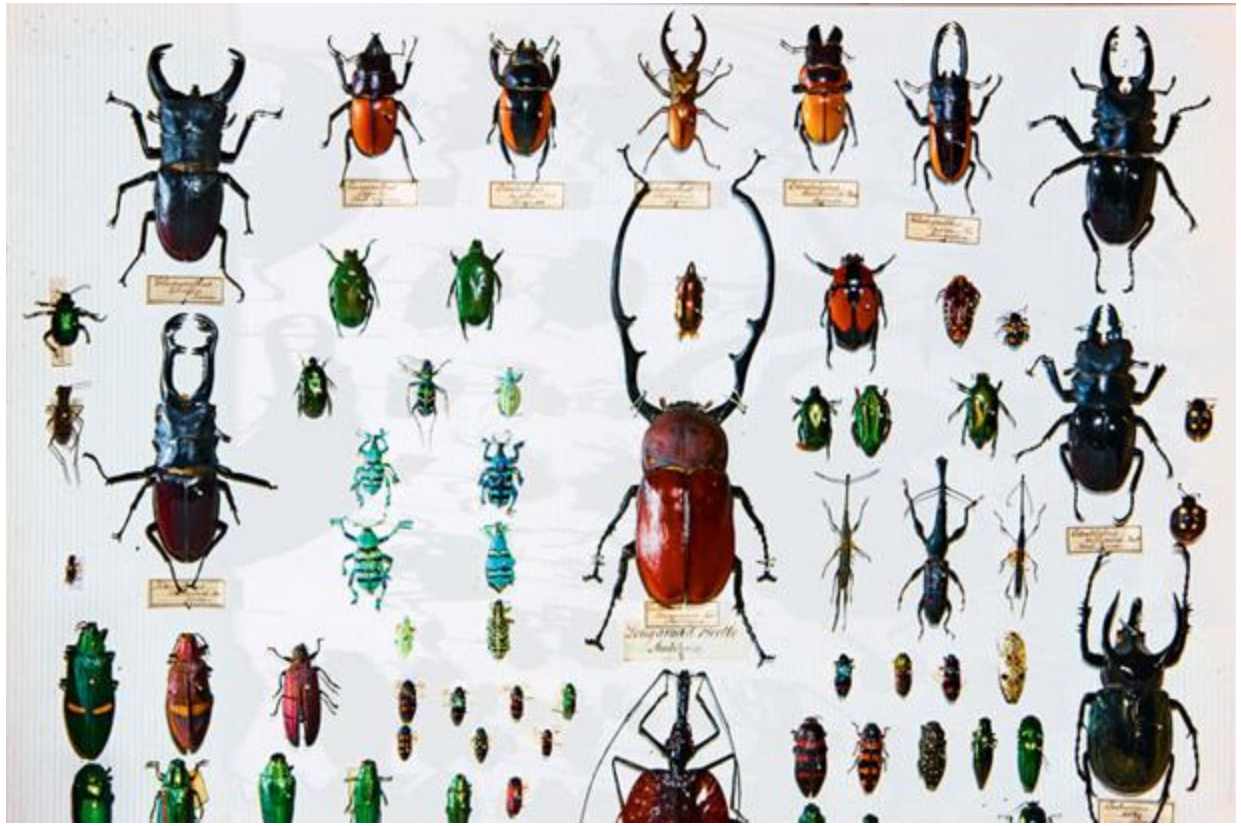




Krishi Vigyan Kendra,
Yagantipalle

Based on Appearance: Beetles and Moths – Cut and chew

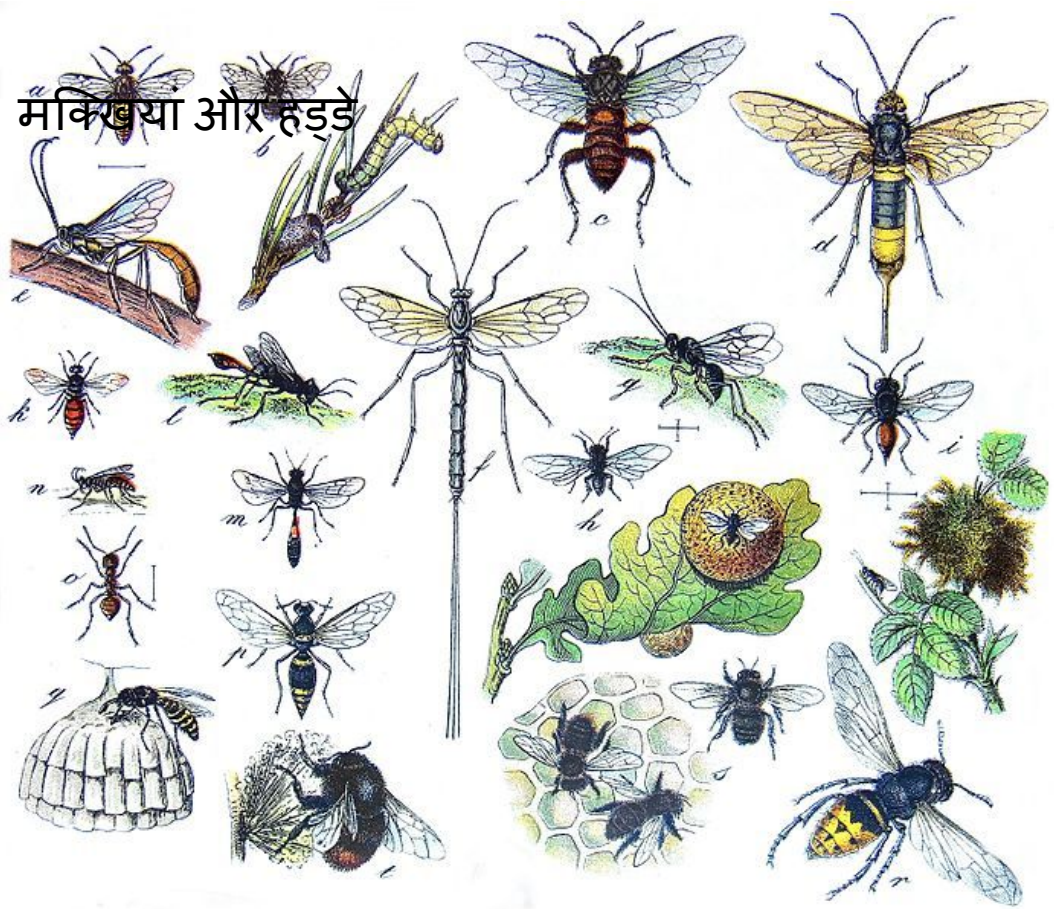
Beetles बीटल्स (झींगुर, कीट)



