

# *Integrated Pest Management and Pesticide Use Regulations for Specialty Crops (Pitahaya) Production*

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UCCE/UC IPM



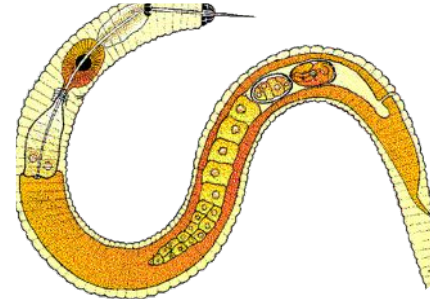
So Far...



Irrigation



Fertilizer



Nematodes



Insects



Plant  
Pathogens



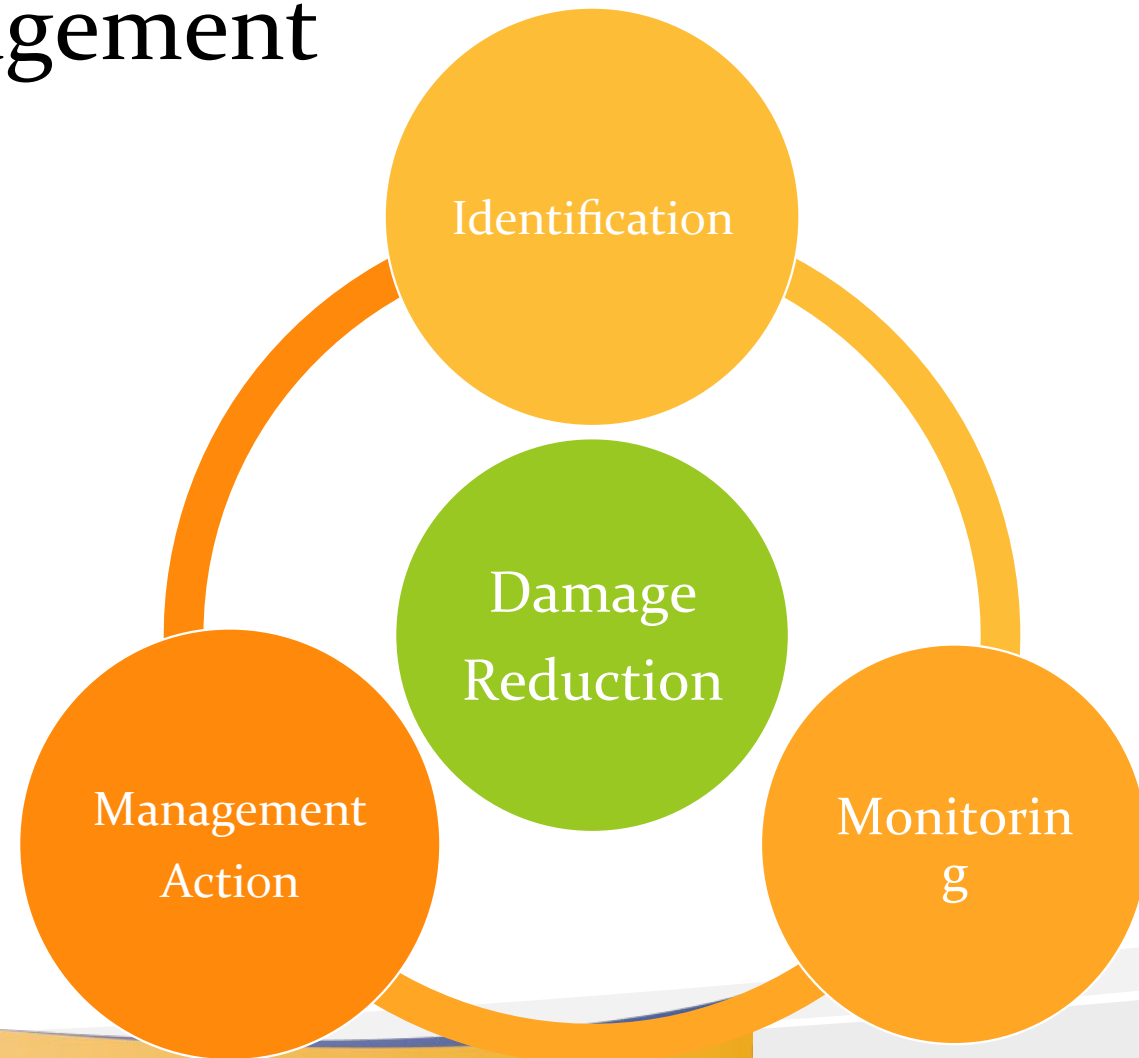
Weeds



Vertebrates

