

What is Wrong with my plant?

Top-10 problems diagnosed



Presented by Matthew DeBacco



Way to go Canada!

http://www.bigpumpkins.com/Gallery/GalleryImg/IMG_0394.JPG



<http://www.bigpumpkins.com/Gallery/GalleryImg/wrsqash2.jpg>

- WR Pumpkin
- WR Squash
- WR field pumpkin
- #2 in the world Long Gourd
- #4 in world Tomato





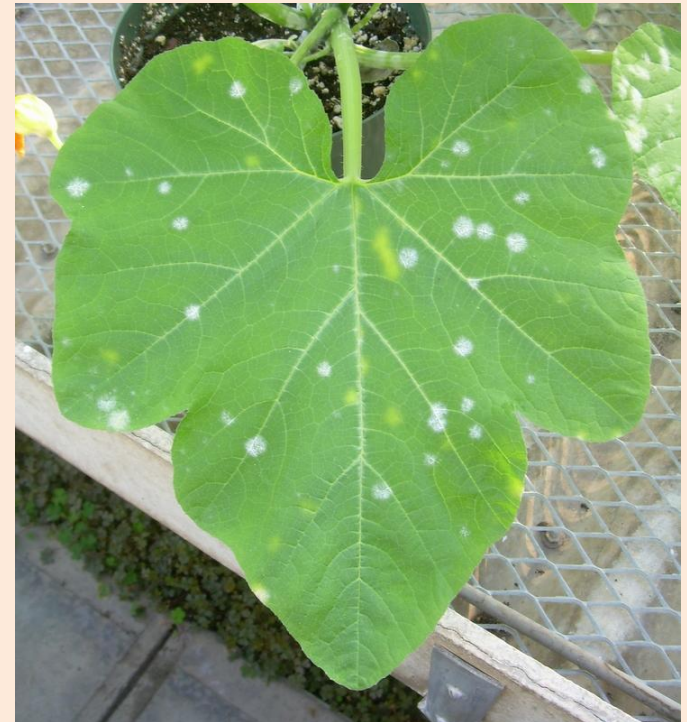
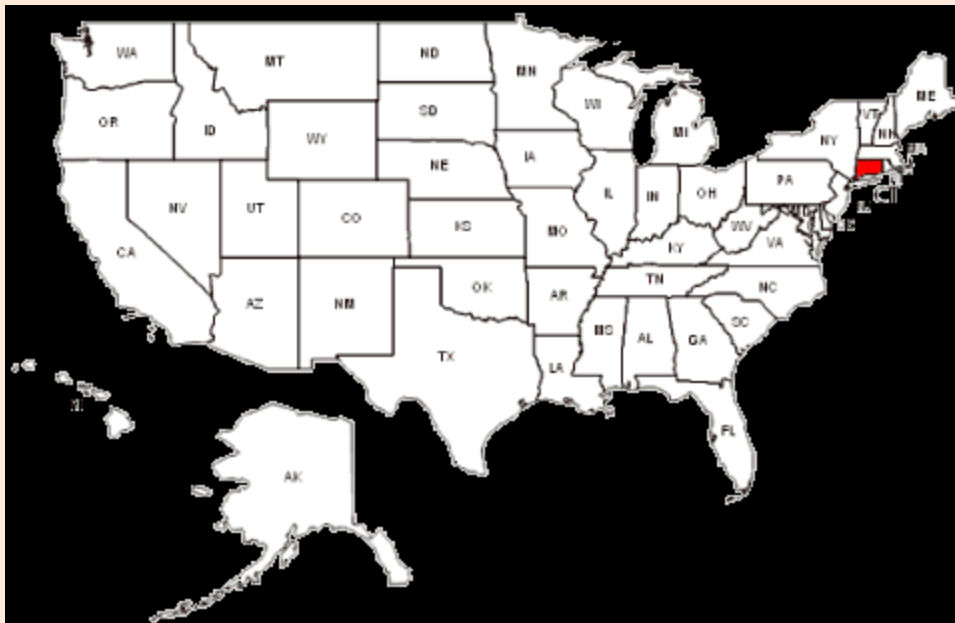
Disclaimer:



- Following diagnosis's were provided mainly based on visual observations
- Intention of this collection is to provide a growers guide to what you might see in the field
- Consult your local area rules & regulations to make sure you are in compliance with the law with any product you use.