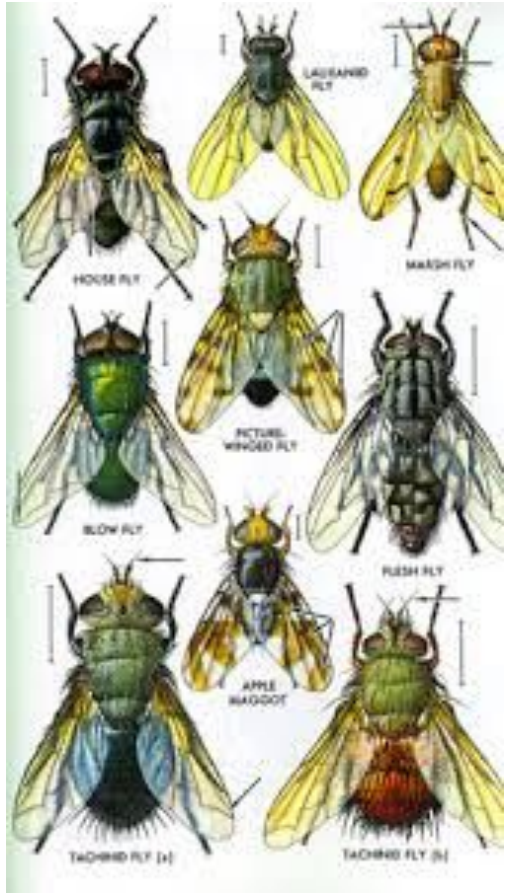
Butterflies and Moths तितली और पतंगे

Based on Appearance : Bees, Wasps and Flies – Cushioning and Sucking Sap

Bees and Wasps मक्खियां और हड्डे

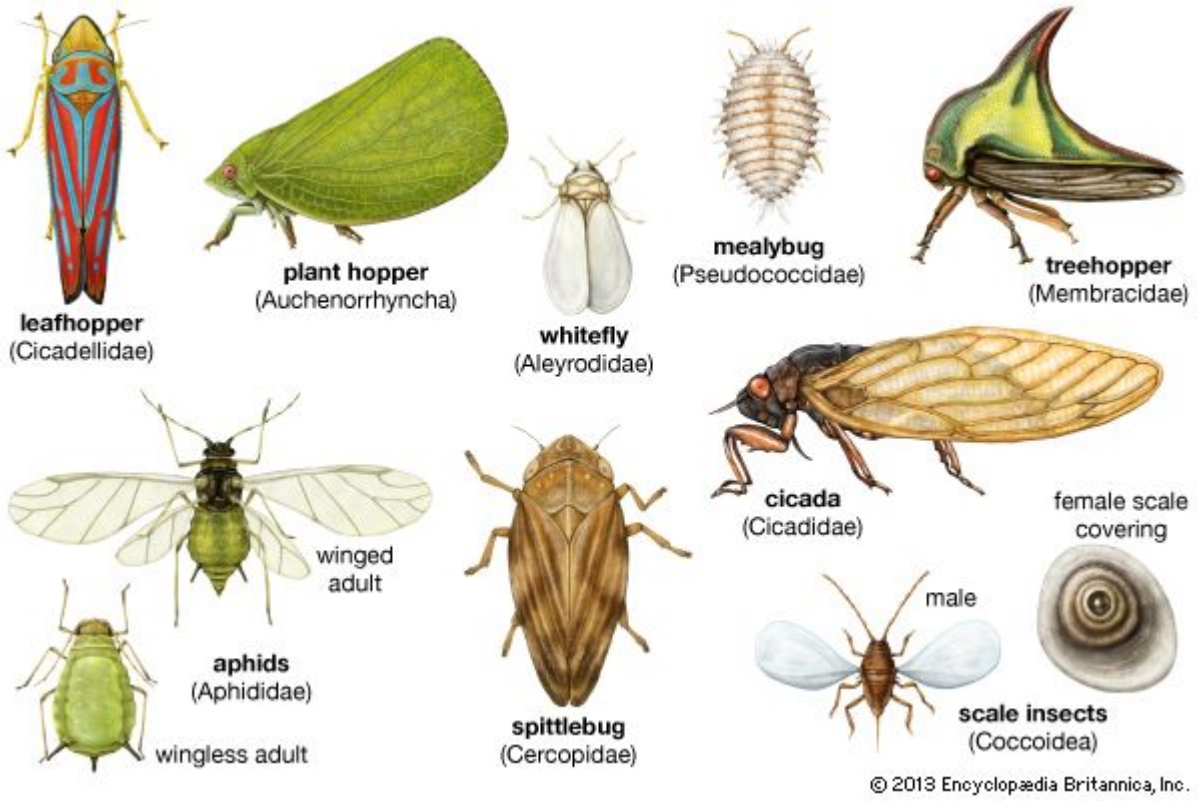


Flies मक्खियां (फ्लाइज)