# Integrated Pest Management

- Combination of methods
- Thresholds
- Conserve beneficials
- Ecosystem based



# IPM.UCANR.EDU

UNIVERSITY OF CALIFORNIA AGRICULTURE & NATURAL RESOURCES

## IPM

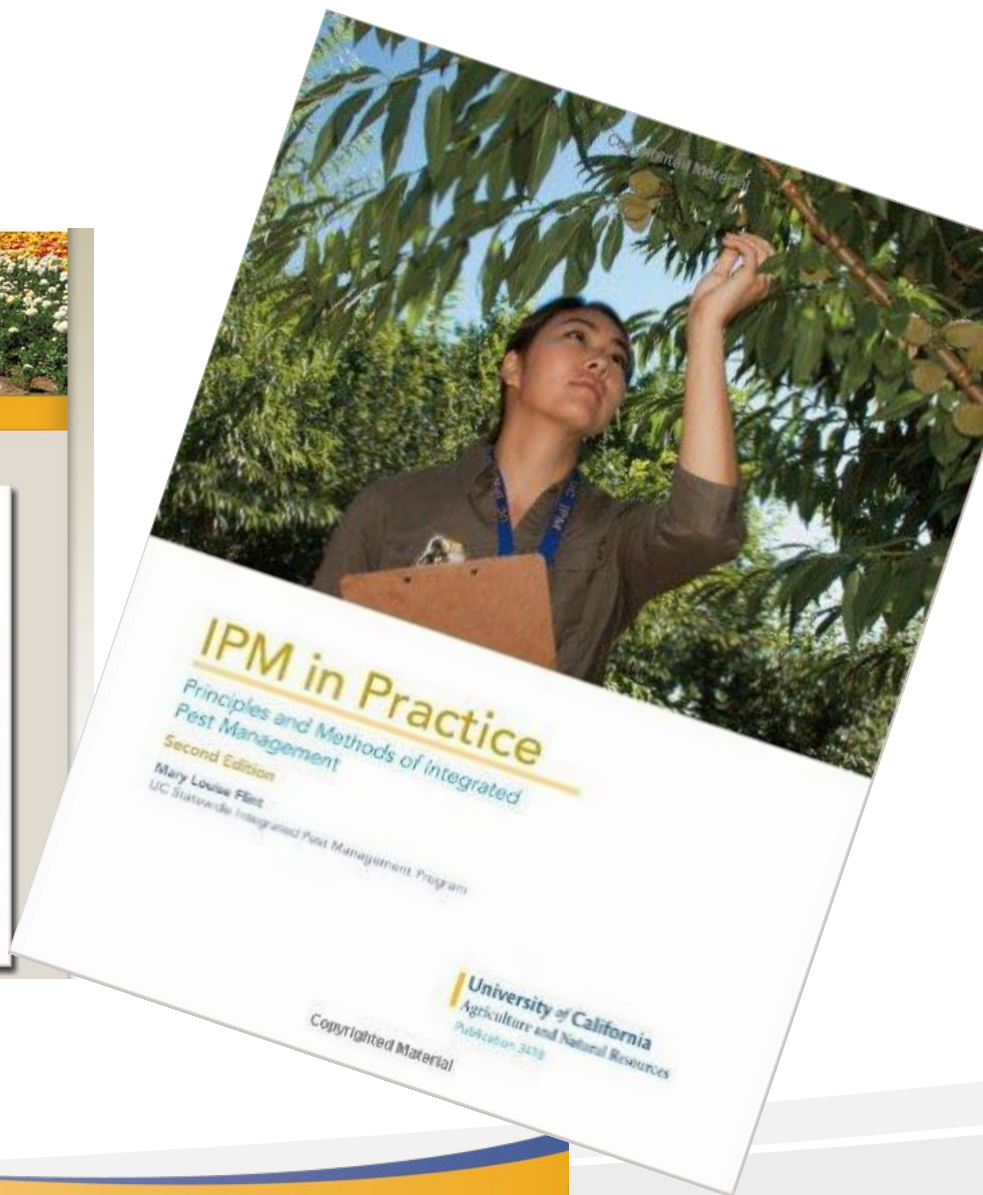
Integrated Pest Management Program

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### Home, Garden, Turf & Landscape Pests



