





Process for Figgering it out Be a Good Plant Doctor

- **Know your plant**
- **Know your growing conditions**
- **Know your plant's symptoms**
- **Compare symptoms to symptoms of inadequacy of growing conditions and symptoms of critter damage**
- **Once you have the most likely cause(s) identified, determine the best response(s)**
- **If what looks like the best response doesn't work, try the next best**



Case Study

You have a sick plant. How do you determine what's ailing the plant and what's the best thing to do to bring your plant back to good health?



Getting to know your plant

- What is its name?
- What kind of soil does it prefer?
- What kind of light does it like?
- What are its temperature tolerances?
- How much water and how frequently?
- What are its nutritional needs?
- How old is it? What is its life expectancy?
- How long has it been in its current location?
- To what kinds of diseases and predators is it vulnerable?



Planting conditions

- What kind of light? Full sun? Partial or full shade?
- How does it get water? How often? How much? What time of day? Mechanism of water delivery?
- How have you fertilized it? Fertilizer formula? How often? How much?
- What's the weather been like? How cold/hot? Precipitation? Humidity? Wind? Hail? Microclimate considerations; e.g., hardscape, wind protection?

Planting conditions – cont.

- **Soil characteristics; sand/silt/loam/clay? Drainage characteristics? What is the organic content? Chemical constituents; e.g., PKN, other nutrients, salt, pH?**
- **Presence/absence of mulch? Type of mulch?**
- **Other plants around? Good companions?**
- **Critter exposures? What kinds of insects, spiders, rodents, deer, etc. are in the area?**

Quick & Easy Soil Test

Soil Texturing in a Quart Jar (Soil Hydrometer Test)

Place one inch of dry, crushed soil in a tall quart (Mason) jar. Fill the jar 2/3 full with water and add one teaspoon of a dispersing agent such as Calgon or table salt (sandy soils will not require the dispersing agent). Shake the jar thoroughly (clay samples require more shaking) and then let the contents settle. Sand will settle to the bottom in about one minute. Measure the depth of that layer. Silt will settle in three to four hours. You should see a color and size difference between the sand and silt layers. If not, measure the depth of both layers and subtract the sand depth from the total to determine the silt depth. The clay takes days to settle. Determine its depth in the same way as for the silt. Some of the smallest clay particles may remain permanently in suspension and will not settle out. Measure the depth of each layer of soil particles; you can then figure the percentage of sand, silt, and clay in your soil. For example, if you have a 1/2 inch deep layer of sand on the bottom and the overall depth of the soil is one inch, then your soil has about 50 percent sand. The stuff floating on the top is organic matter. You can use the SDA International Soil Textural Triangle to determine your exact soil type.

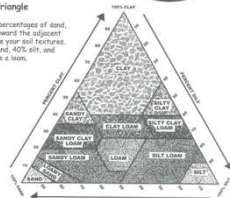
Materials

- Soil
- Soil
- Quart jar
- Water
- Calgon or salt (optional)



Reading the Textural Triangle

Once you have determined the percentages of sand, silt, and clay, follow the lines toward the adjacent side of the triangle to determine your soil texture. For example, if you have 50% sand, 40% silt, and 10% clay, your soil type would be a loam.



Field Guide to Utah Agriculture in the Classroom, www.agclassroom.org/ut

Common Wyo plant critters . . .

Aphids:



Common Wyo plant critters . . .

Grey garden slug:



Common Wyo plant critters . . .

Earwig:



Common Wyo plant critters . . .

Tomato Hornworm & moth:



Common Wyo plant critters . . .

White moth & caterpillar:



Common Wyo plant critters . . .

White flies:



Common Wyo plant critters . . .

Grasshoppers:



Common Wyo plant critters . . .

Leaf cutter bee:



Common Wyo plant critters . . .

Thrips:



Common Wyo plant critters . . .

Spider mites:



Common Wyo plant critters . . .