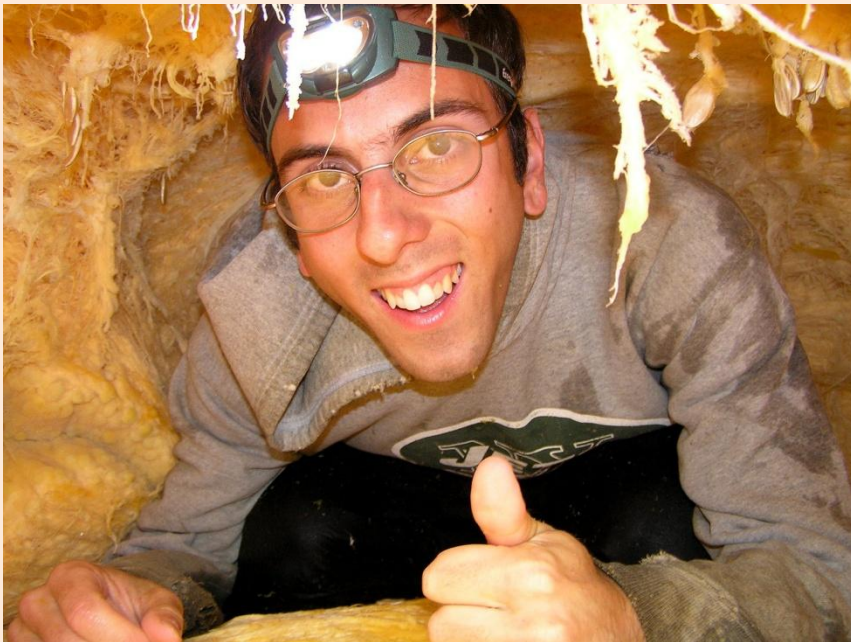
My Background

- From Southern New England (Connecticut)
- Have my Masters in Agronomy
 - (study of growing field crops)



My Background

- Have grown pumpkins for the last 12 years
 - Grew Connecticut State Record in 2008
- Founding member of “Team-Pumpkin”
- Have been growing giant pumpkins continuously for the last **1,053 days** (and counting...)
 - 1st to mass disperse pumpkin clones



The normal or 'ideal'



Key points to remember

- Monitor
- Watch for changes
- Determine:
 - Date of occurrence
 - Rate of spread
 - Recent cultural practices
 - Weather conditions