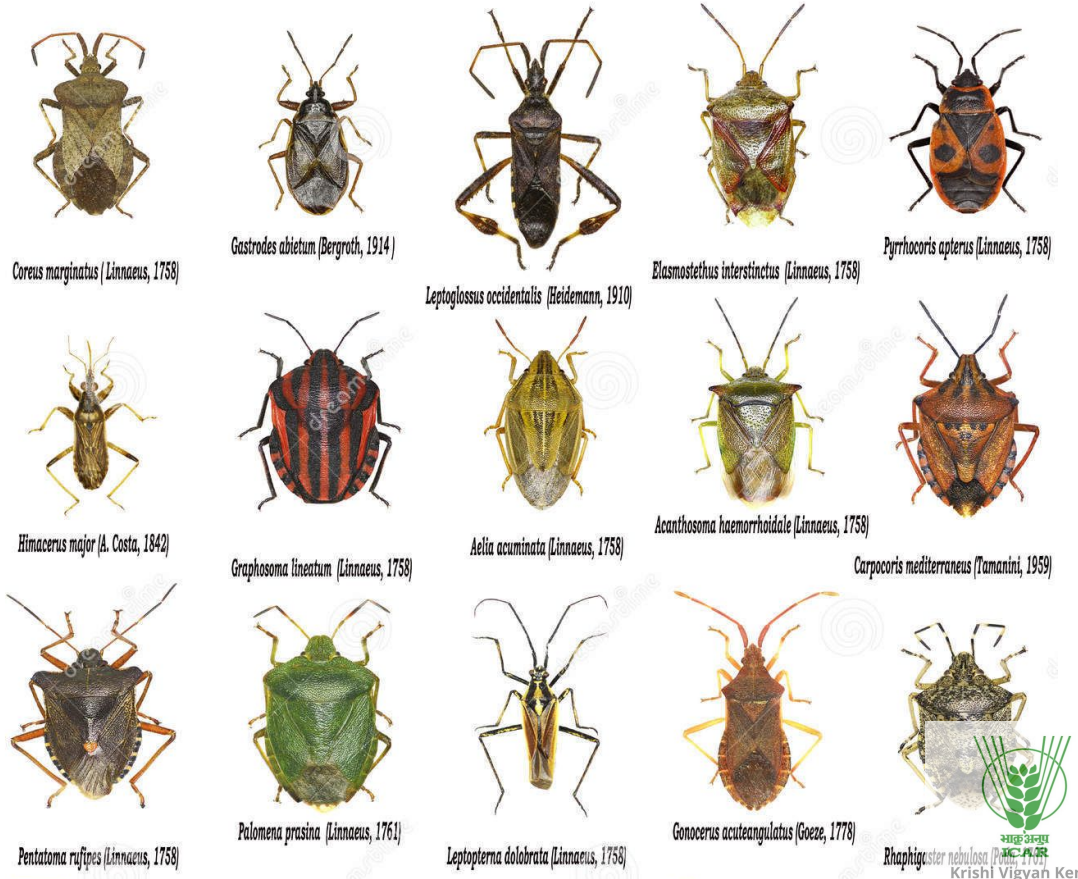


Based on Appearance :Hoppers and Bugs – Pierce and suck Juice

Hoppers, whiteflies, scales, aphids etc



Bugs

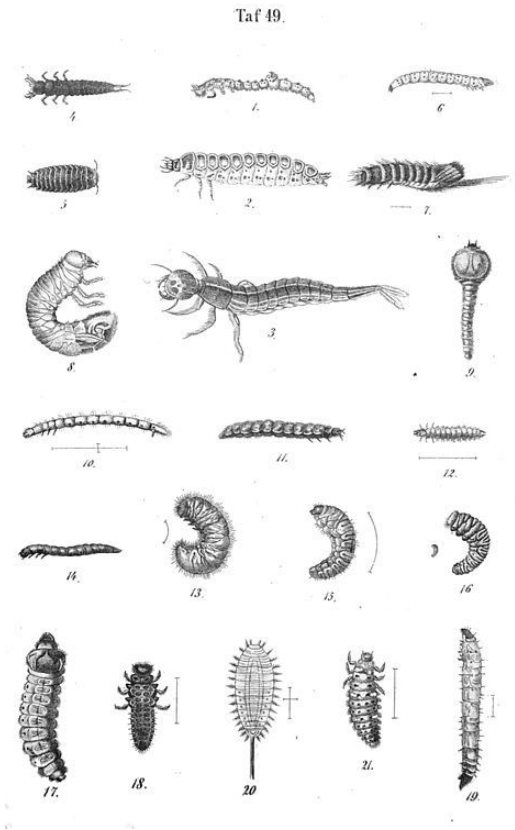


Bugs, Hoppers, etc

