

IPM & Insect Pest Management for Pitahaya

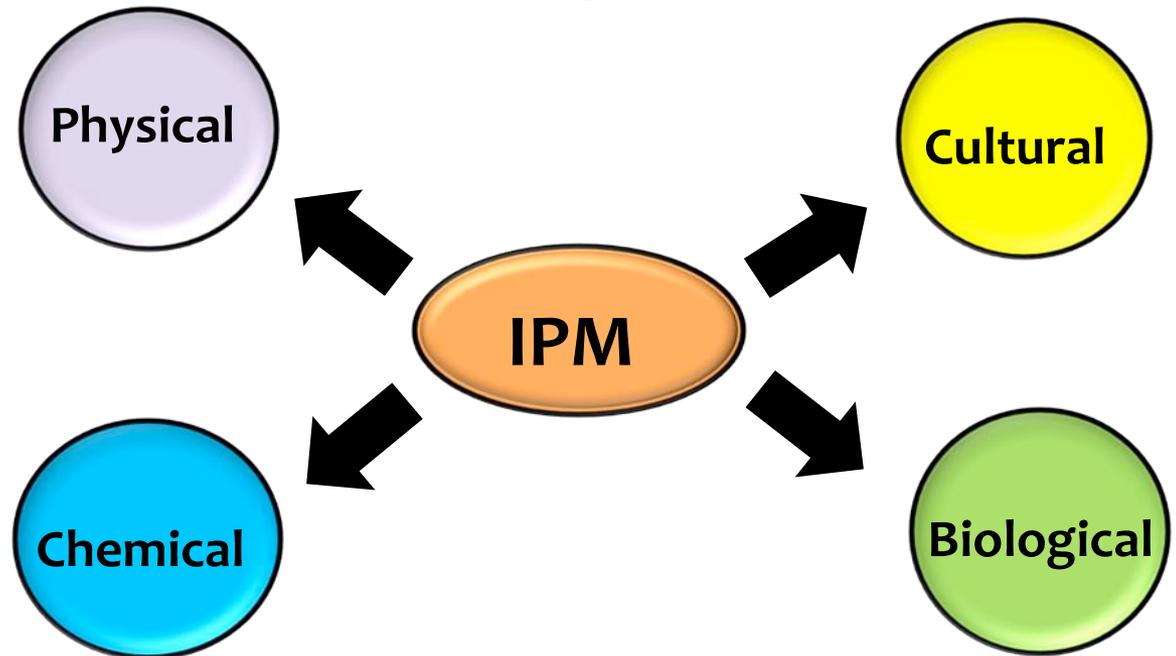
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Successful Management

To successfully control
pests, you need a good
Integrated Pest
Management (IPM)
Program

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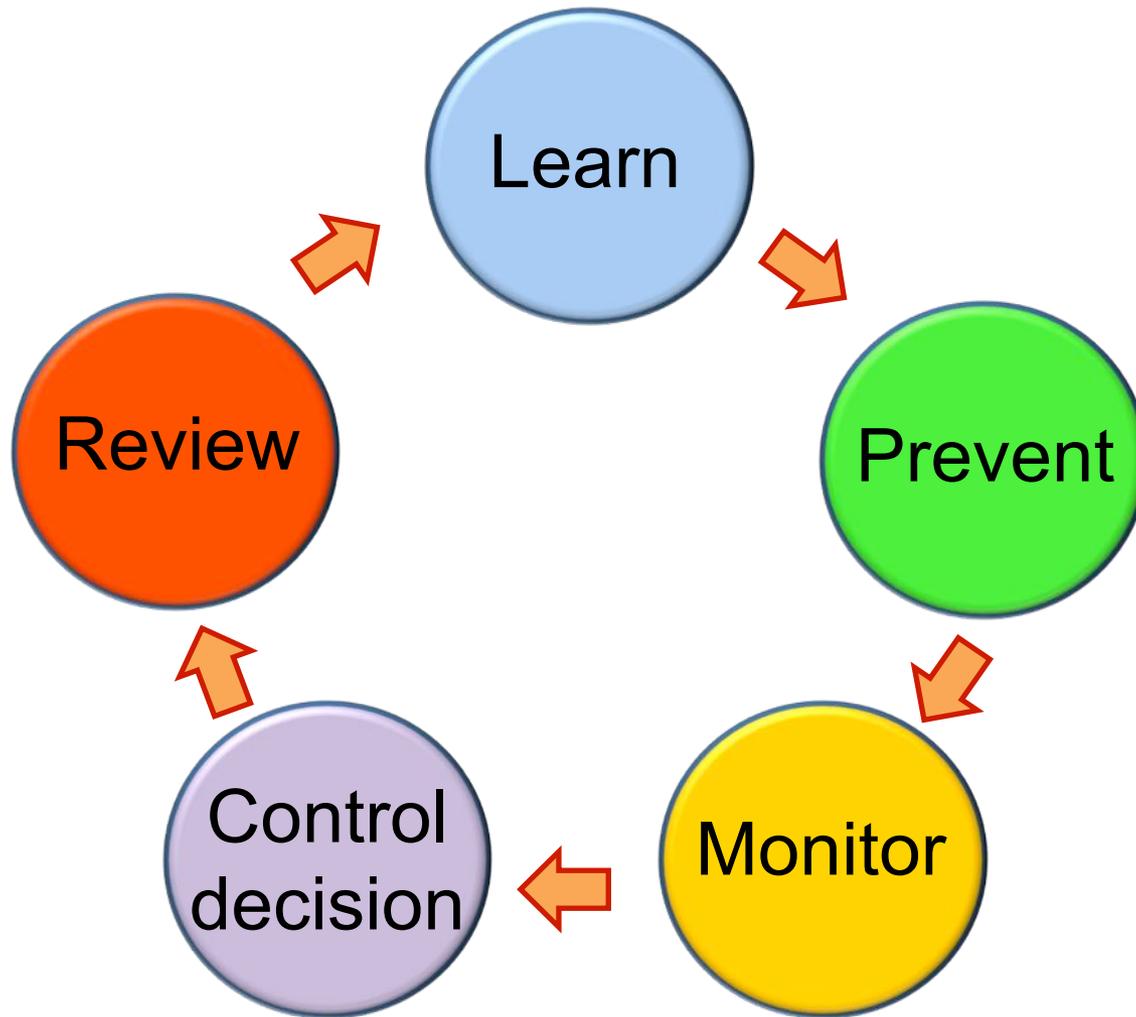
- An ecosystem-based strategy that focuses on long-term prevention / suppression of pests or their damage through a **combination** of control strategies



