



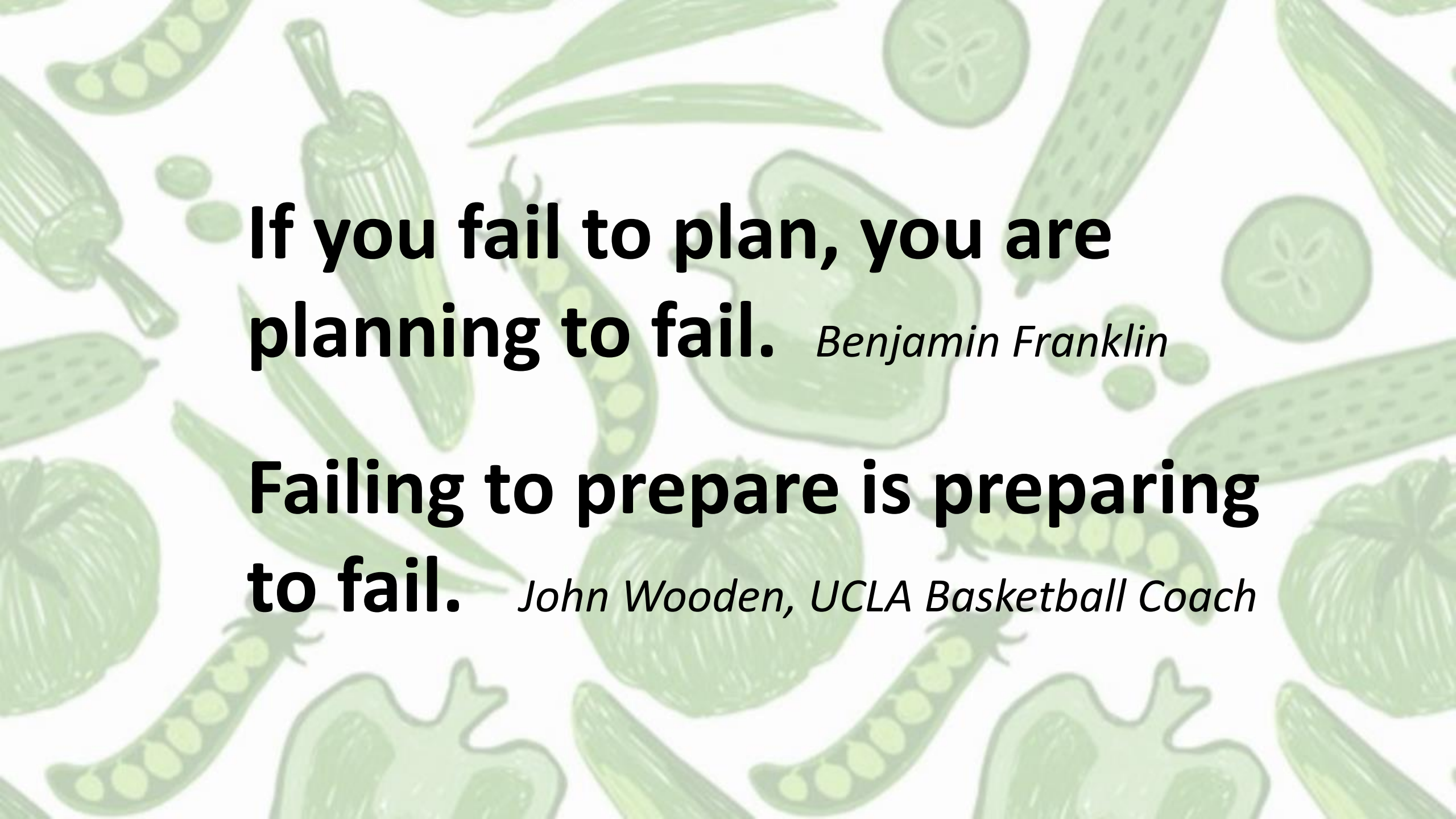
# Module 11:

