



School Gardens and IPM

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IPM INTEGRATED PEST MANAGEMENT

- **IPM** is the **BEST PEST** control with the **LEAST** environmental impact, reducing pesticide exposure to children.
- It's **proactive** pest control with long-term management, not just a quick fix!



IPM **INTEGRATED PEST** **MANAGEMENT**

- Identify the pest, determine why it is there:
 - Is that pest Looking for Food...Water....Shelter/Harborage?
 - Remove the Food, Water or Shelter so pest looks elsewhere!



IPM **INTEGRATED PEST** **MANAGEMENT**

TX State Law dictates that only the school IPM Coordinator manages pesticide applications.

- Never bring in cans of bug spray from home.
- Never bring in home remedies.
- Even organic products are still pesticides!

Do not bring anything from home to manage, kill or control pests! Not even a mouse trap!

Get to know your IPM Coordinator, managing pests is their job!

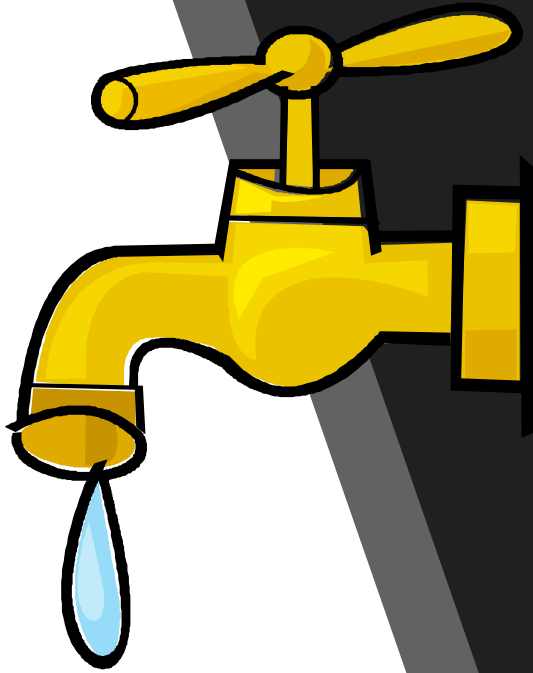




Learn How to:

- **Use Integrated Pest Management (IPM) in the school garden.**
 - Manage most pests without pesticides!
 - Identify and protect beneficial insects.
 - Grow Healthy Plants: Healthy plants resist disease and pests!
 - Know when to contact your IPM Coordinator.

Pest Management Things you can do...



- Remove dead plant material, old boards, pots and debris in the garden...places to hide, live, and eat!
- Have leaking faucets repaired: remove water sources.



Pest Management Things you can do...

- Check daily for pests and pest damage.
 - Identify the pest...leave the beneficial insects!
 - Pick off the pests!
 - Pull the weeds!
 - Choose pest and disease resistant plant varieties.



Pest Management Things you can do...

Got Rabbits?

- Install a fence around the garden.
- **Row covers** help keep out grasshoppers, stink bugs, birds and rabbits. But remember to let the bees in when the flowers need pollinating!
- Identify the insects, make sure it's not a **beneficial insect** that you want to keep!



Pest Management
Pest
problems....Who
do you call?

- OK, you've done all the clean-up, repairing, plant selection, picking off bugs.....and you **STILL** have a pest problem!
- Fire ants are in the Garden and stinging the kids!
- **Contact your IPM Coordinator!**

Gardening with IPM



Manage pests, Maximize harvest,
Minimize pesticide use!



Choose genetically resistant plant
varieties to reduce pests and disease.



Biological control - the use of one
organism to control another. Beneficial
insects keep the garden in balance.



Environmental and cultural - favorable
for the plant, unfavorable for the pest.



Chemical - the last resort.

Disease/Pest Resistance

1

Choose plant varieties that are adapted to your area and are disease and pest resistant.

2

For specific information on which varieties to plant in your area, contact a local nursery or county extension agent.

3

For more information on plant selection:

- Texas A&M horticulture website <https://aggie-horticulture.tamu.edu/>

Biological Controls/Beneficial Insects

- **NOT ALL PESTS ARE BAD! 97% of insects are beneficial!**
- Pesticides can kill beneficial insects too!
- Did you know that
 - Lady Beetle Eating Aphids is a good thing
 - But Lady Beetles invading your home not so much





By reducing our pesticide use, we allow beneficial insects to help control problem pests.

Work Together, and Let
Nature do her Thing!



BENEFICIAL INSECTS and what they feed on

Milkweed Assassin
Bug

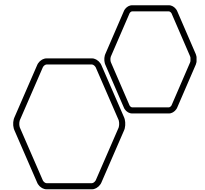
Feeds on: Aphids,
army worms, stink
bugs.