#10



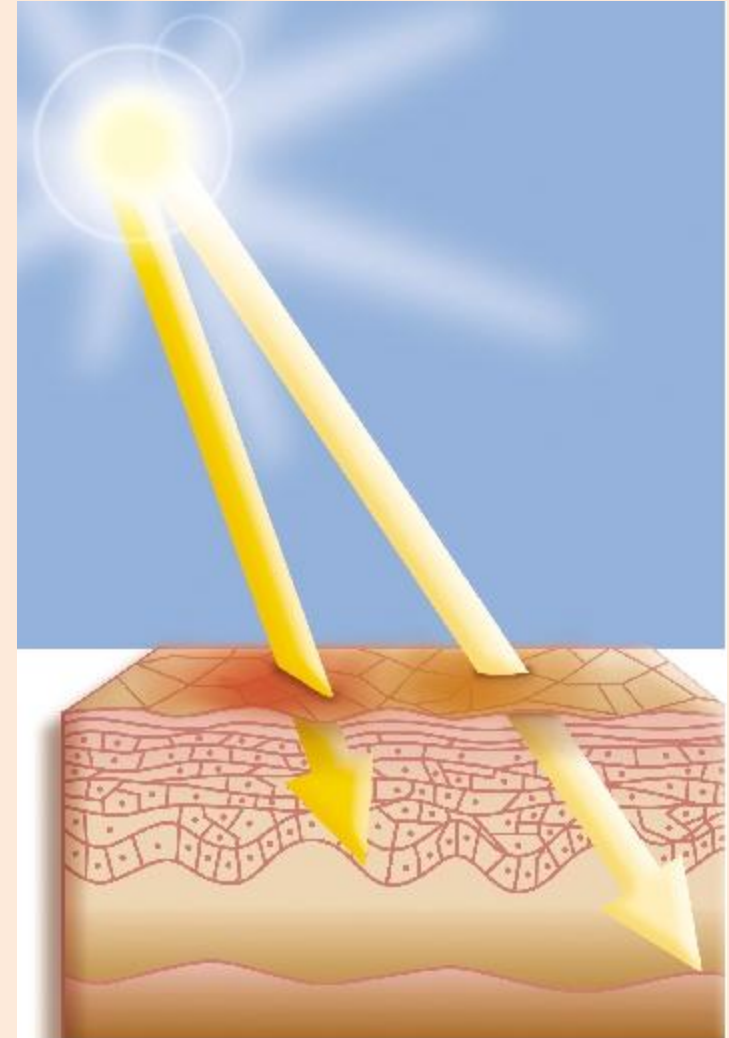
#10

Sunburn



Sunburn Cause

- Results from leaves getting too hot due to insufficient transpiration resulting in a scorching
- Note: Some plants are more sensitive than others to this condition



Sunburn

What to look for

- Typically occurs in summer especially early in the season when plants are still actively growing
- Can occur with variable degrees of severity on specific plants even if conditions are the same in the field.

Molybdenum Deficiency



Sunburn

How to prevent

- Applying water in some way to the leaves during the heat of the day can help lessen the severity of this problem
- Impact sprinklers, misters, or even shade cloth can be used to attempt to control this problem



<http://www.bigpumpkins.com/DiaryImages/FullSize/86536.jpg>



<http://images.sodahead.com/profiles/0/0/2/0/1/0/6/6/1/Would-you-rather-have-three-arms-or-one-leg-46809605527.jpeg>

#9



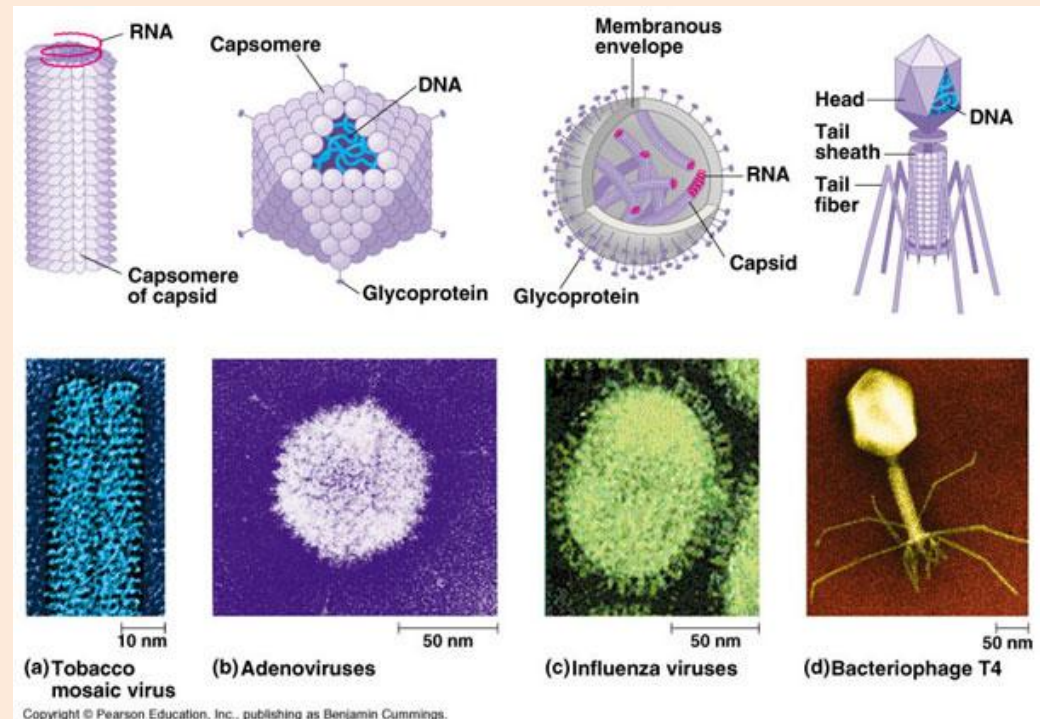
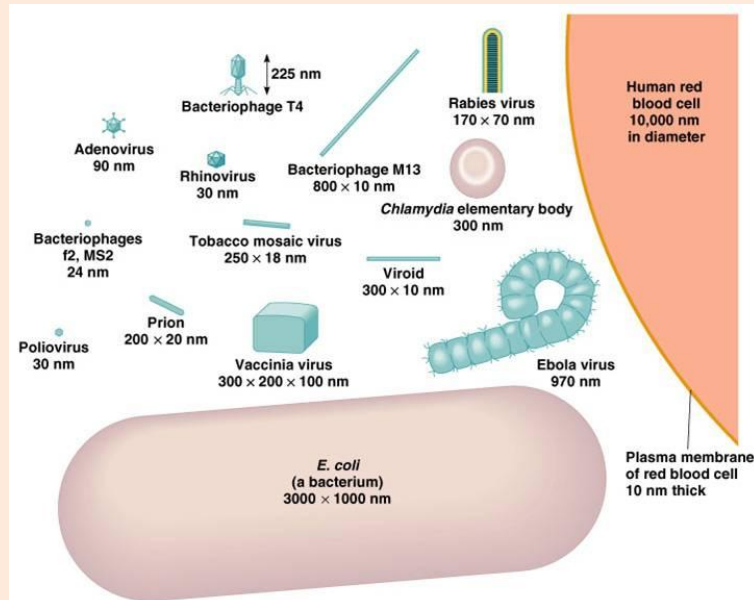
#9

