

# Spring Sunflower Boot Camp 5 – Early Season Diseases

# Early Season Sunflower Disease



# Downy Mildew

**Downy mildew is common and economically important in the northern Great Plains, particularly in North Dakota and northern Minnesota. When infection occurs in sunflower seedlings, the disease is systemic and eventually will result in 100% yield loss of every infected plant.**

# Downy Mildew

- The pathogen is host specific and soil-borne, and can survive many years in the soil.
- The disease is favored by cool and wet/waterlogged soil conditions when the seeds are germinating, and seedlings are emerging.
- Infection begins when motile zoospores, which swim in water, infect the radicles and roots of germinating seed and seedlings. Infected seedlings may die pre- or postemergence.

# Downy Mildew



Downy mildew in systemically infected plants



Downy mildew on upper side of leaf



Downy mildew on underside of Leaf

# Downy Mildew –how to control?

## Option 1 - genetics

**Currently there are 5 known races of downy mildew - what are my genetic options?**

- Option 1 - advanced downy (pl17 + pl33) controls all 5 known races
  - N4H205 E
  - N4H337 E
  - N4H462 E
  - N4H490 E
- Option 2 – traditional downy mildew (pl6) controls 4 know races
  - N4H161 CL
  - N4H422 CL
  - N4H470 CLP
  - Panther DMR

# Downy Mildew –how to control?

## Option 2 – Seed Treatment

**Currently there are 5 known races of downy mildew - what are my seed treatment options?**

- Seed treatment options
  - Plenaris – Seed applied treatment option that controls all known races of downy mildew systemically. Active ingredient is Oxathiaprolin which is a group 15 fungicide
  - Dynasty - Seed applied treatment option that controls 2 of the 5 known races of downy mildew

# Downy Mildew –how to control

- The strategy is simply combining the industry's best hybrids with the best genetic resistance package available and following up with Plenaris and Dynasty giving hybrids a one – two punch for downy mildew.

# THANK YOU

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