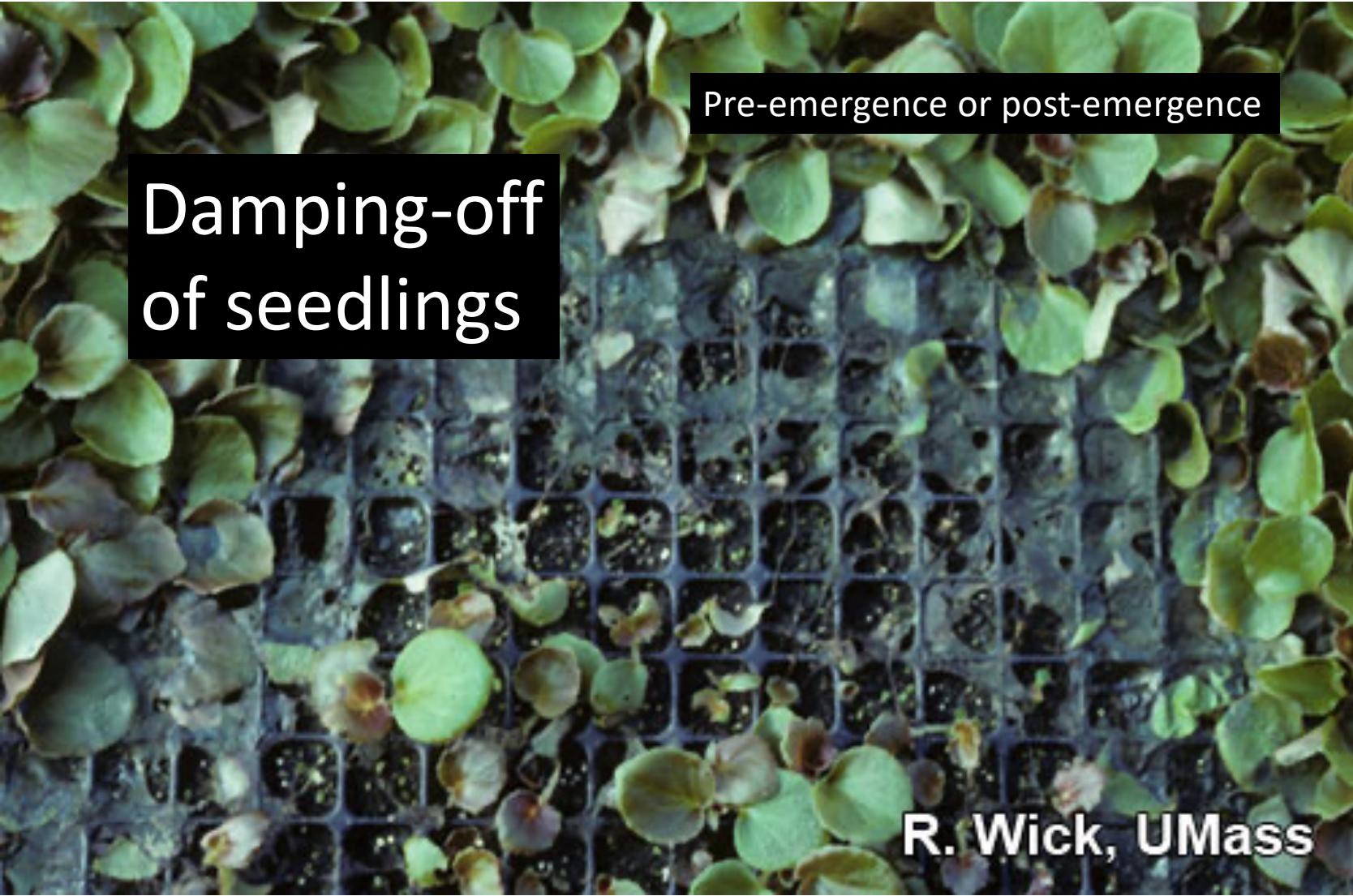




Scouting for Root Rot Diseases

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Damping-off of seedlings

Pre-emergence or post-emergence