Virus



Virus Cause

- Virus are nonliving particles that are a piece of nucleic acid wrapped in a protein shell (capsid)
- In short they alter the expression of DNA in the plant cells



Virus

What to look for

- Can produce two different looks
 - 1.) normal shaped leaves but mottled coloration
 - 2.) distorted leaves that often also have irregular coloration
- Also lead to malformed fruits and poor fruit sets



Virus

How to prevent

- There is no cure
- Prevention of the insect vectors (ex. Aphids) is important



#8

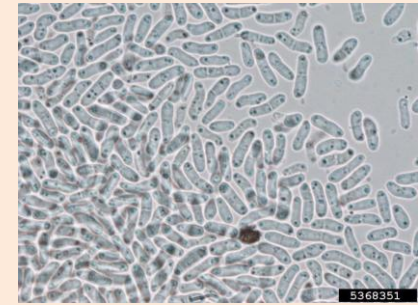


#8

Gummy Stem



Gummy Stem Cause



- A plant that has powdery mildew can predispose it to gummy stem
- Needs moisture to germinate
- Optimum temperature is 16-24°C (61-75°F)
 - Low night time temperatures may result in water droplets excreted from leaves to provide moisture



Gummy Stem

What to look for

- Look beyond the stems
- Small brown lesion will expand
- If holes in leaves develop as the necrotic lesions develop
- (Powdery Mildew)



Gummy Stem

How to prevent

- Prevention of powdery mildew



#7



#7

Yellow Vine Disease



Yellow Vine Disease

Cause

- Bacterial disease
- Spread by squash bugs
- New disease (increasing problem)



Yellow Vine Disease

What to look for

- Yellowing of leaves that spreads through entire plant
- May be related to pumpkin abortions in some cases



Yellow Vine Disease

How to prevent

- Can not control actual disease focus on insect vectors that can potentially carry the disease