Praying mantis:



Common Wyo plant critters . . .

Mealy bugs:



Common Wyo plant critters . . .

Ladybugs & Larvae:



Common Wyo plant critters . . .

Lacewing & Larvae:



Common Wyo plant critters . . .

Oystershell
scale:



Common Wyo plant critters . . .

Others:



Characterize the symptoms

- What part of the plant is damaged? Leaves, stem, bark, flowers, buds?
- What does the damage look like?
 - discoloration
 - boreholes
 - cracks
 - leaf wilting, dryness, curling, misshapen
 - chew marks
 - rotting spots on fruit
 - blossom drop
 - bud damage

Compare plant preferences to what plant is getting

Condition	Plant likes	Plant is getting
Light	Full sun	Shade
Water	Xeric – light monthly watering	Daily water
Soil	Lean well draining	Clay loam
Fertilizer	1 x per season 1-2-1	10-10-10 weekly
Temperature	Hardy to -5° F	-25° F

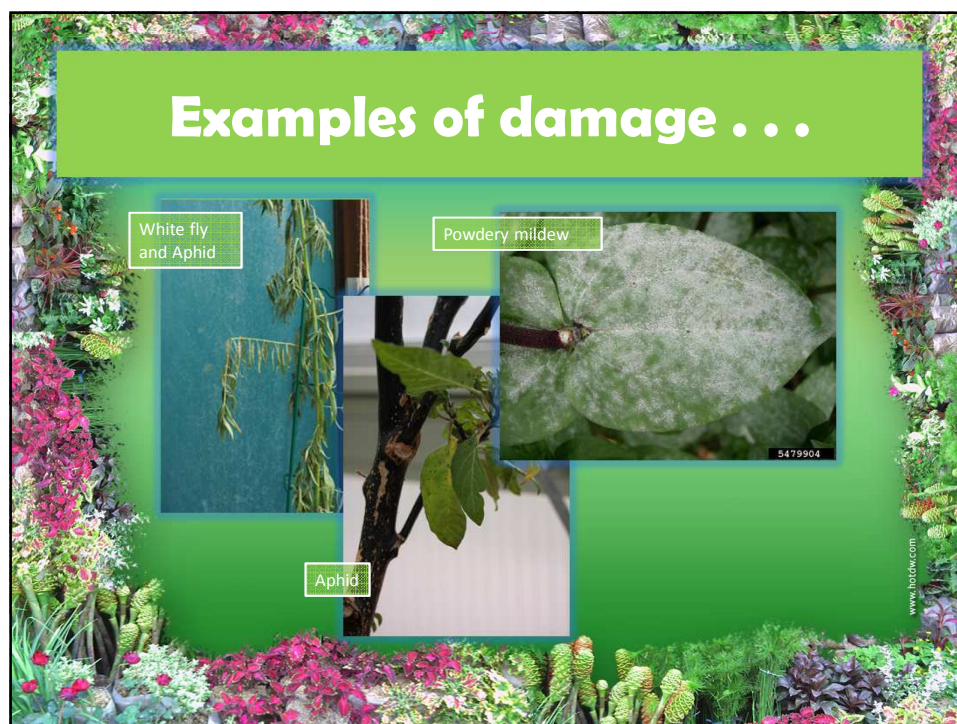
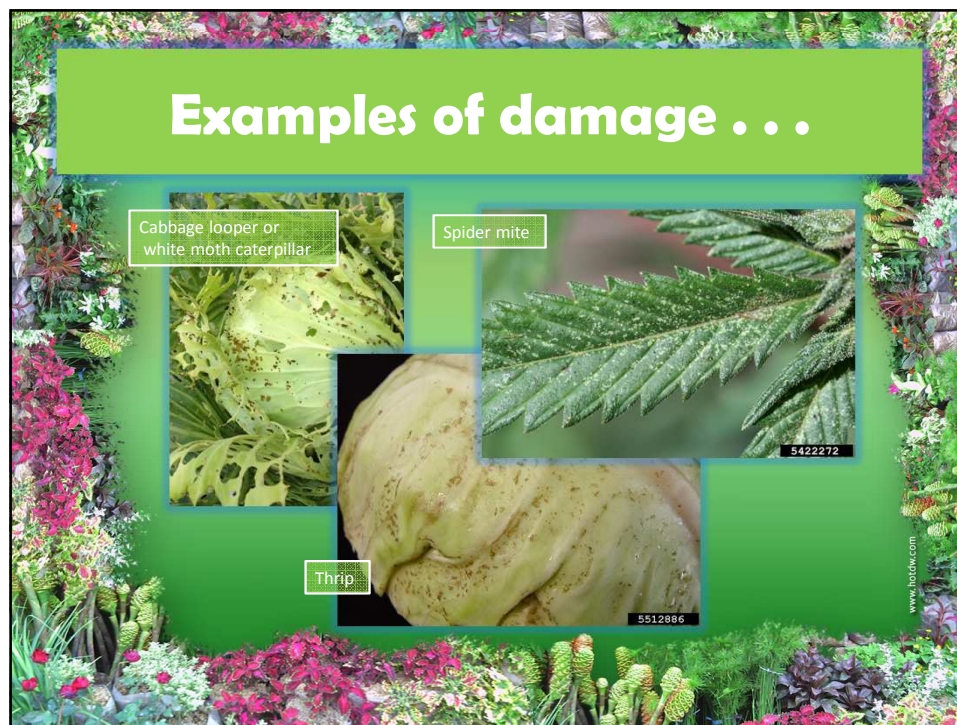
Good chance the problem with this plant is likely NOT an insect infestation. Give it the growing conditions it needs.