Krishi Vigyan Kendra,
Yagantipalle

Larval stage

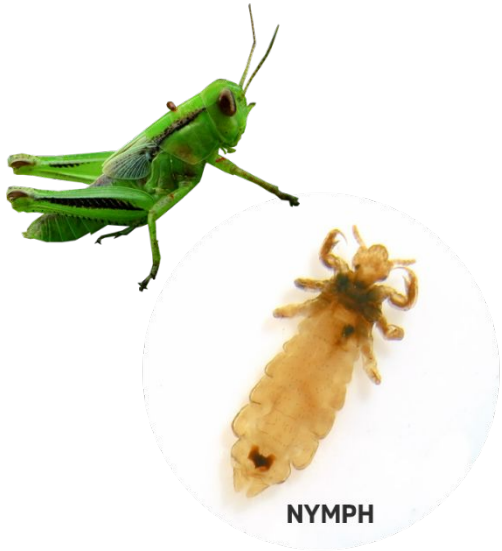
Beetle Grubs



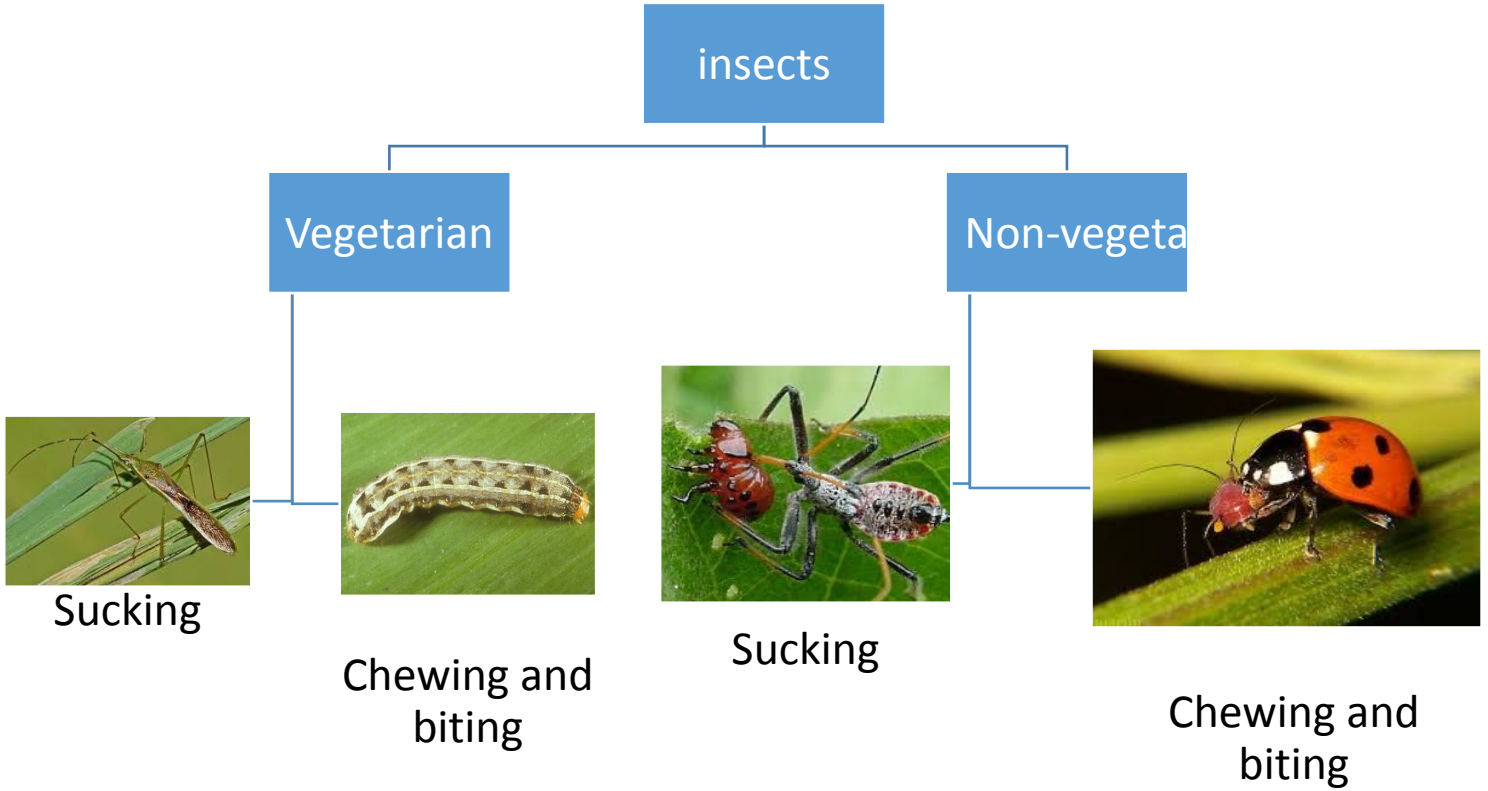
Butterfly/moth caterpillars

Fly Maggot

Hopper Nymphs