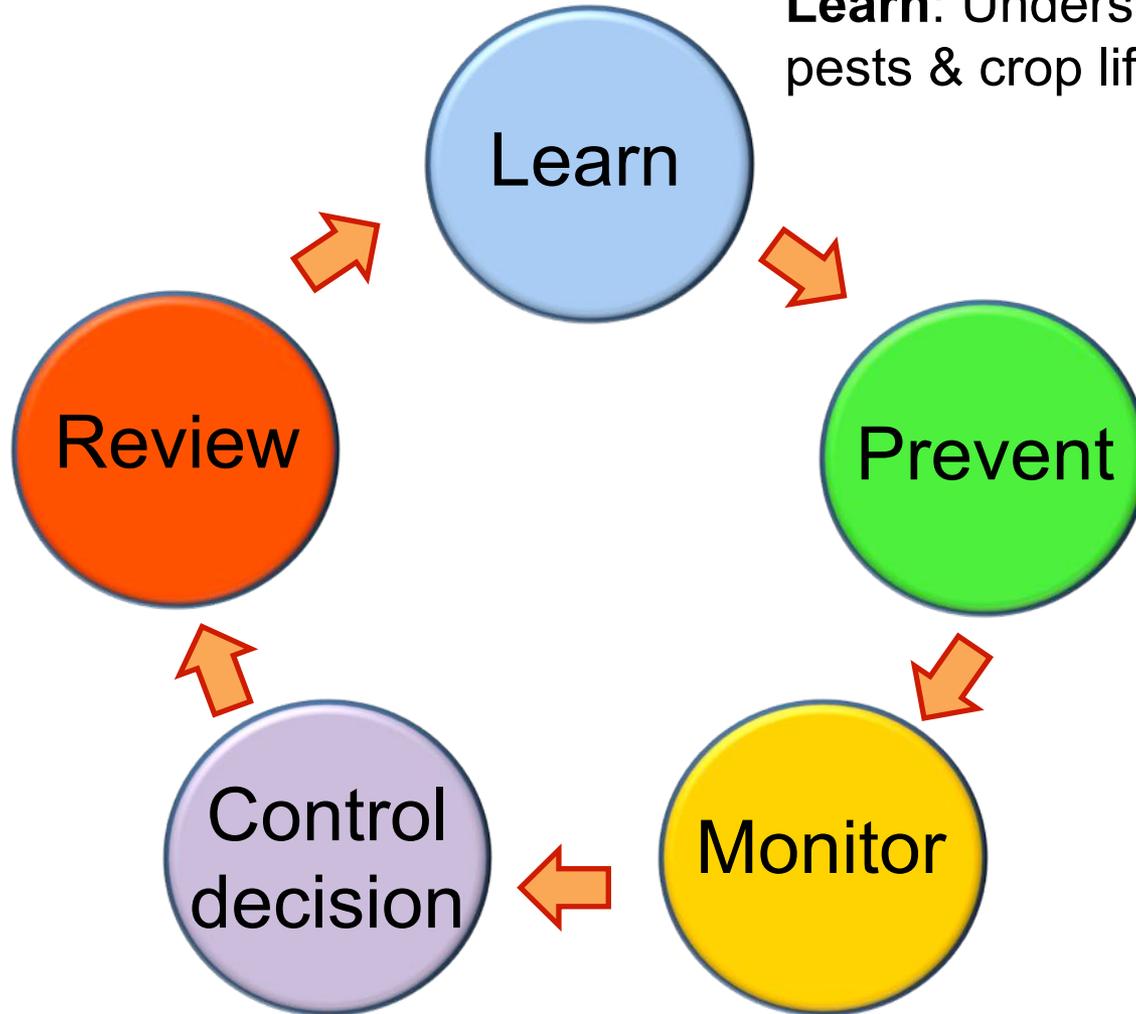
Integrated Pest Management (IPM)