R. Wick, UMass

Root rot on cuttings



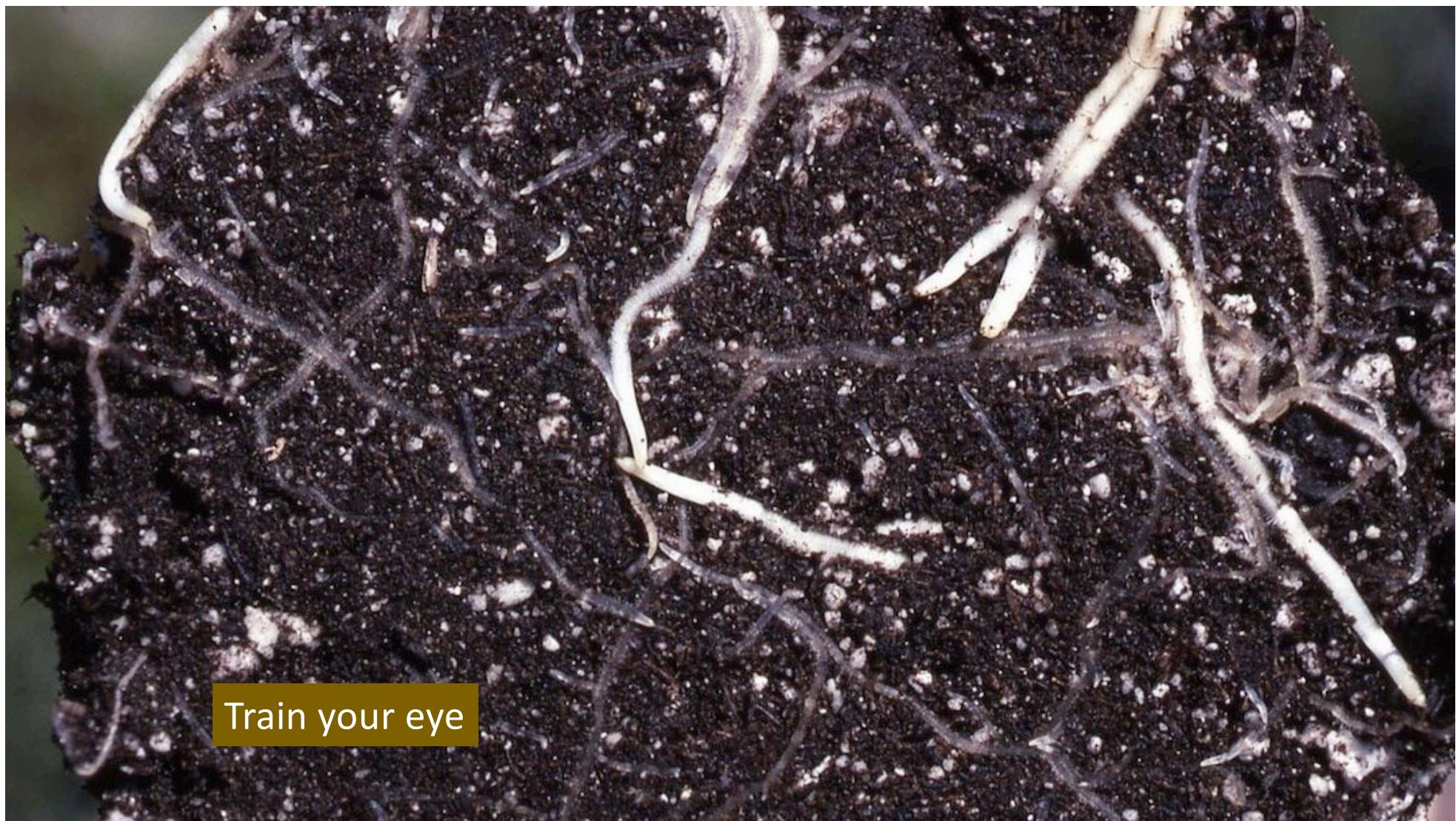
Roots are hidden in pots...



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 . . .