Based on feeding habits (preference and feeding behavior)



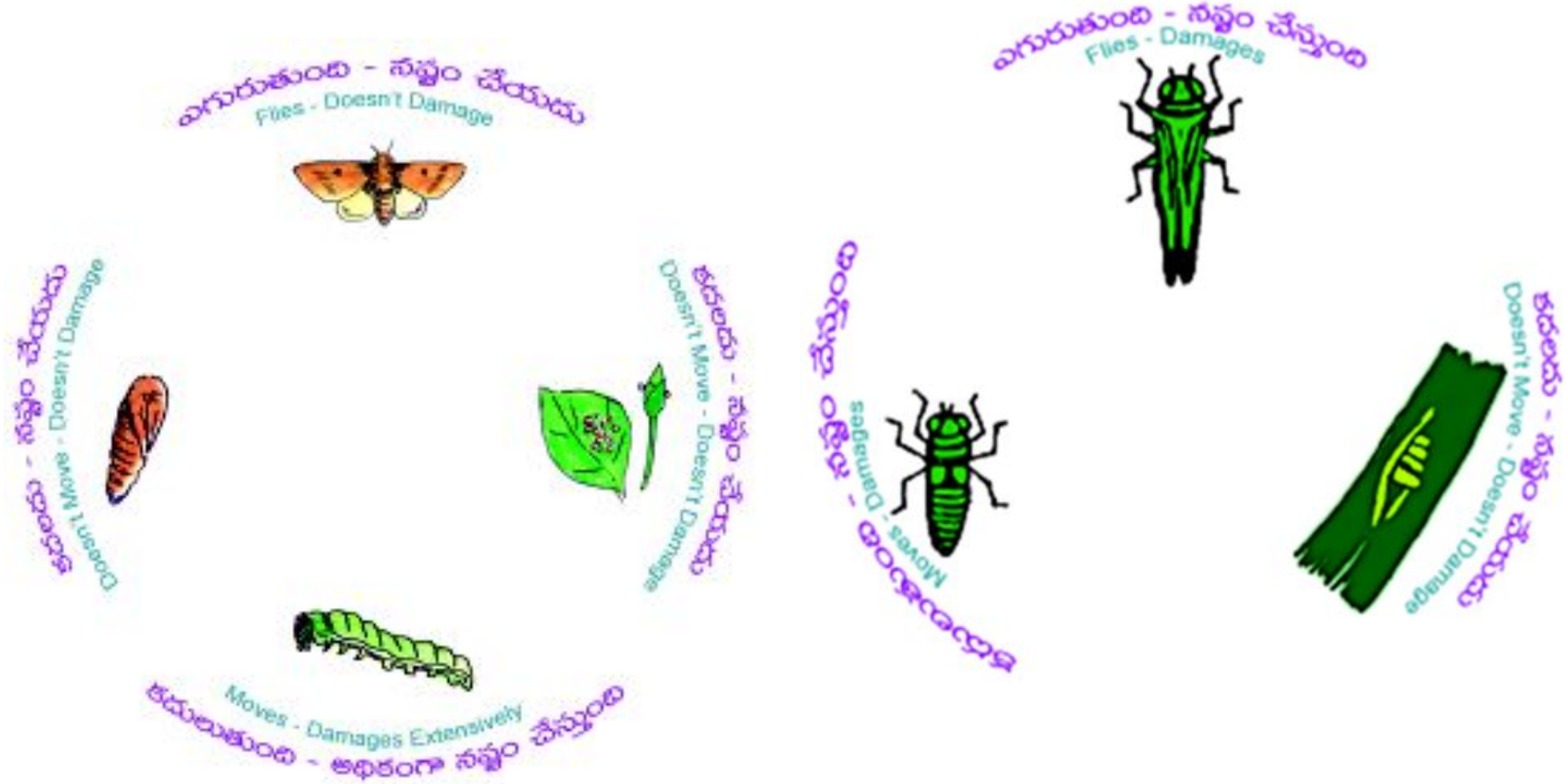
Feeding symptoms of chewing and biting insects (vegetarian)

Feeding symptoms of sucking insects (vegetarian)