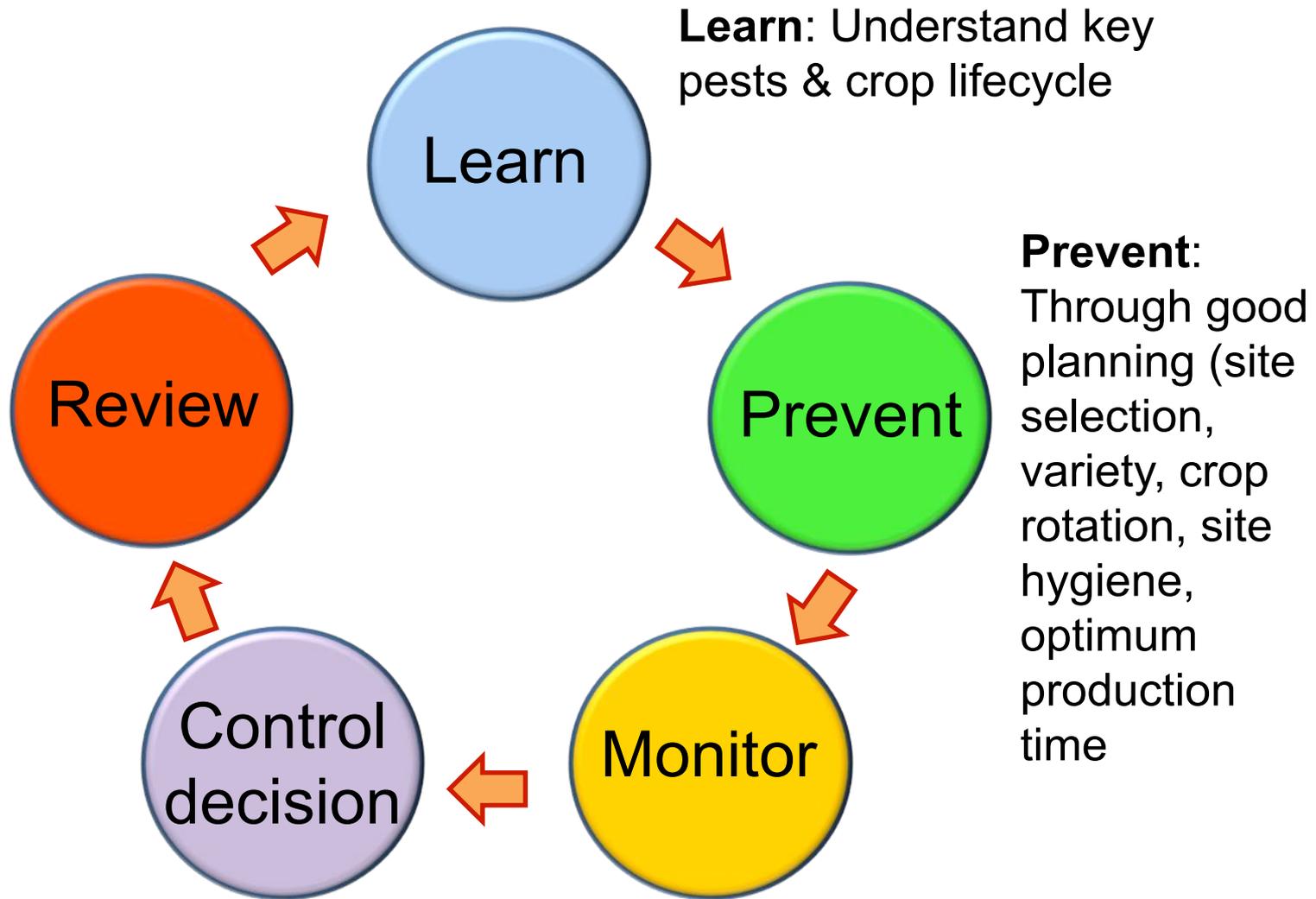
- Will keep pests at tolerable levels with minimum impact on human health, the environment & non target organisms (beneficials)