### Agricultural Pests



University of California  
Agriculture and Natural Resources

Monitoring

**THRESHOLDS**



**\$\$\$\$\$\$**



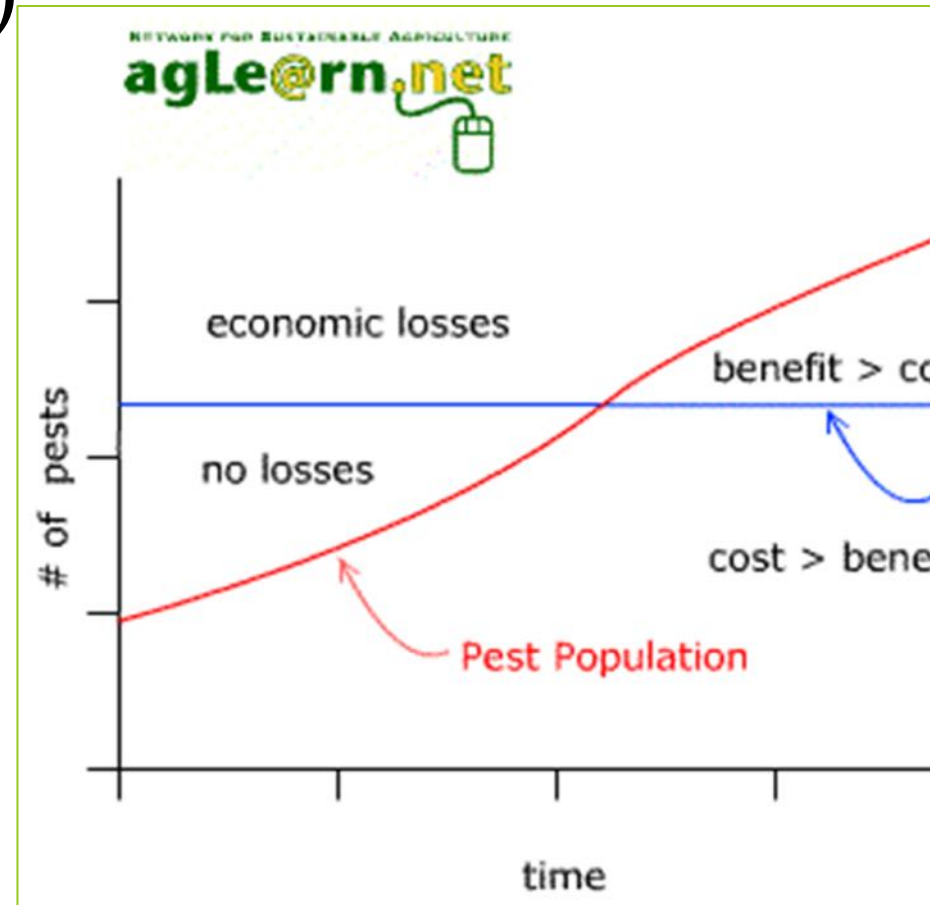
**Damage**

# Economic Injury Level(EIL)\*

smallest number of pests or amount  
ry that will cause yield losses equal  
pest management costs.