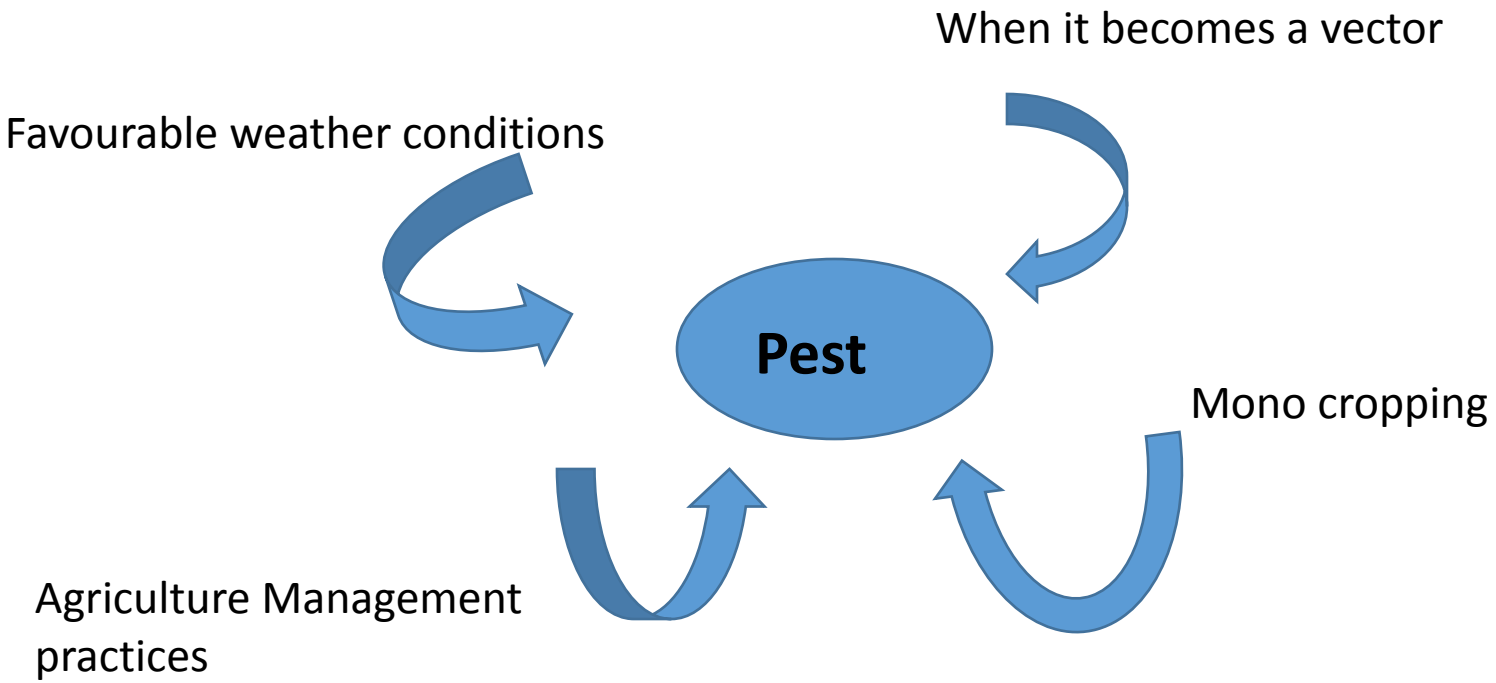
भाकृअनुप
ICAR
Krishi Vigyan Kendra,
Yagantipalle