Key components of IPM

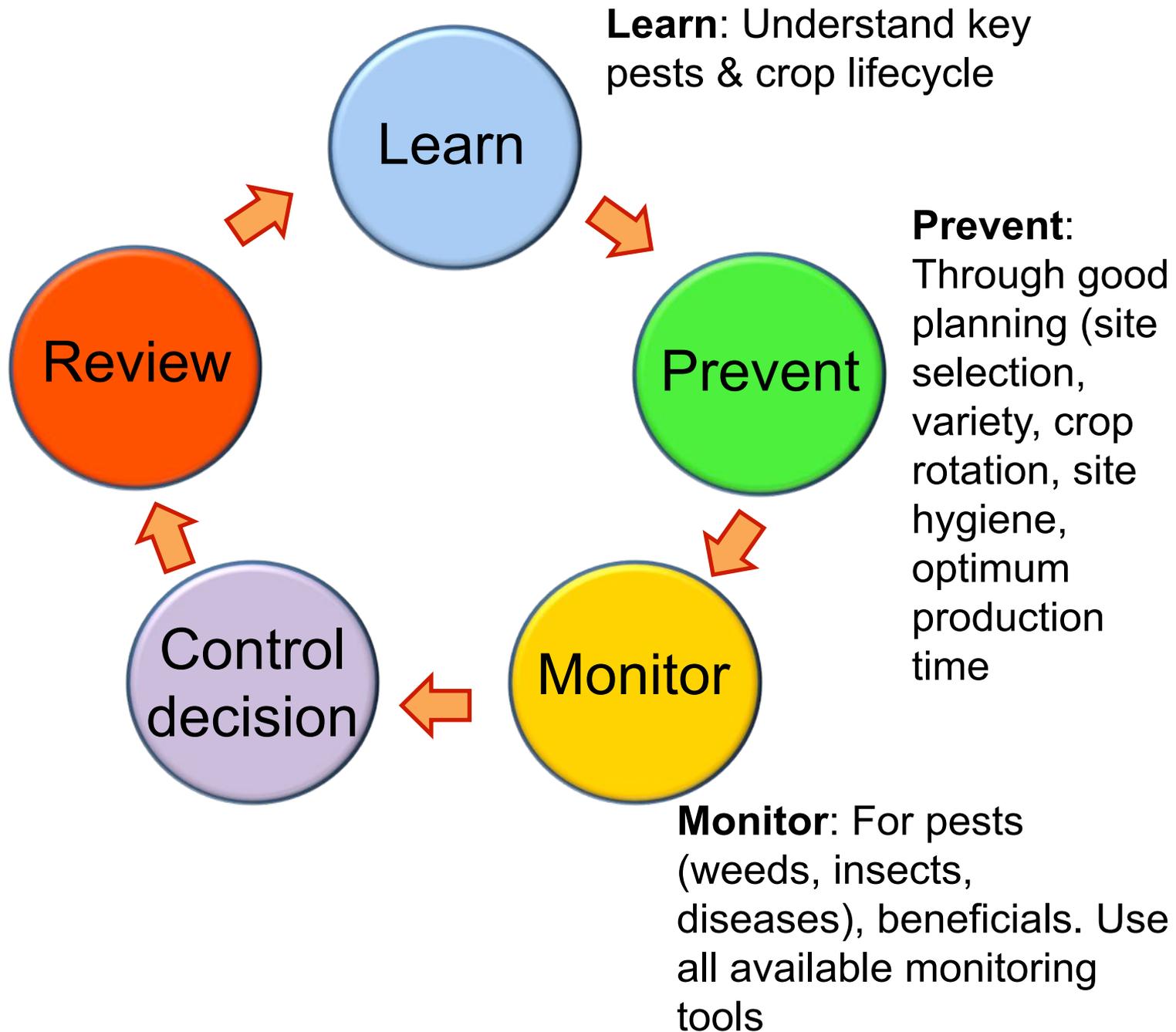


Learn: Understand key pests & crop lifecycle









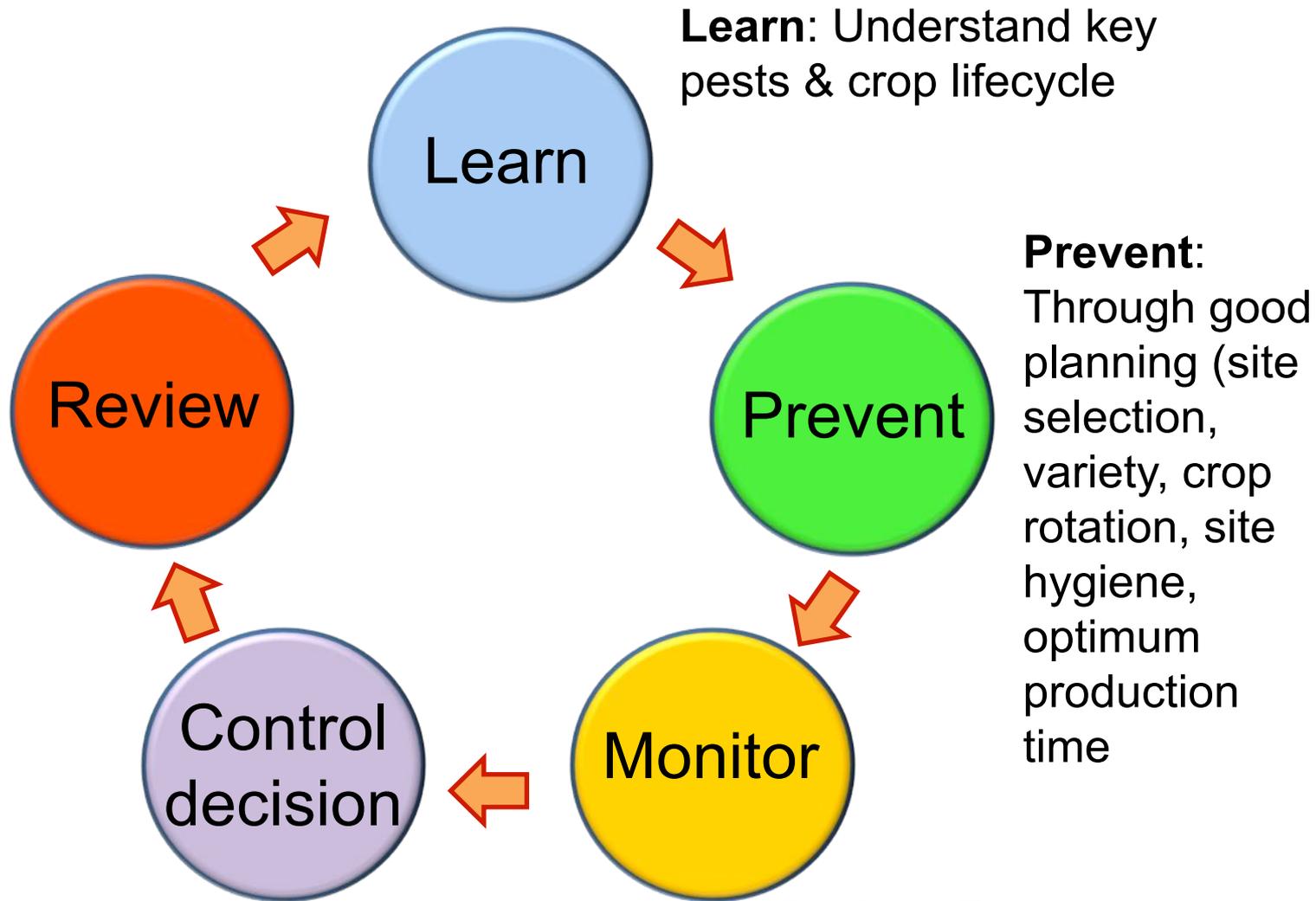
Use direct or indirect sampling methods

- Sample plants
- Sticky cards, double sided tape, pheromone traps/ lures
- Sweeps
- Sample weeds in perimeter



Develop a monitoring program:

Sample Data Sheet											
Date	Field #	Time	Crop							Growth Stage	
Weather/field observations:											
Plant #	1	2	3	4	5	6	7	8	9	10	Total
Pest 1 [Name]											
Larvae											
Adults											
Parasite/Predator <i>[Beneficial Insect Name]</i>											
Parasite/Predator <i>[Beneficial Insect Name]</i>											
Parasite/Predator <i>[Beneficial Insect Name]</i>											
Notes:											
Plant #	1	2	3	4	5	6	7	8	9	10	Total
Pest 2 [Name]											
Larvae											
Adults											
Parasite/Predator <i>[Beneficial Insect Name]</i>											
Parasite/Predator <i>[Beneficial Insect Name]</i>											
Parasite/Predator <i>[Beneficial Insect Name]</i>											
Notes:											



Control Decision: What is the most appropriate action for crop stage, pest stage & pressure. Chemical, biological.