#6



#6

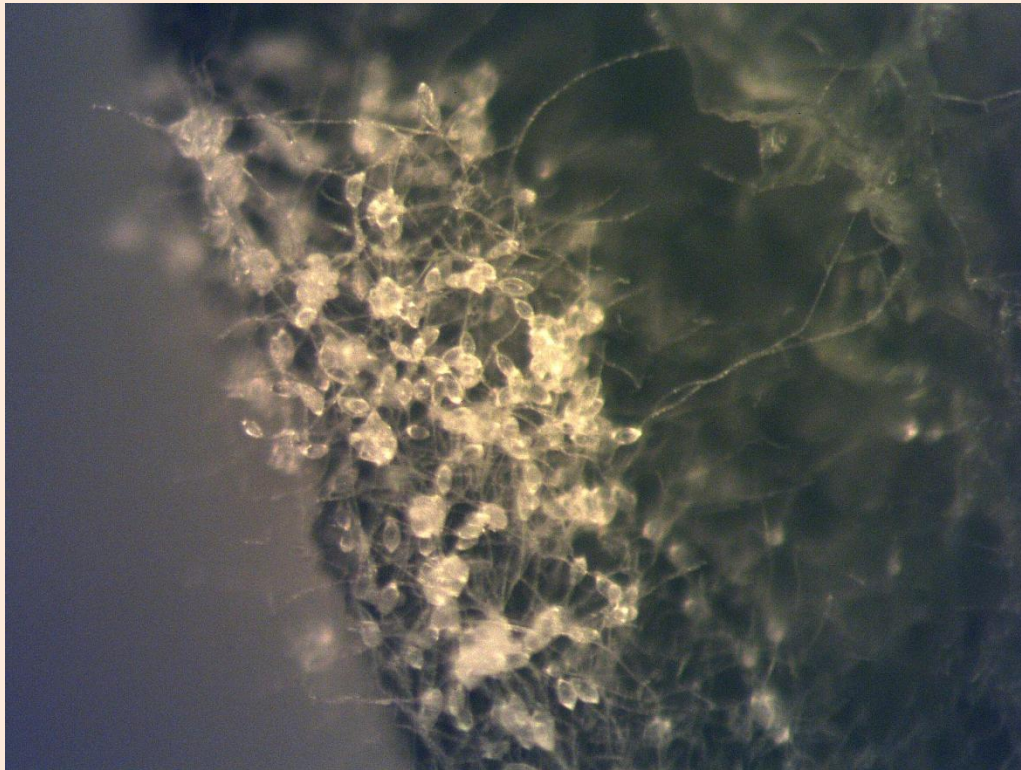
Phytophthora



Phytophthora

Cause

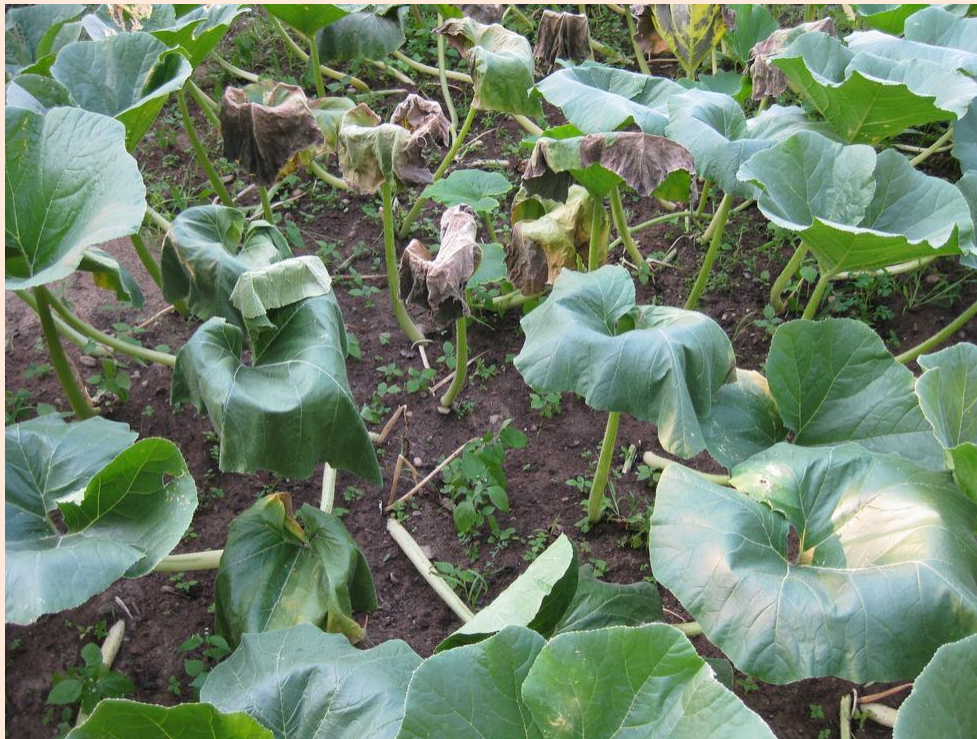
- Sporangium (short-lived spores) can swim in water and spread quickly