# Plant Disease – The Disease Triangle and Management



LSU AgCenter Home Gardening Certificate Course

Dr. Joe Willis, Dr. Paula Barton-Willis, Anna Timmerman & Chris Dunaway



**If you fail to plan, you are  
planning to fail.** *Benjamin Franklin*

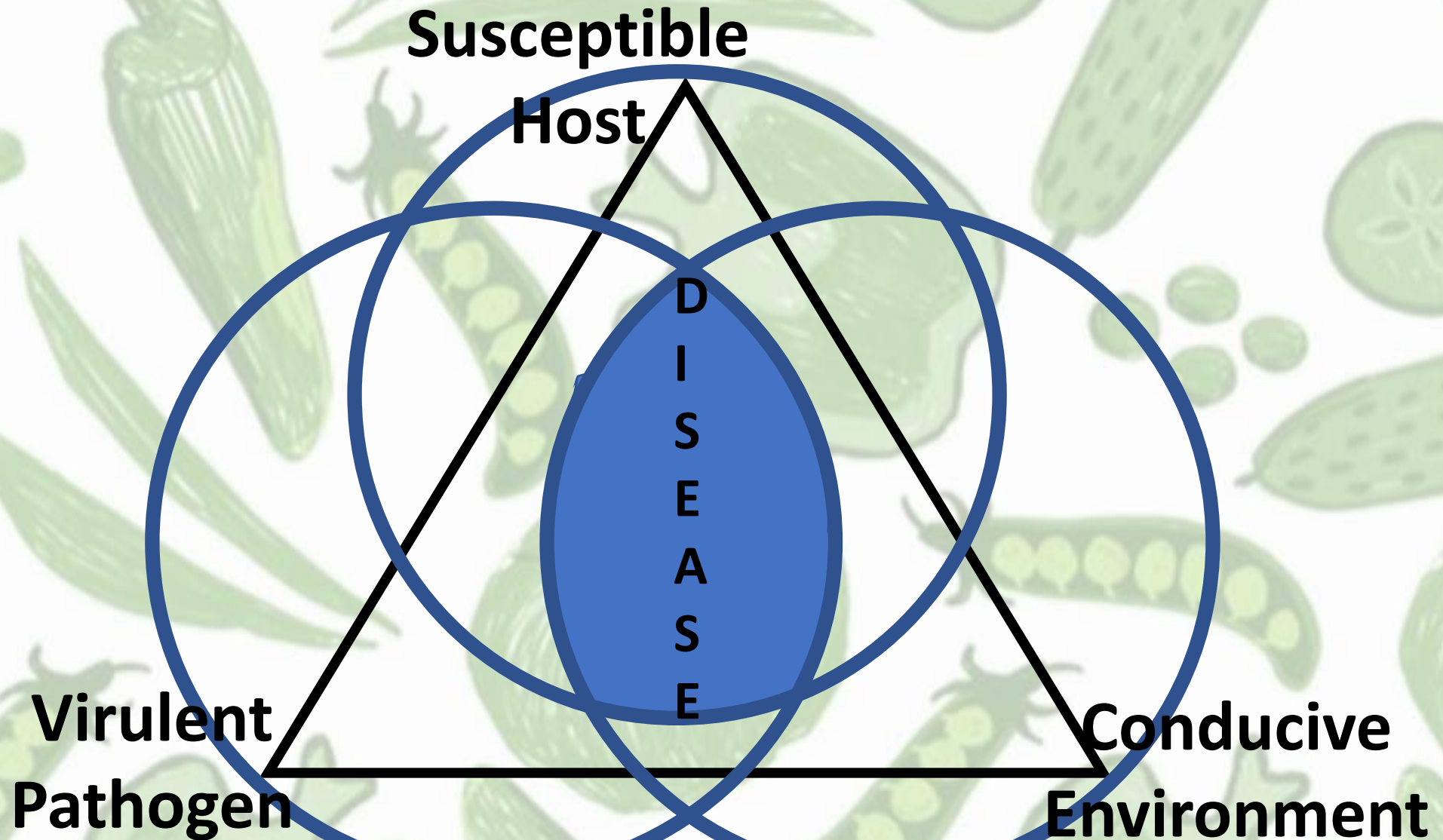
**Failing to prepare is preparing  
to fail.** *John Wooden, UCLA Basketball Coach*



A garden requires patient labor and attention. Plants do not grow merely to satisfy ambitions or to fulfill good intentions. They thrive because someone expended effort on them.