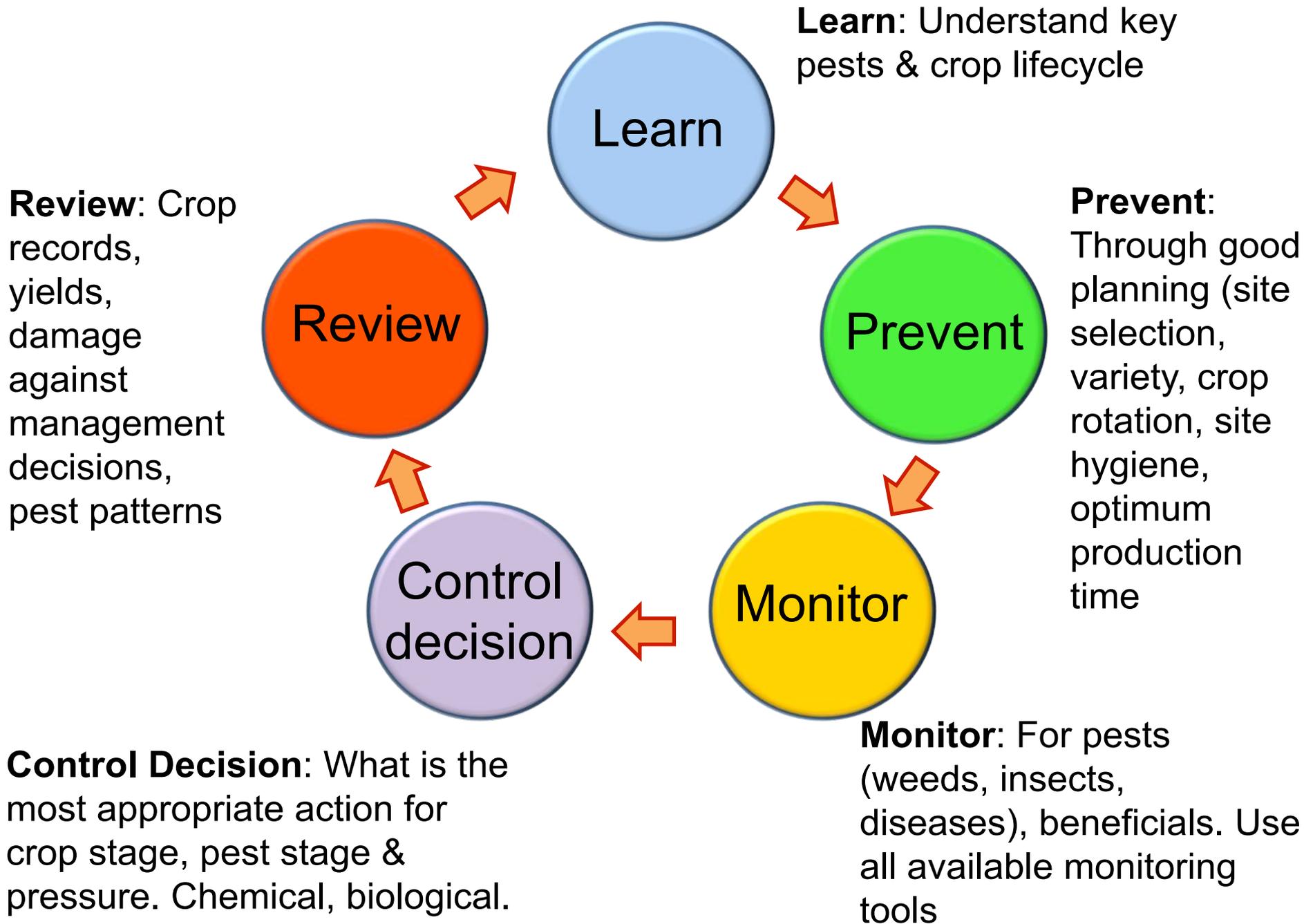
Monitor: For pests (weeds, insects, diseases), beneficials. Use all available monitoring tools

- Some sprays can disrupt biological control. Only treat if necessary.
- Treat at the correct life stage



VS.