Phytophthora

What to look for

- Very quick acting (hours)
- Leaves become wilted and 'burned', but the leaf stalks remain intact



Phytophthora

How to prevent

- If seen cut and remove portion infected as soon as possible
- I have stopped the progression by this method but it is not easy.
- Plant stress can also sometime increase odds



#5

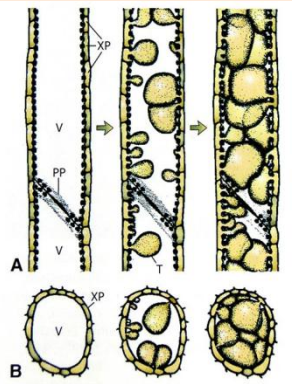
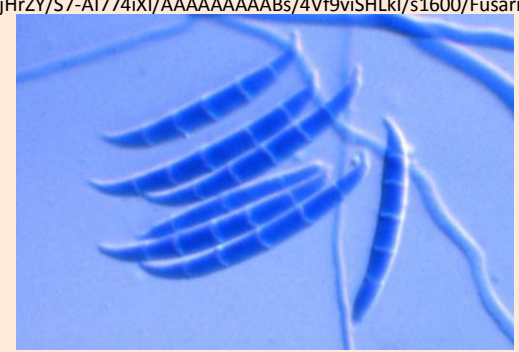


#5

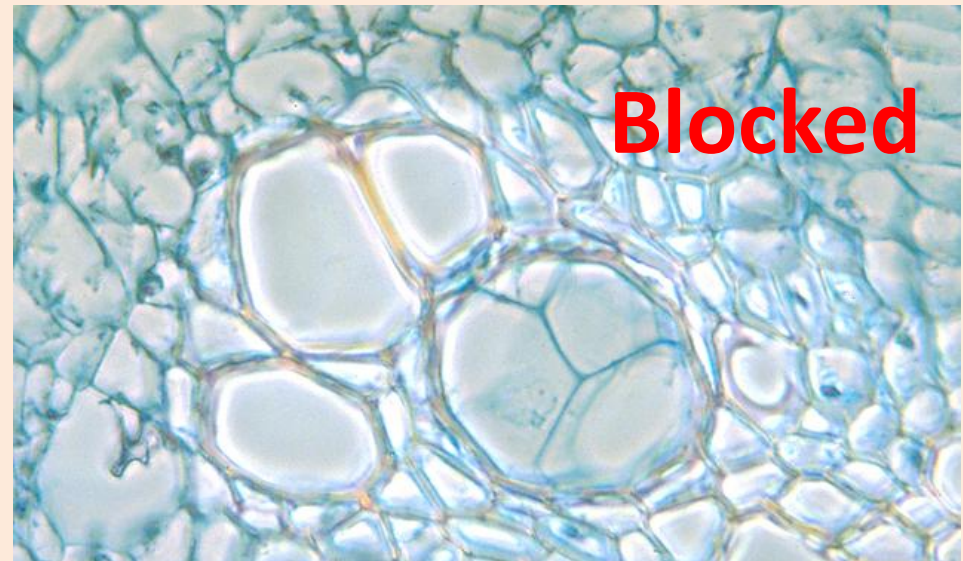
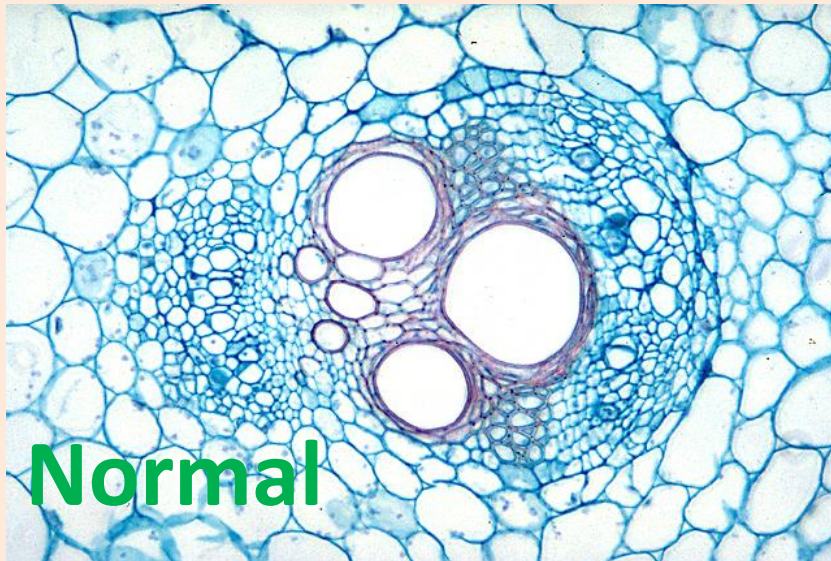
Fusarium