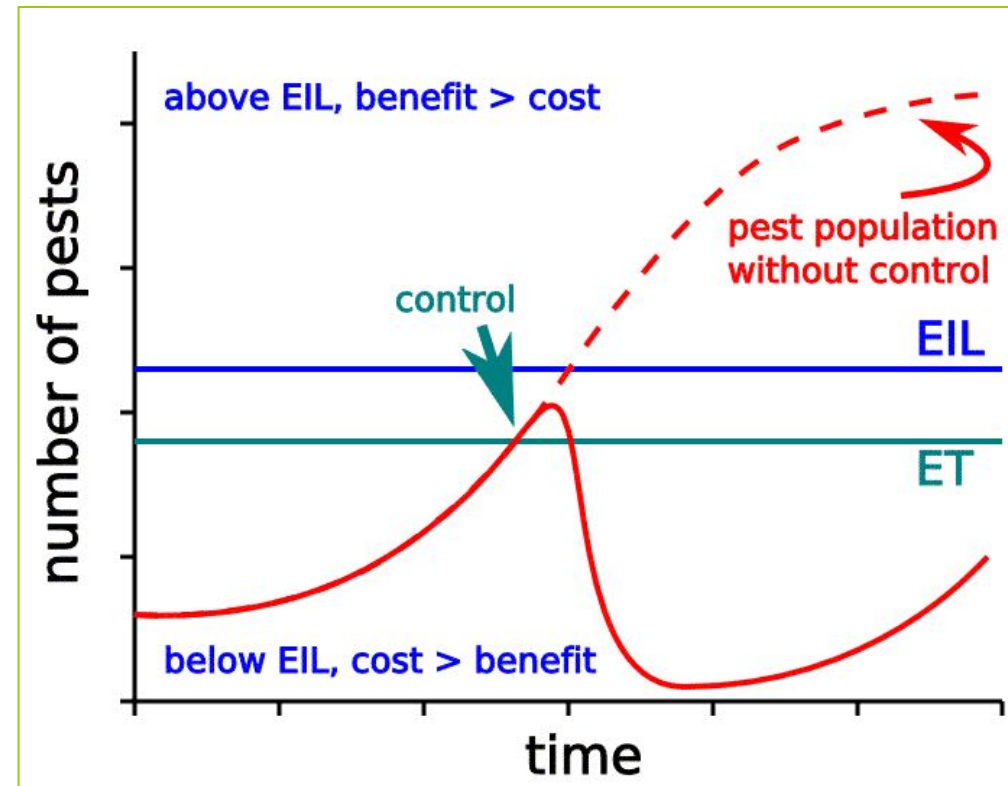
does not apply to plant diseases.



# Economic Threshold (ET) aka “action threshold”\*

pest density at which management action should be taken to prevent an increasing pest population from reaching the economic injury level (EIL). prediction of when a pest population is going to reach the EIL.

assumed that once the ET is reached, there is a high probability that the pest population will reach the EIL if no management action is taken.



\*Does not apply to plant diseases.

# Scouting and Monitoring Tools



### Corn Field Survey

The Ohio State University

County/Area: \_\_\_\_\_ Farm: \_\_\_\_\_ Field: \_\_\_\_\_ Date: \_\_\_\_\_  
 Villages: \_\_\_\_\_ Acres: \_\_\_\_\_ Contract No: \_\_\_\_\_ Scout: \_\_\_\_\_  
 Crop Stage: \_\_\_\_\_ Extended Leaf Nodes: \_\_\_\_\_

Pests:	Stems	% Dam. / Inf.	Plant Count	100% Index	Field
Wireworm	_____	_____	_____	Nil	Plw Con Abd
Cutworm	_____	_____	_____	Nil	Plw Con Abd
Stalk Borer	_____	_____	_____	Nil	Plw Con Abd
Strips	_____	_____	_____	Nil	Plw Con Abd
T. Anthonomi	_____	_____	_____	Nil	Plw Con Abd
Corn Borer	_____	_____	_____	Nil	Plw Con Abd
C. L. Aphid	_____	_____	_____	Nil	Plw Con Abd
Rootworm	_____	_____	_____	Nil	Plw Con Abd

Field Sample: \_\_\_\_\_ Plt Ck: \_\_\_\_\_ Row Ft.: \_\_\_\_\_  
 CEW Count: \_\_\_\_\_ NCR: \_\_\_\_\_ NCR per \_\_\_\_\_ plants

Weeds:

Site	Bating
Set Site Mod Sev	_____
Set Site Mod Sev	_____
Set Site Mod Sev	_____
Set Site Mod Sev	_____
Set Site Mod Sev	_____

Field Scout's Comments: \_\_\_\_\_  
 Action Needed: \_\_\_\_\_  
 Date Tagged: \_\_\_\_\_ By: \_\_\_\_\_

The Ohio State University  
 Form 1228B





# Management

**ON THIS SITE**

- What is IPM?
- Home & landscape pests
- Agricultural pests
- Natural environment pests
- Exotic & invasive pests
- Weed gallery
- Natural enemies gallery
- Weather, models & degree-days
- Pesticide information
- Research
- Publications
- Events & workshops
- Online training
- Links
- About us
- Contact us

University of California's official guidelines for managing pests with environmentally sound methods. [\(More...\)](#)

Search home & landscape:

**Pests of homes, structures, people, and pets**

**Household pests**

- [Pests that sting, bite, or injure](#)
- [Wood-destroying, food, fabric, and nuisance pests](#)
- [Vertebrate pests: birds, mammals, and reptiles](#)

**Pests in gardens and landscapes**

*Choose a plant to find the most likely source of your pest problem*

- [Flowers](#)
- [Fruit trees, nuts, berries, and grapevines](#)
- [Lawns and turf](#) (including comprehensive lawn guide)
- [Trees and shrubs](#) (including roses and other ornamentals)
- [Vegetables and melons](#)

**Some common pests**

- [Birds, mammals, and reptiles: vertebrate pests](#)
- [Insects, mites, mollusks, and nematodes: invertebrate pests](#)
- [Plant diseases](#)
- [Weeds](#)

**QUICK LINKS**

- [More about Agricultural Pests](#)
- [About agriculture pages](#)
- [Recent updates](#)
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**Agricultural pests**

Information about managing pests, including University of California's and using pesticides and nonpesticide alternatives for managing insect pests.