Pitahaya has little pest problems compared to other major economic crops...*but are not pest free*



Reported Pest

- Mites
- Thrips
- Ants
- Beetles
- Borers (*Diatrea*)
- Hemiptera (many)
- Fruit flies
- Moths
- Slugs



Examiner.com



photo (c) Alex Wild



Ray Alvarez

Common Pests

Ants

- Honeydew feeding ants like Argentine ants
- Feed on sap from the fruit & may cause blemishing
- Associated with honeydew secreting scale



Management

- Ant bait stations
 - Sweet bait to attract honeydew feeding ants
 - Boric acid or disodium octaborate tetrahydrate

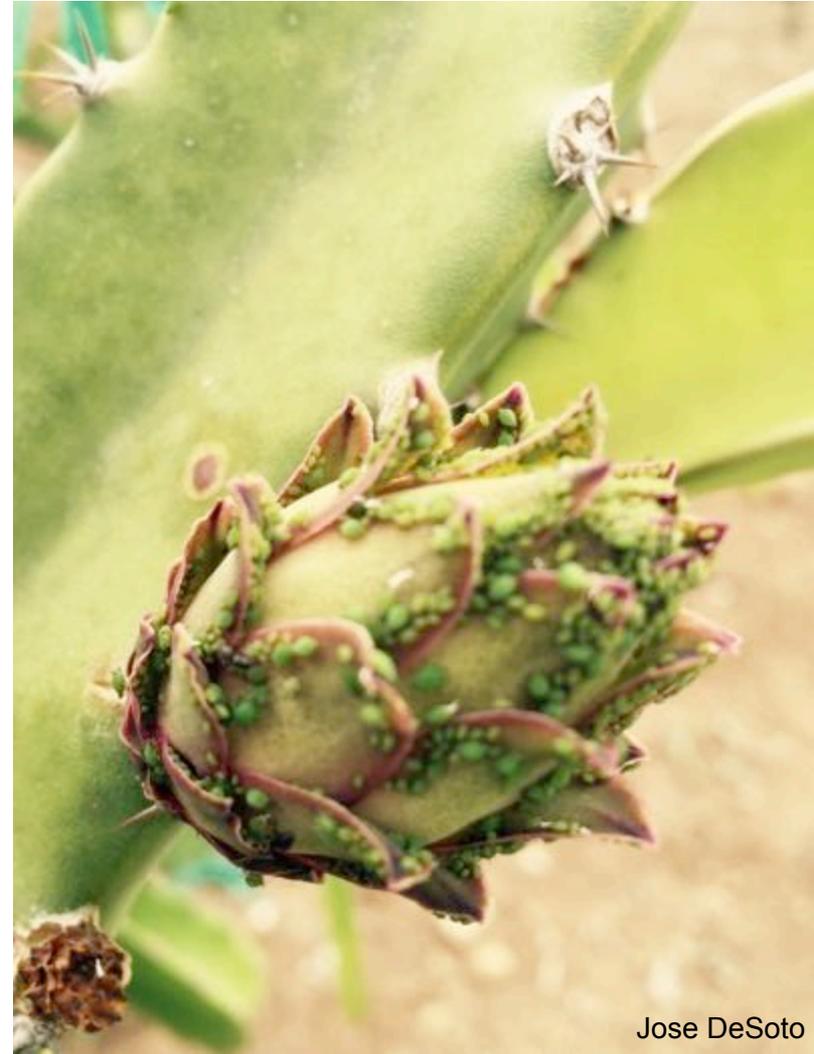


Management

- Boric acid bait stations
 - Make sure to get your ants ID'd for proper management
 - Don't let them dry out
 - Always have bait available & clean out traps
 - Your environmental conditions will determine how often you refill them