Fusarium Cause



- Fungus penetrates and grows within the xylem
- Wilting occurs as a result of the formation of tyloses within the xylem by the host.
 - Tyloses are ‘balloon-like’ blockages in the vessel



Fusarium

What to look for

- Brown or tan discoloration in the vines
- Tends to be more common on fields that have had cucurbits growing on them for 4+ years
- If plant is wilting inspect vines



Fusarium

How to prevent

- Practice crop rotations when possible
- If Fusarium problems are noticed pull plants early to reduce future pressure on the site



#4



#4

Downy Mildew



Downy Mildew

Cause

- Can germinate and infect the leaf with-in ONE hour!
- Can produce more inoculum with-in 4 days
- If temperatures rise above 30°C (85°F) during the day disease progress may slow or stop during these conditions.



Different strains have varying virulence's and hosts ranges

Host Pathotype (strain)						
Host	Pathotype (strain)					
	1	2	3	4	5	6*
Cucumber	+	+	+	+	+	
Cantaloupe	-	+	+	+	+	+
Sweet Melon	-	+	+	+	+	
Sour Melon	-	-	+	+	+	
Water Melon	-	-	-	+	+	-
Pumpkin and Squash	-	-	-	-	+	+



* 6th pathotype identified in Israel in 2003

+ indicates infection and disease

- indicates no or very little disease

(modified from Compendium of Cucurbit Diseases, APS Press, St. Paul MN)

Downy Mildew

What to look for

- Occurs quickly (days) but effected by weather
 - not as fast as phytophthora and has different symptoms
- I have seen it defoliate plants in 7-10 days



Downy Mildew

How to prevent

- Not much you can do
- In the greenhouse using blue polyethylene sheets to filter light has been shown to decrease spore production