**Index by crop**  
[A-C](#) · [D-O](#) · [P-Z](#)

- [Alfalfa](#) ✓
- [Almond](#) ✓
- [Apple](#)
- [Apricot](#) ✓
- [Artichoke](#) (UPDATED)
- [Asparagus](#) ✓
- [Avocado](#) ✓ (UPDATED)
- [Barley](#) (see [Small Grains](#))
- [Beans](#) (see [Dry Bean](#))
- [Bermudagrass Seed Production](#)
- [Blackberry](#) (see [Caneberries](#))
- [Blueberry](#)
- [Broccoli](#) (see [Cole Crops](#))
- [Brussels Sprouts](#) (see [Cole Crops](#))
- [Cabbage](#) (see [Cole Crops](#))
- [Caneberries](#) (Blackberry, Raspberry) (UPDATED)
- [Carrot](#)
- [Cauliflower](#) (see [Cole Crops](#))
- [Celery](#)
- [Cherry](#) ✓
- [Citrus](#) ✓ (UPDATED)
- [Cole Crops](#) ✓
- [Corn](#) ✓
- [Cotton](#) ✓
- [Cucumber](#) (see [Cucurbits](#))
- [Cucurbits](#) ✓

**Top of page**

- [Dry Beans](#) ✓
- [Eggplant](#)
- [Fig](#)
- [Floriculture](#)
- [Garlic](#)
- [Grape](#) (REVISED) ✓
- [Grapefruit](#) (see [Citrus](#))
- [Kiwifruit](#)
- [Lemon](#) (see [Citrus](#))
- [Lettuce](#) ✓
- [Melon](#) (see [Cucurbits](#))
- [Nectarine](#) ✓
- [Oats](#) (see [Small Grains](#))
- [Olive](#)

# Pesticide Use

What to use?

When to use it?

Do I need to be licensed?

What about pollinators?

How do I know it worked?

# Do I need to be licensed?

## Home Use

e.g. not for distribution by sale or donation

- No
- Schools – not sure but better to have training
- Check with Ag Commissioner's office
- San Diego: [sdcawm@sdcounty.ca.gov](mailto:sdcawm@sdcounty.ca.gov)
- 858-694-2739, 760-752-4700

## Commercial including growing for donation

- Yes
- Mostly will need Private Applicators Certificate
- Contact Ag Commissioner office for test schedule
- Continuing Education
- Reporting



# What/When to use?



## Non-commercial

Label must say it's ok for food crops and often the specific crop

Pay careful attention to PHI



## Commercial

Label must say crop or site

Must follow REI and PHI

Pay careful attention to environment (wind/rain/temperature)

Pay careful attention to timing (pest/crop/non-target)

# What about pollinators?

- Newer labels give instructions
- Protecting pollinators
- Need to check if active



# How do I know it worked?

	Location	Target	Action	Date	Check	Result	Action2
	greenhouse	aphids	water spray	5/15/2015	5/22/2015	good	recheck in 5 days
ow	field 1 north	gophers	trapping	5/10/2015	5/15/2015	some mounds	repeat trapping
ow	field 1 north	aphids	horticultural oil	6/10/2015	6/17/2015	good	recheck in 5 days
ow	field 1 north	bacterial disease	pruning	5/5/2015	6/6/2015	no new symptoms	regular monitoring
	field 1 south	spurge	cultivation	7/1/2015	7/15/2015	good, some new plants	regular monitoring
	field 1 north	spurge	Scythe	7/1/2015	7/15/2015	good	regular monitoring
	field 2	mealybugs	Insecto out	7/20/2015	7/23/2015	moderate	check sprayer, reapply per l
	field 3	snails	remove debris	3/1/2015	3/15/2015	good	regular monitoring



# Thank you!!



<http://ipm.ucanr.edu>



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