



# Scouting for Root Rot Diseases

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A photograph of a black plastic seedling tray with a grid of square cells. The tray is filled with soil and contains numerous small, round, green seedlings. Many of these seedlings are wilted, yellowed, and have collapsed, indicating they have died. The text "Damping-off of seedlings" is overlaid in a black box on the left side of the image.

# Damping-off of seedlings

Pre-emergence or post-emergence

R. Wick, UMass



## Root rot on cuttings



Roots are hidden in pots...



Carefully knock plants out of pots to examine the roots!



Look for  
absence of nice,  
white roots  
—or presence of  
Brown and/or soft roots  
=symptoms that a  
pathogen has been  
feeding on roots







Train your eye






Plants should resist being pulled from their pots . . .







A photograph of a hanging basket filled with a dense cluster of red flowers, likely Impatiens, with green foliage. The basket is white and suspended by three thin metal wires. The plant shows signs of stress, with some leaves appearing wilted and drooping. A blue text box is overlaid on the left side of the image.

But usually  
we are looking  
at the above-ground  
symptoms of root rot

WILTING in this case



Stem cankers may develop from root rot





STUNTING

Another indication of root rot





## **IMPACT of BLACK ROOT ROT**

**Stunting  
Off-color foliage**

# Some ROOT ROTTERS

*Rhizoctonia solani* – stem/root rot

*Berkeleyomyces basicola* – black root rot

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*Pythium* spp. – root rot, black leg

*Phytophthora* spp. – stem/root rot

(top two are true fungi; lower two are water molds)



Rhizoctonia root and stem  
rot is caused by the fungus  
*Rhizoctonia solani*



## **Plants Obviously Susceptible:**

**Vinca**

**Hedera**

**Impatiens**

**New Guinea impatiens**

**Mums**

**Lettuce**

**And many more!**





Cutting rot by  
Rhizoctonia

On New Guinea impatiens





Rhizoctonia cutting rot on vinca



## Scouting for Rhizoctonia:

- Check seedling flats, cutting propagation and potted plants.
- Look for patches of **damping off** in seed trays
- Look for leaf base and stem browning in cuttings – or even tan **webbing** that isn't spiders
- On stunted or wilted plants, look for **cankers** at stem base

**WILT or STUNTING or BROWNING should catch your eye!**

Black Root Rot is  
caused by the fungus  
*Berkeleyomyces basicola*







**Uneven stands** are a strong indicator of black root rot

## Plants Prone to Black Root Rot

- Calibrachoa
- Petunia
- Poinsettia
- Vinca (all kinds)
- Viola, Pansy
- Rosemary
- Basil (in hydroponics)
- . . .And more (e.g. tobacco, beans, carrots)







Hydroponic basil with black root rot

# Scouting for black root rot:

- Concentrate on pansy, viola, vinca, calibrachoa crops
- In fall, concentrate on poinsettias - if soil in mix
- If containers are **re-used**, be extra vigilant
- Look for stunting – UNEVEN stunting in the crop
- Look for **chlorosis** (=yellowing or purpling)
- Inspect incoming plugs: are roots white?
- Are fungus gnats proliferating? They are attracted to black root rot and can spread it!
- Is the pH 6.2 or above? More likely to see BRR



WATER MOLDS (Oomycetes)  
cause root rot too:

Namely Pythium root rot and  
Phytophthora root rot

**WATER MOLDS form swimming spores called zoospores – thus thrive in wetness**





## **Very Common Pythium hosts:**

- Geranium
- Poinsettia
- Chrysanthemum
- New Guinea impatiens
- Calibrachoa
- Pansy
- Spinach

## **Plants Prone to Phytophthora**

- Azalea
- Calibrachoa
- Lavender
- Pansy
- Petunia
- Poinsettia
- Vinca (Catharanthus)
- English ivy



**Aboveground symptoms of Pythium  
or Phytophthora root rot:**

**wilt, stunting, leaf scorch,  
interveinal chlorosis, yellow  
starting from lower leaves**

**Belowground:**

**Stunted and/or rotted root systems**





## Symptoms caused by *Pythium* spp.



Stem rot

## Symptoms caused by *Pythium* spp.



*Pythium aphanidermatum*

stunt



## Symptoms caused by *Pythium* spp.



Stunt – yellow - wilt



Wilt from *Pythium* root rot on mum



## Gerbera - Pythium Root Rot







Poinsettia  
*Phytophthora drechsleri*







Lavender root rot  
*Phytophthora nicotianae*





VINCA – *Phytophthora nicotianae*



*Phytophthora tropicalis*





*Phytophthora tropicalis*





# Scouting for Pythium or Phytophthora

- Check roots on cuttings as they come in
- Look for stunting or wilting in seedling trays
- On potted plants, look for stunting, lower leaf yellowing or wilting
- Check roots regularly in crops – discoloration most often seen at base of pot







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## Questions?



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