The Stringy Look

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

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



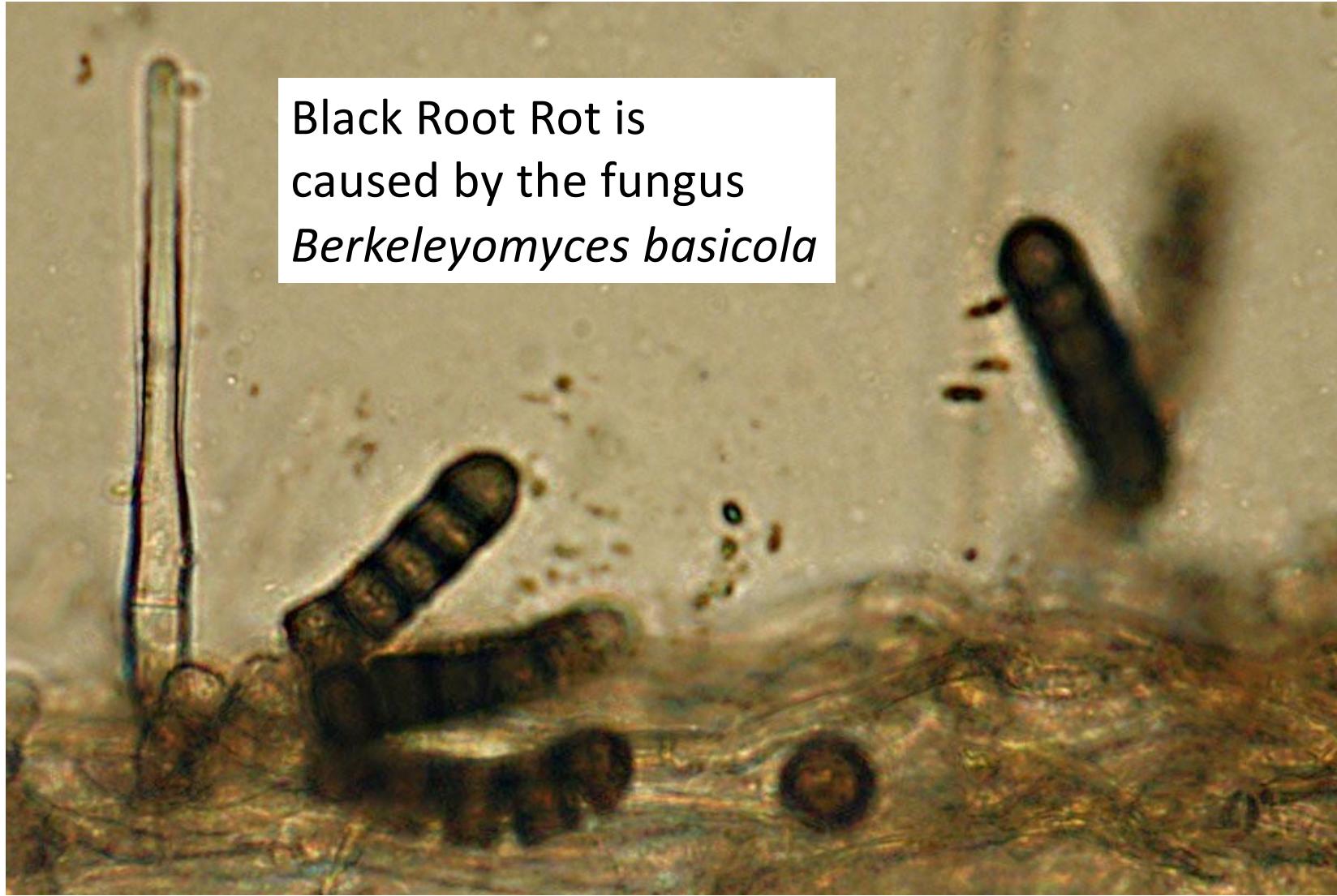


Rhizoctonia cutting rot on vinca

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!

A microscopic image showing several dark, elongated, cylindrical structures of the fungus Berkeleyomyces basicola. These structures are likely conidia or conidiophores. The background is a light-colored, textured surface, possibly plant tissue or soil. A white rectangular box is overlaid on the image, containing the following text.

Black Root Rot is
caused by the fungus
Berkeleyomyces basicola



R. Wick, UMass

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?