— Liberty Hyde Bailey (American horticulturist and botanist who was cofounder of the American Society for Horticultural Science)

# Plant Disease Triangle



# Breaking the Environmental Link

## Air Temperature?

- Planting time (Plant crops in season)
- Planting location (Next to a building, Sun - how much and when)

# Breaking the Environmental Link

## Soil Temperature?

- Planting time (Warm spring, Hot summer, Mild fall, Cool winter)
- Planting location (Sun – how much and when, Roots shady or sunny)
- Mulch (How much and what kind (color))

# Breaking the Environmental Link

## Rainfall?

- Planting location  
(Any shielding or overhangs)
- Moveable containers

# Breaking the Environmental Link

## **Relative Humidity?**

- Planting density (Microclimates)
- Planting location (Airflow barriers)
- Irrigation (Time of day)

# Breaking the Environmental Link

## **Soil Moisture?**

- Irrigation (Amount, Frequency, Time of day)
- Mulch (Depth, Type)
- Organic matter

# Breaking the Environmental Link

## Soil Moisture?

- Gardening method (in-ground, raised beds, containers)
- Drainage

# Breaking the Environmental Link

## Soil Type?

- Soil Amendments (Sand, Organic Matter, Clay)
- Use of potting mix or topsoil

# Breaking the Environmental Link

The background of the slide is a repeating pattern of various green vegetables, including okra, pea pods, tomatoes, and cucumbers, rendered in a light green, sketchy style.