Beneficials that feed on insect eggs and soft bodied insects

- Left - Big Eyed Bug
- Right - Minute Pirate Bug



Most Common Beneficial Insects



- Top: Lacewing Larvae
 - Middle: LadyBird Beetle
 - Bottom: Lady Bug larvae
-
- Feeds on: Aphids, soft-bodied insects, mites, insect eggs, thrips, mealybugs, immature whiteflies, and small caterpillars.

Predators

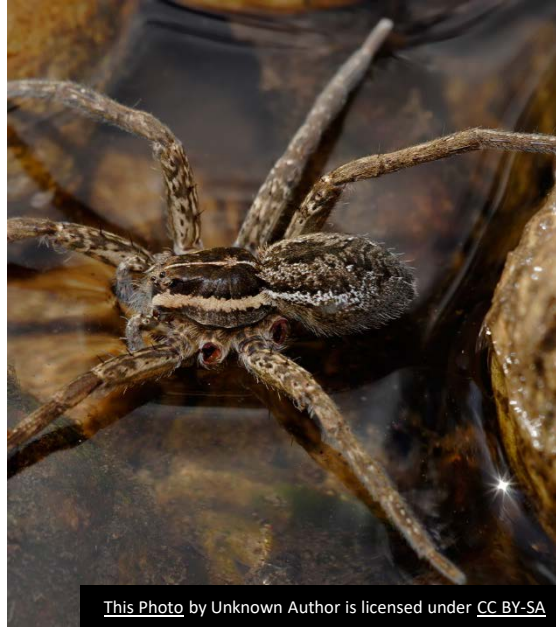
- Parasitic Wasp
 - Feeds on: Caterpillars, Grubs, many other pests
- Preying Mantids
 - Grasshoppers, flies, bees and other insects





Pollinators

- Predatory Wasp
 - Most capable of stinging
 - Collect many types of insects to provision their nests.
 - Some are pollinators
- Honeybees
 - Feed on pollen and nectar.
 - Will only attack when the hive feels threatened



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All Spiders are
beneficial



Ground Beetles

- Feed on many insect species.
- Caterpillars attacked by larger species.





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Environmental/Cultural Healthy Plants Resist Pests

Healthy Soil = Healthy Plants

- **Add Compost:** Organic matter improves drainage, holds moisture in and improves fertility. Makes happy plants!
- **Use Mulch:** 3” of mulch controls weeds, reduces soil temperature, keeps in moisture, and adds nutrients to the soil as it decomposes!
- Pull back mulch from plant bases.

Environmental
/Cultural
Healthy Plants
Resist Pests

- **Water:** Water only as needed. Thick layer of mulch will reduce watering needs.
- **Fertilizer:** Do a **soil test**. Find out what nutrients your soil needs.
- Too high or too low nitrogen can result in weak, slow growing plants, susceptible to disease



Inspection and Detection

- Check your plants daily for pests.
 - Look under the leaves too!
- Look for evidence of gnawing, digging, droppings, etc.
- Watch for ants trailing

Mechanical Controls

Pest Displacement:

- To remove pests that are too numerous or tiny to remove by hand, use high pressure water sprayed directed onto the insect

Birds, Grasshoppers, Large Insects:

- Place row covers/netting over the plants.

Rabbits:

- Fence around the garden.

Snails & Slugs:

- Tack copper strips around the bed to repel the snails.
- Or place a shallow dish of apple cider vinegar for the snails to crawl into.



Mechanical Controls

- **DESTRUCTION:** Remove and dispose heavily infested plants or plant parts. This will reduce spread of the insects or diseases.
- Remove any diseased plant parts that have fallen on the ground.
- Routinely inspect the garden.
- Pick the insects off the plants!
- This will help prevent a larger infestation and damage!

Mechanical Controls



Keep a clean and orderly garden.



Pull weeds as soon as you see them, before they become a problem!



Don't have piles of pots, tools, wood or plant refuse nearby. Mice, rats and ants will set up house!



Don't have snacks, drinks or food in the garden, it will encourage ants and mice!

COMMON PESTS



- Tomato Hook Worm
- Fire Ants
- Squash Bugs
- Aphids
- Grubs
- Grasshoppers
- Rats, Mice
- Birds
- Rabbits

Controlling Pests

Remember.....

- Never bring in cans of bug spray
- Never bring in home remedies
- Even **Organic** pesticides are still pesticides!

**Know your IPM
Coordinator!**

Chemicals/Pesticides



If you cannot manage a pest, contact your IPM Coordinator! This is their job, and they will help you!



Use pesticides only after you have tried everything else listed above!



When pesticides must be used, the IPM Coordinator will work with a licensed pesticide applicator and use the least toxic pesticide.

Chemicals/Pesticides

- **REMEMBER:** A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest.



Happy Gardening The IPM Way!

Keep our Schools Healthy and Safe!

- Manage insects, mice, rats, birds, weeds with fewer pesticides!
- Help our children understand and appreciate what plants need to thrive.
- Teach students how to work **with** nature in our gardens.
- Have fun in the dirt!