#3



#3

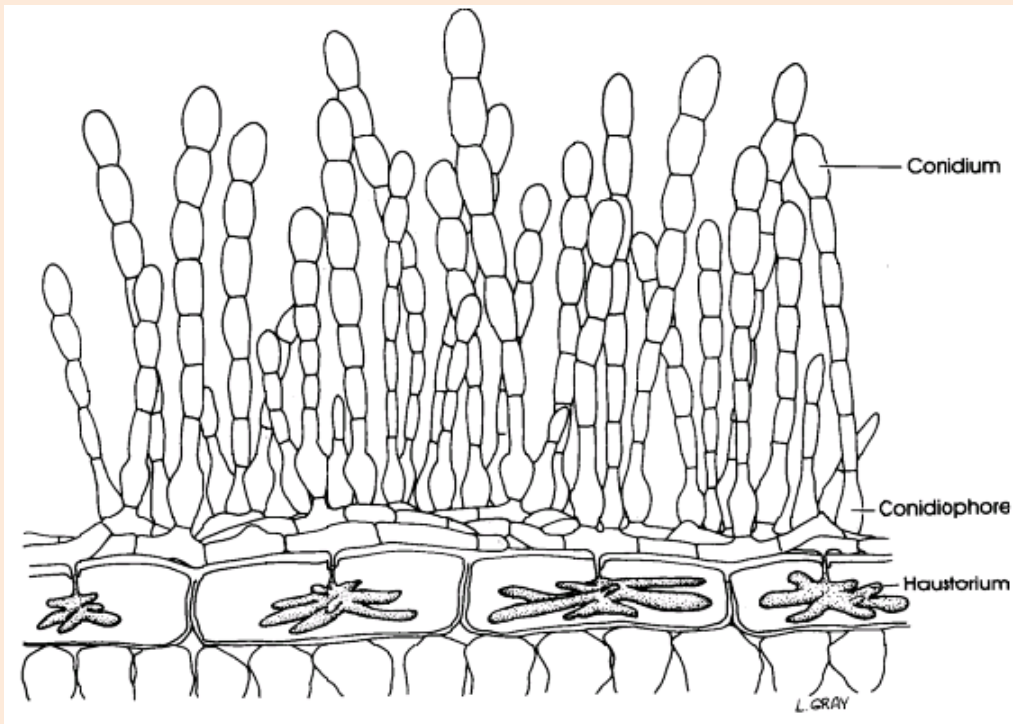
Powdery Mildew



Powdery Mildew

Cause

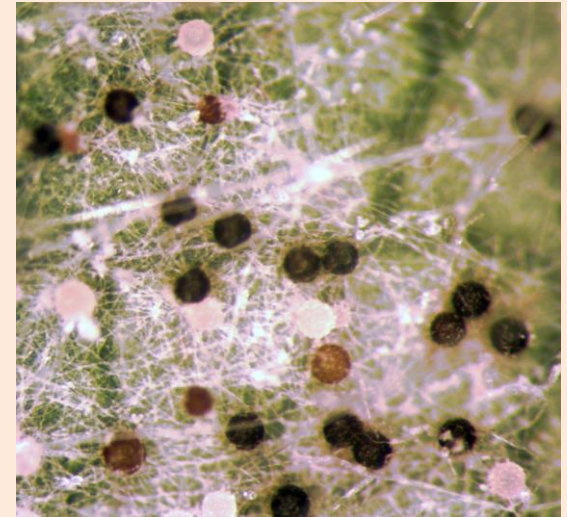
- Fungus lives on the surface of the leaves
- After 48 hr. initial germtube produces hyphae
- **Conidia** formed after 96hr. (4 days) and first conidia are apparent soon after.



Powdery Mildew

What to look for

- What to look for:
- White colonies
- Random spreading appearance
- Occurs in folds of leaves where spray products may not be present



- Where to look:
- Look in shady or covered areas
- Undersides and folds of the leaves
- Inside shade structures



Powdery Mildew

How to prevent

- Reduce direct leaf to leaf contact
 - keep up with pruning for the entire season, do not let tertiary growth take over
- 40% milk in 60% water (good for prevention if sprayed once every 7 days)
 - Any type of milk will work but whole milk will probably work the best as the increased fat may have spreader sticker qualities



got milk?®

#2

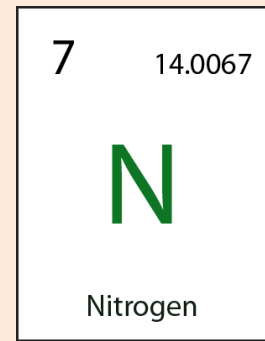


#2

Excessive Nitrogen



Excessive Nitrogen Cause



- **Tends to be a common problem with giant pumpkin growers**
- Comes with over applications of manures (which also add excessive levels of phosphorus) or composts



Excessive Nitrogen

What to look for

- Fractures in leaves
- Huge pumpkin leaves
- Plants will look “larger than life” (bloated)
- *High N can increase the odds of other diseases



Excessive Nitrogen

How to prevent

- Prevention is key
- Know what you are adding (and why)
- Know the amount (volume) you are adding and check your math



#1



#1

Spray Damage



Spray Damage Cause

- The Grower!
- Can be too forcefully applying products
- Incorrect dosage
- Wrong time of day
- Product interactions



Spray Damage

What to look for

- “Patterned” damage



Looking into the garden

Looking out of the garden



Spray Damage

How to prevent

- Treat the plants with care when applying materials
- Read the label
- Favor slightly on the lower side of a products recommendation if you are using it for the first time
- Be extra cautious if tank mixing more than two or three ingredients at one time



My field over the 2011 season



5/5/2011



5/21/2011



5/30/2011



6/13/2011



6/21/2011



6/21/2011



7/4/2011



8/7/2011



Thank You
check out
www.Team-Pumpkin.org