Life in cycles

- Insect life cycle

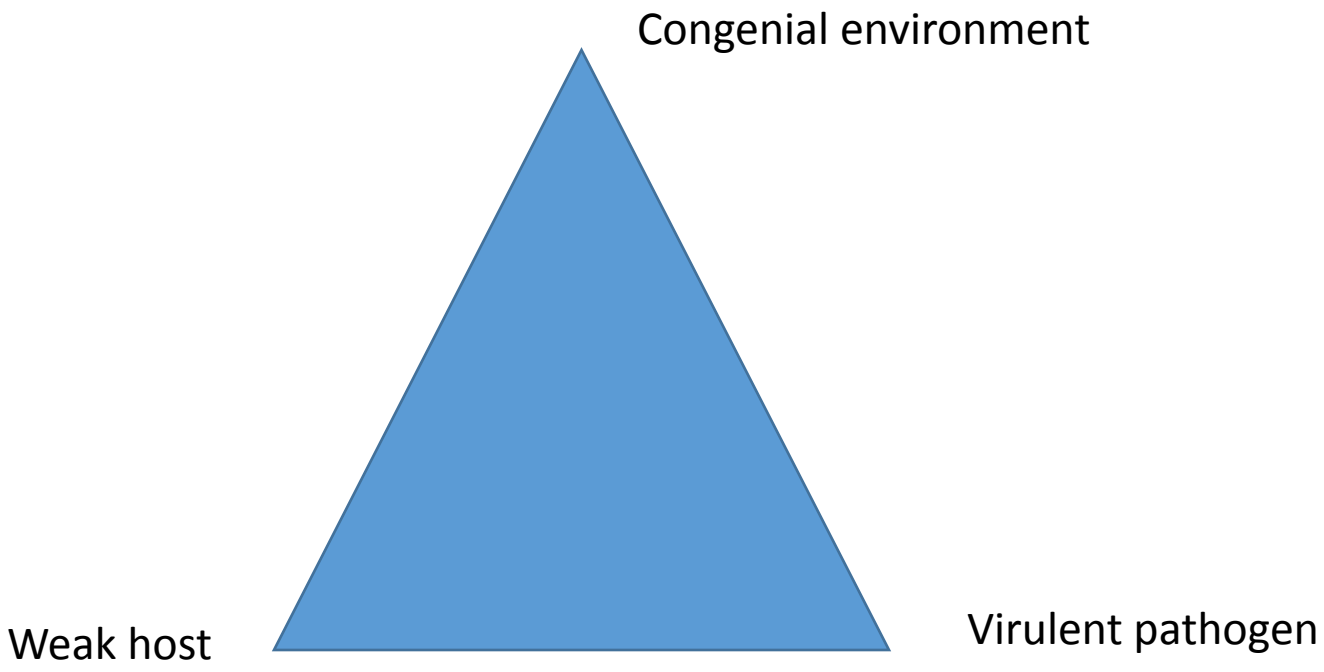


Why insects become pests (reaching damaging stages)?



When a disease occurs?

Disease Triangle

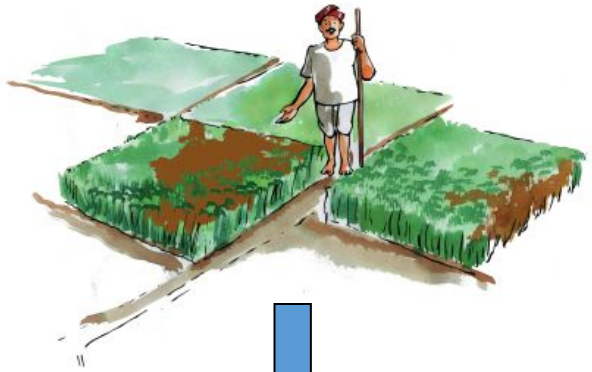


Types of diseases

Non-Infectious

Nutrient deficiency can not be transmitted from one field to other field

Infectious



Rice blast symptoms in few places in the field

Rice blast spread to entire field





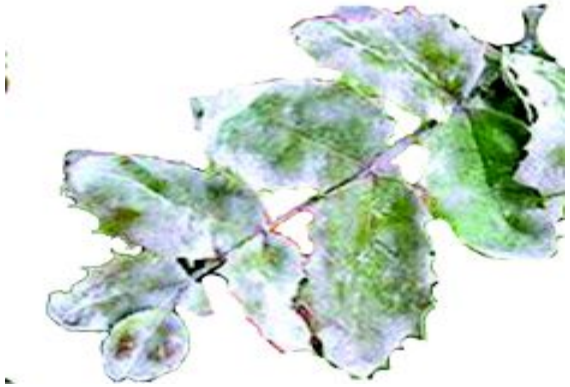






Fungal diseases

Alternaria leaf spot



Powdery mildew

TIKKA LEAF SPOT

BLB OF RICE

Sheath blight of rice

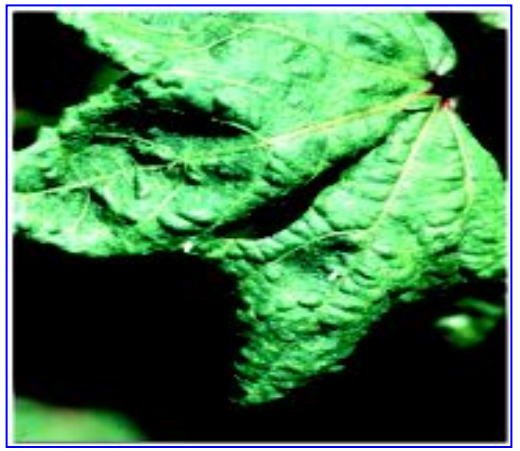
Wilt disease

Bacterial diseases

Virus diseases

Yellow vein mosaic of Bhendi

Banana leaf curl



Cotton leaf curl

Leaf curl of tomato

Cucumber mosaic virus

Little leaf of Brinjal

Observation

- What plant?
- Which part?
- Do you observe the presence of any insect?
  - If yes,
    - Stage of insect
    - What it does?
  - If no,
    - What kind of damage symptom is seen?

symptomatology

- Based on feeding habits the symptoms could be
  - Chewing damage or rasping damage
    - Entire leaf blade consumed
    - Distinct portions of leaf missing
    - Leaf surfaces damaged
    - Leaves rolled
    - Galleries on leaf surface
    - Plant or part parts showing wilting
  - Sucking damage
    - Spotting or stippling
    - Leaf curling or puckering
    - Systemic toxemia
      - General or uniform stipple or flecking or chlorotic pattern
      - Random stipple pattern
      - Leaf and stem distortion
      - Galls, swellings
      - Damaged or split twigs
      - Root, stem, branch feeders – general decline of an entire plant or a section of a plant