## Soil pH?

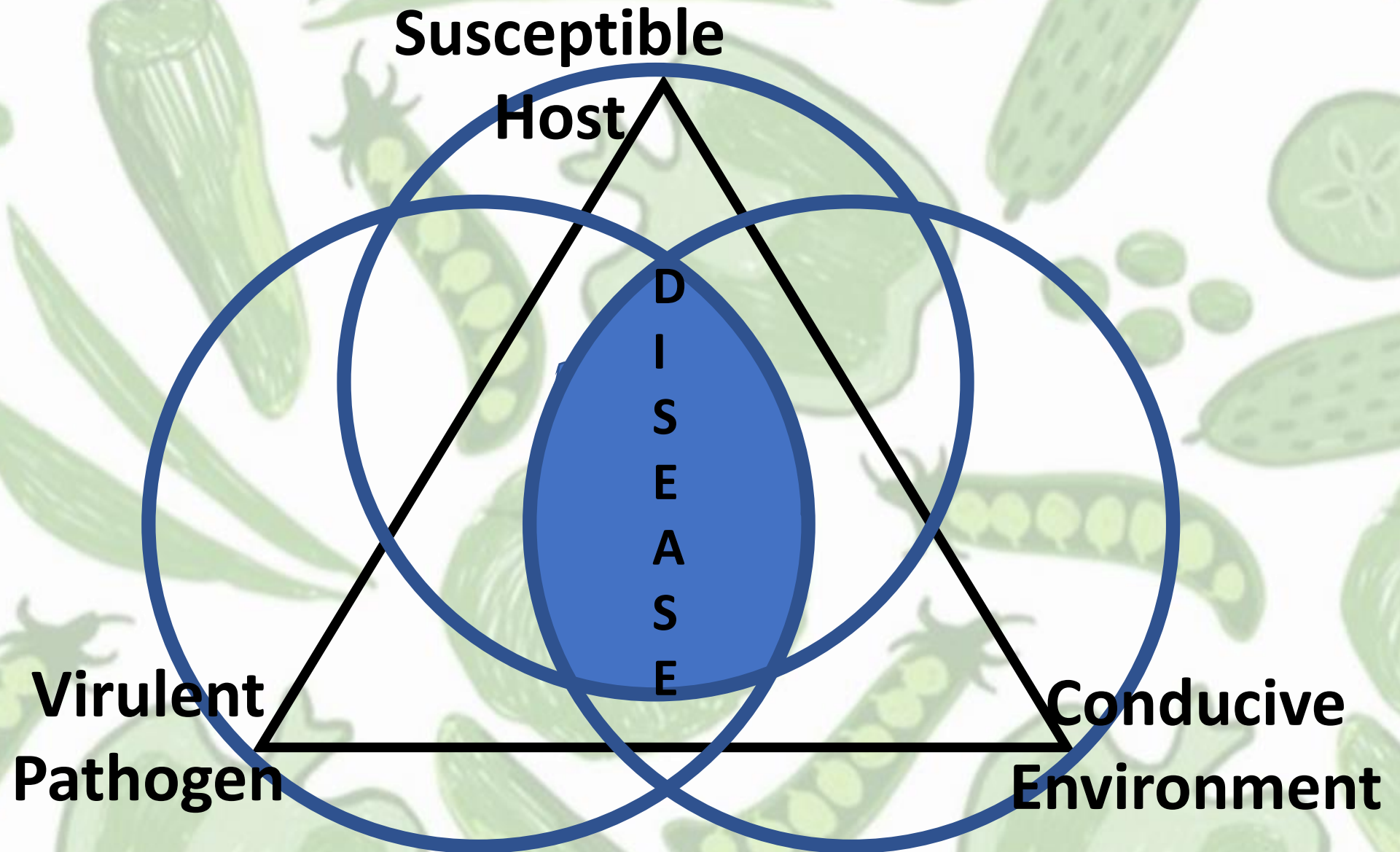
- Lime
- Sulfur

# Breaking the Environmental Link

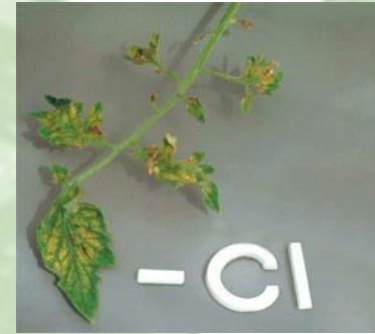
## Soil Fertility & Health?

- Organic matter (Compost, Manures)
- Fertilizer (Organic, Chemical)
- pH (Nutrient availability)
- Soil Aeration

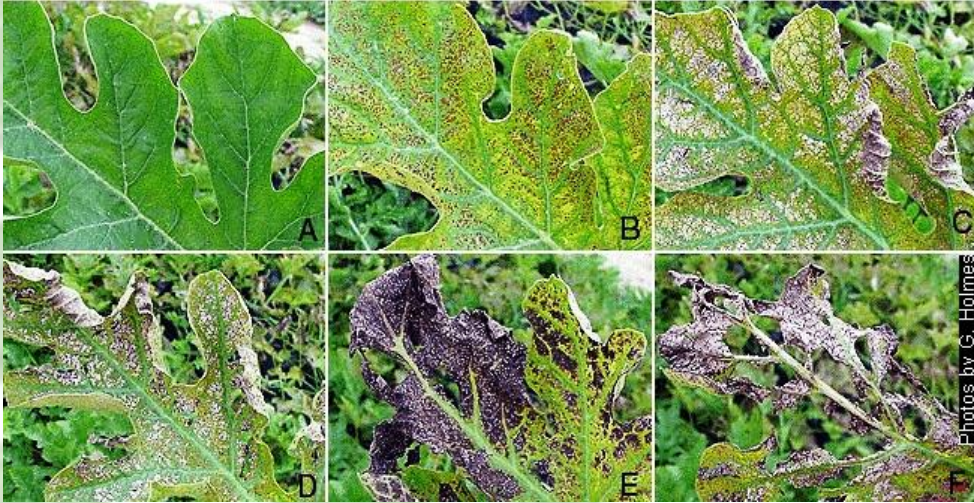
# Plant Disease Triangle



# Breaking the Pathogen Link



# Breaking the Pathogen Link



Air Pollution



Sun & Heat



Cold



Herbicide

# Breaking the Pathogen Link

**Virulent Pathogen: Fungi, fungal-like organisms, bacteria, phytoplasmas, viruses, viroids, nematodes and parasitic higher plants are all plant pathogens.**

- Remove plant debris (keep it clean under and around your plants)
- Remove diseased plant parts and diseased plants

# Breaking the Pathogen Link

- Control Insects (possible vectors)
- Control Weeds (harbor disease and insects, vectors)