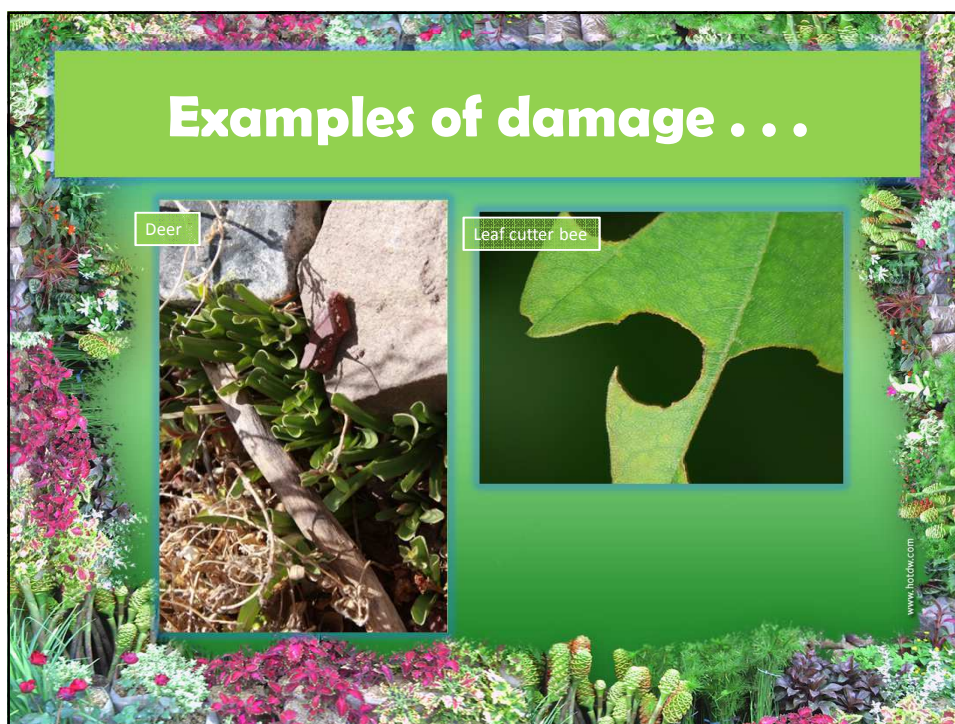
Compare symptoms

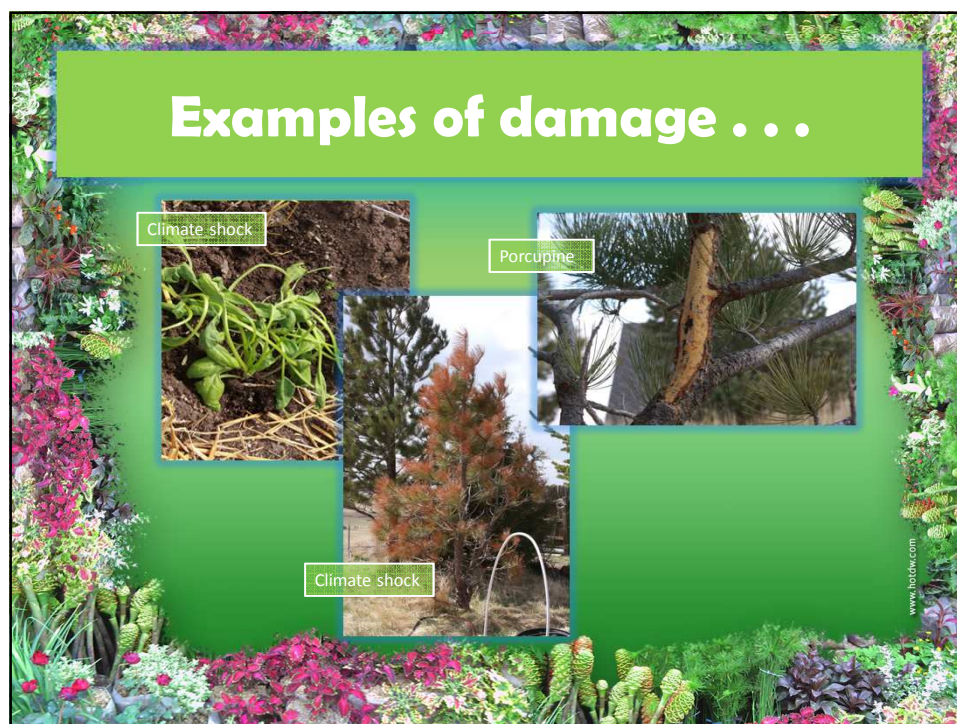
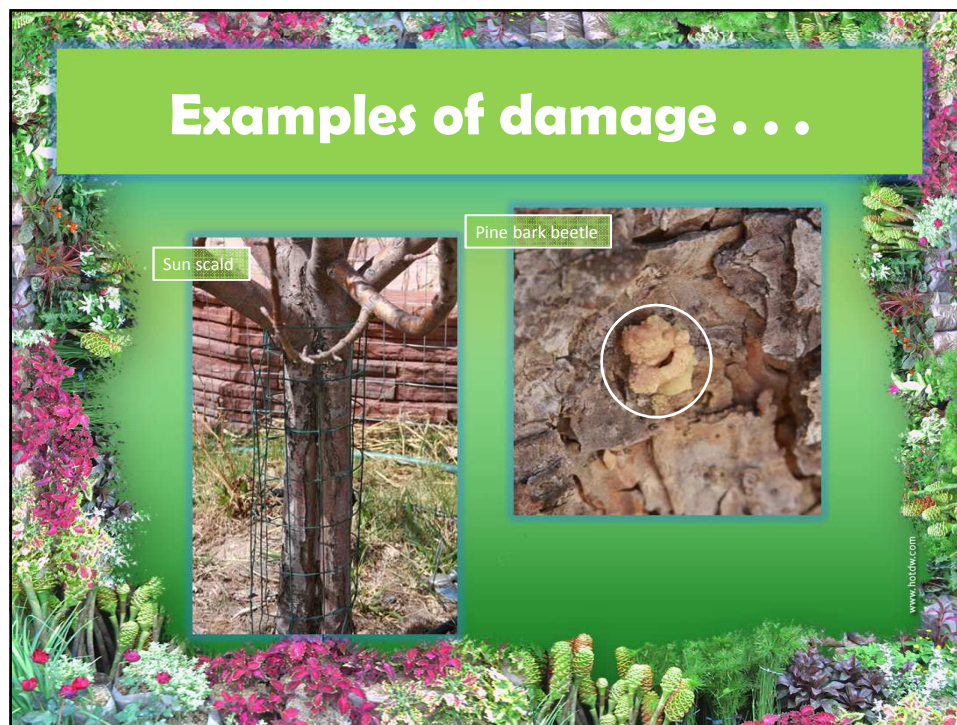
- **Compare plant symptoms to understanding of symptoms of:**
 - inadequate or inappropriate care;
 - insect, arachnid or other animal damage;
 - evidence of viral, bacterial or fungal infections
- **Based on**
 - what you know about your plant,
 - what you know about how it's being cared for,
 - the symptoms of disease/damage,**what is the most likely cause or causes?**