Feeding symptoms

Feeding symptoms

Krishi Vigyan Kendra,
Yagantipalle

Spots, Rusts, Wilts, Rots, Blights, Gums and Mildews

Krishi Vigyan Kendra,
Yagantipalle

Bacterial diseases

Virus diseases

Yellow vein mosaic of Bhendi

Banana leaf curl

Cotton leaf curl

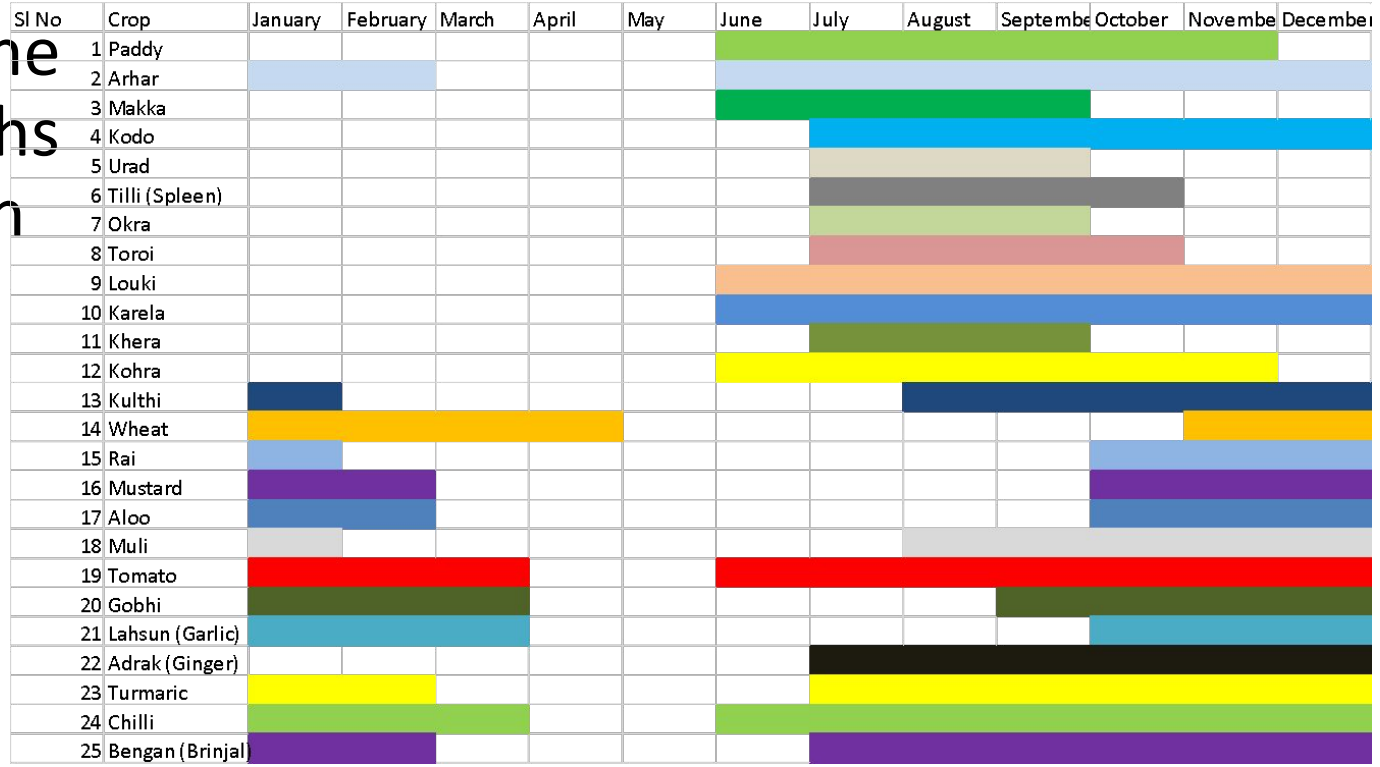
Leaf curl of tomato

Cucumber mosaic virus

Little leaf of Brinjal

Crop calendar

- It is a calendar depicting all the crops grown as per the months in that particular locality in an year.



Pest calendar

- A calendar depicting the crop wise incidence of pests and diseases in major crops.

Pest Calender - Paddy							
		Assad	Sawan	Bhado	Kuwar	Kartik	Aaghan
		15 June to 15 July	16 July - 15 August	16 August - 15 Sept	16 Sept - 15 Oct	16 Oct - 15 Nov	16 Nov - 15 Dec
Tekua	Gall Midge						
TanaChed	Stem Borer						
Banka	Brown Plant Hopper						
Gundhi	Gundhi						
Patti Lape	Rice Leaf Folder						
Deemak	Termites						
Turture	Green Leaf Hopper						
Jhulsa	Blight						
	Sheath rot						
Putuwana	False Smut						

How do we manage them reaching damaging stage?

- Preventive
- Curative

Preventive measures

- Deep summer ploughing
- Using more organic manures
- Incorporating neem cake during last plough
- Crop rotation
- Resistant / tolerant varieties
- Bonfires
- Seed treatment
- Mixed cropping
- Border crops
- Traps
  - Trap crops
  - Pheromone traps
  - Light traps
  - Coloured Sticky traps
- Bird perches

Curative measures