# Breaking the Pathogen Link

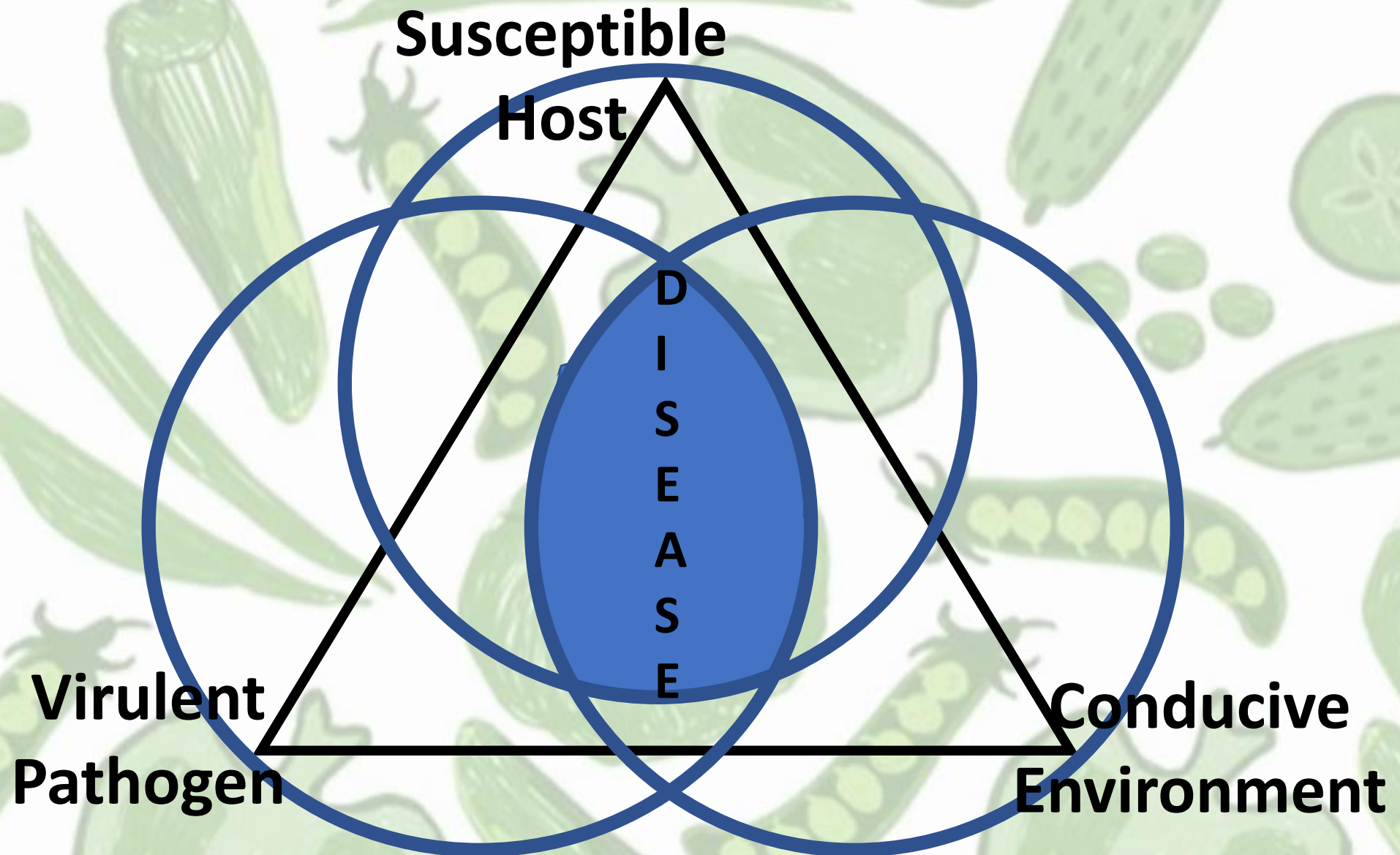
The background of the slide is a repeating pattern of various green vegetables, including okra, tomatoes, and pea pods, rendered in a light green, sketchy style.

- Crop rotation
- Soil solarization
- Mulch - to prevent splattering (Plastic, Straw)

# Breaking the Pathogen Link

- Irrigation – type, timing (fungal spores need water for 2 hours) What part of the plant needs water?
- Sanitation – Tools, Clothing, Shoes

# Plant Disease Triangle





**What Does A Healthy  
Plant  
Look Like!!**

# Breaking the Host Link

The background of the slide is a repeating pattern of various green vegetables, including pea pods, corn cobs, tomatoes, and leafy greens, rendered in a light green, sketchy style.

- Crop Rotation – Rotate crop families at least every other season
- Fallow Ground – Allow the ground to remain fallow for a season

# Breaking the Host Link

- Grow Resistant Cultivars
- Use Disease-Free Seed
- Use Grafted Plants – Tomatoes, Eggplants, Peppers, Squash, Cucumbers, Melons



Please post all your questions and results to the message board that was emailed to you.

<https://www.facebook.com/groups/538153443545779/>