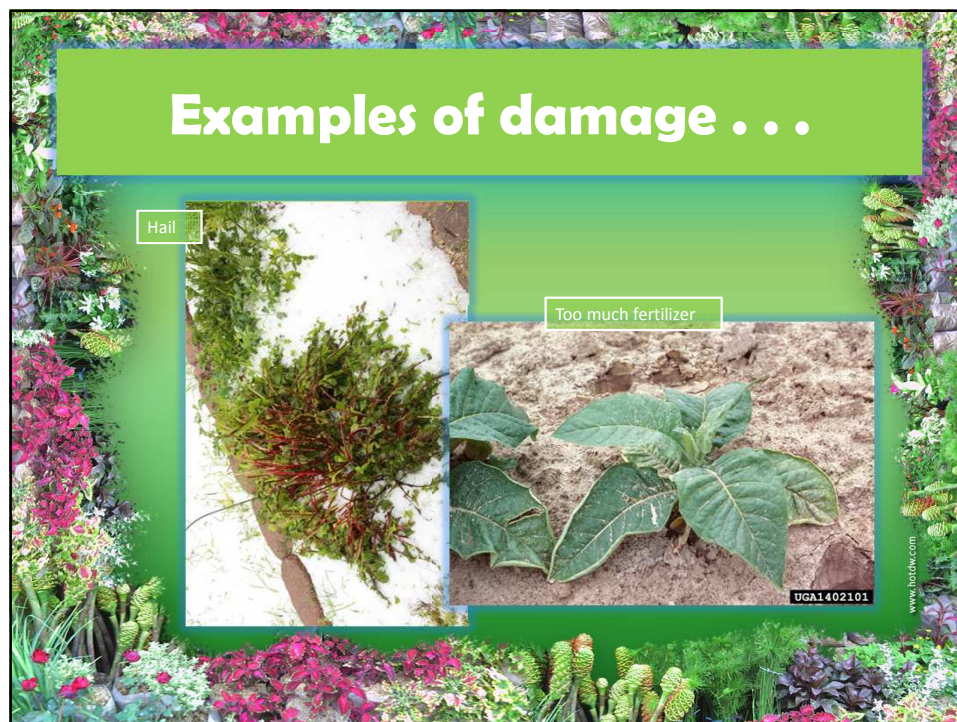
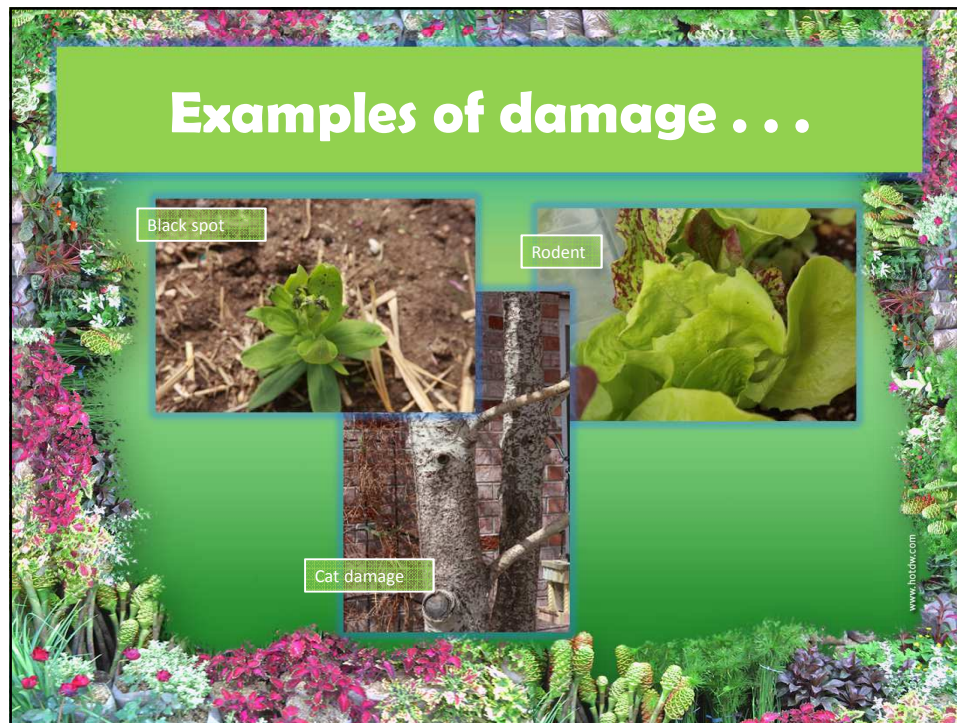
Evaluate