Aphids

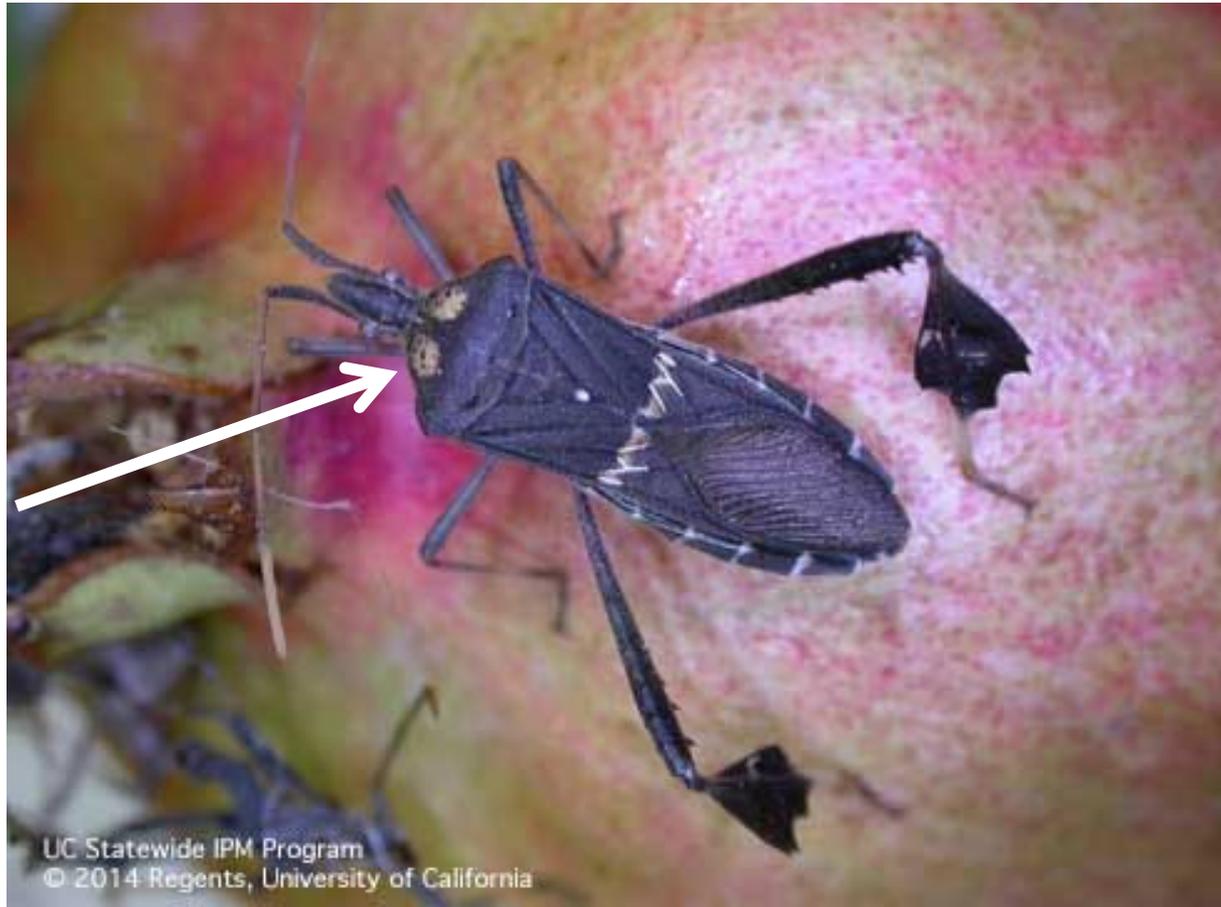
- Piercing-sucking mouthparts
- Weakens the plant, can scar the fruit
- Produce honeydew
 - Attracts ants →
Protect aphids
 - Sooty mold



Western leaf-footed bug (Hemiptera)

- *Leptoglossus zonatus* (Coreidea)

2 yellow
spots
behind
the head



- Piercing-sucking mouthparts
- Causes blemishes on fruit
- Most destructive. Feed on weeds in the spring then move into gardens/fields
- Numerous hosts, including tomato, pomegranate, eggplant



- Suspected of transmitting fungal and bacterial diseases
- Eggs are laid on the host plant, end-to-end
- Overwinter as adults. Can be seen in clusters in the fall



Management

- Remove weeds that may serve as host plants (sanitation!)
- Build up natural enemies
 - Avoid using broad spectrum insecticides
- Neem oil / insecticidal soaps on nymphs
 - Adults are harder to control

Scale Insects

Red Scale



Brown Scale



Armored Scale

- 'Scale' can be separated from body, with distinct nipple
- Produce no honeydew
- Inject toxin into plants

Soft Scale

- 'Scale' is part of body, can't be separated
- Smooth, cottony, waxy covering
- Produce honeydew

- Piercing-sucking mouthparts
- Weakens the plant
- Honeydew producers attracts ants
 - Ants will protect scale insects from natural enemies



Management

- Horticultural oils or soaps
- If chemically treating, timing is crucial
- Manage ants so natural enemies can control scale
- Crawlers are easier to manage



Mealybugs

- Piercing-sucking mouthparts
 - In high populations, can slow growth & cause die-back
- Small soft-bodied insects (0.05-0.2")
- Have a waxy covering with filaments around the body
- Secrete honeydew
 - Sooty mold
 - Ants





Management

- Waxy coating protects them from insecticides
 - Insecticidal soaps or petroleum oils can break it down
- Neem oil
- Pyrethrins
- Manage ants for natural enemies

Cactus Moth

- *Cactoblastis cactorum*
- Larvae have chewing mouthparts
 - Burrow into the plant and eat the insides
- From S. America
 - Introduced in Australia as a control for *Opuntia* sp.
- Also found in California, Arizona, Nevada, Texas, and New Mexico

- “Snout” moths (Family: Pyralidae)
- Adult wingspan is 1 – 1.3”
- Species identified by looking at male genitalia









Management

- Horticultural oils or insecticidal soaps on small larvae
- Spinosads
- Bt for the larvae of LepS
- Pheromone traps/lures



Thank you!