If it looks like the symptoms the plant is displaying might be a result of the plant's needs for light, water, temperature or nutrition not being met? If so, address the care inadequacies. Getting your plant healthy will help it defend itself from predators.









ID Potential Remedies

- **Adjust water – increase or decrease, change frequency and/or length of watering, change application method**
- **Adjust fertilizer – change formula, frequency and/or dose**
- **Amend soil – add peat moss, sand/pea gravel, compost, mulch**
- **Move plant – change light, soil, wind exposure, temperature extremes**

ID Potential Remedies – cont.

- **Address critters that might be impacting the plant.**
 - Provide physical controls such as:**
 - » **horticultural fabric;**
 - » **Screens;**
 - » **Fencing;**
 - » **Oils;**
 - » **Surround (bentonite)**



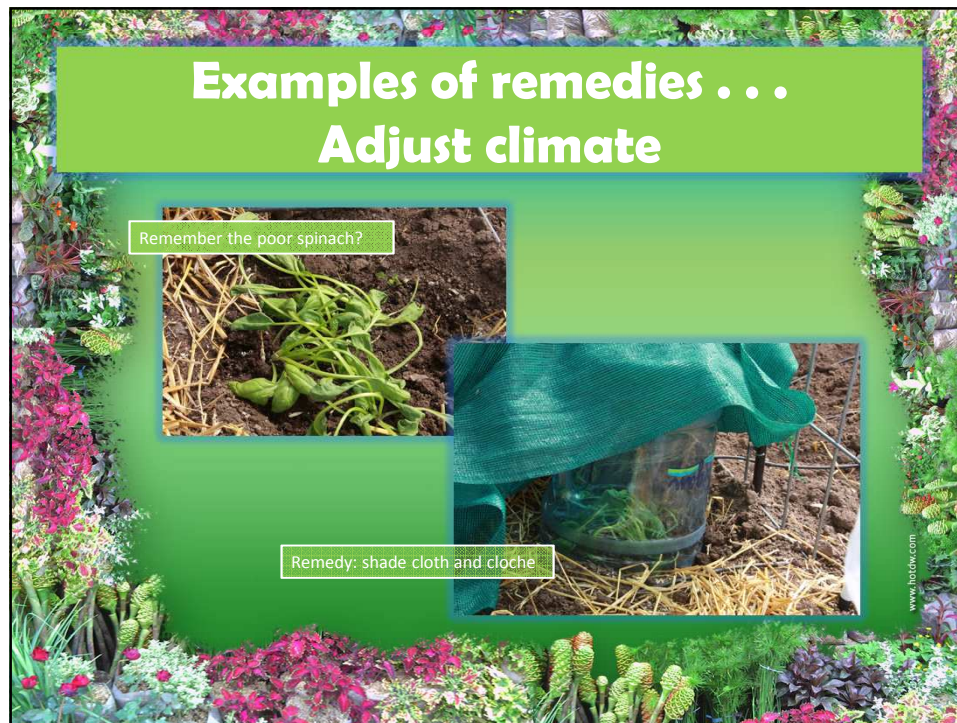
ID Potential Remedies – cont.

- **Address critters that might be impacting the plant (continued).**
 - **Biological controls – examples include:**
 - » **insects;**
 - » **Bt;**
 - » **Nematodes;**
 - » **trap crops**



ID Potential Remedies – cont.

- **Address critters that might be impacting the plant (continued).**
 - **Chemical controls - pesticides**
 - » **Organic – Neem oil, Pyrethrin, insecticidal soap**
 - » **Not so organic – Imidacloprid (systemic), Sevin (carbaryl)**
 - **Other kinds of controls - isolation, coffee grounds, diatomaceous earth, beer, water spray**



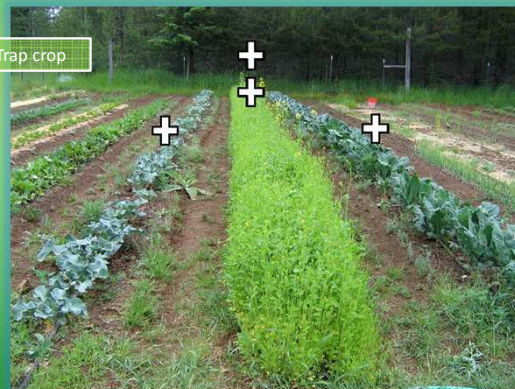
Examples of remedies . . . Physical controls

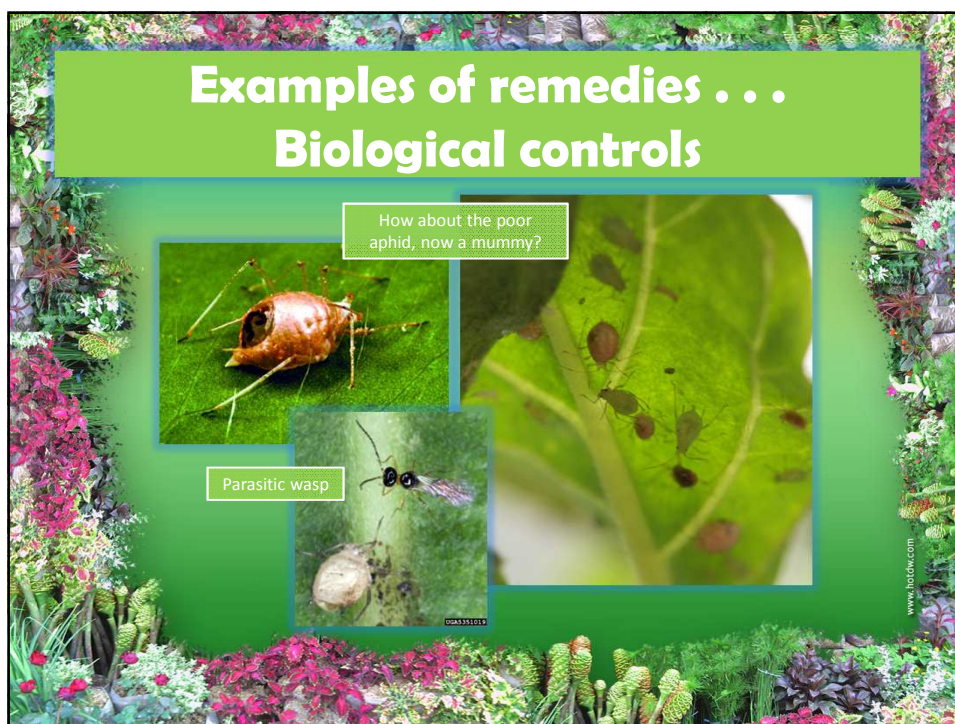
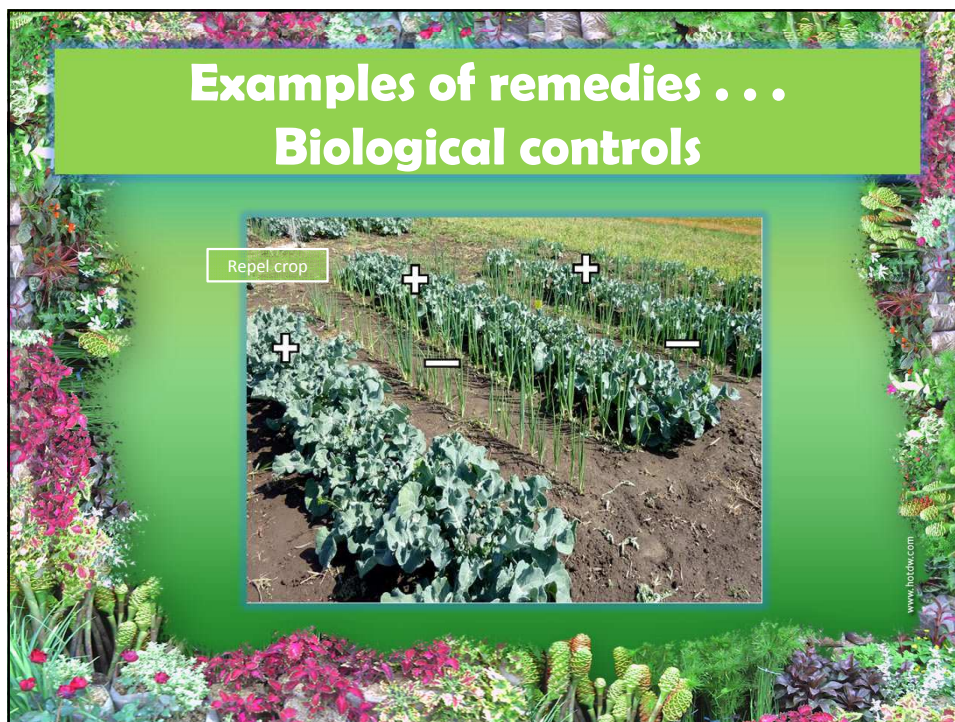
Horticultural fabric



Examples of remedies . . . Biological controls

Trap crop







On a last note . . .

- **It is always best to weigh the pros and cons of any course of treatment.**
- **If you do your best to provide optimum growing conditions for you plants, they will likely survive insect onslaughts.**
- **Sometimes makes more sense to tolerate the aesthetic impairments resulting from insects feasting on plants than to put pollinators and yourself at risk by using pesticides.**
- **Please weigh the pros and cons before you resort to pesticide application.**



Thank you!!

**Laramie County Master
Gardeners**

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