

# Plant Doctor as IPM Consultant



Dr. Christian F. Miller  
Glades Crop Care, Inc.



# Miller: Professional Background

- Originally from Palm Beach County, FL
- Graduated with Botany BS from UF (1996)
- Designed & maintained interiorscapes
- Landscape consultant & spray technician
- UF DPM Program (2000) & graduate ('02)
- Glades Crop Care, Inc. (Spring '03)
  - Crop Management Specialist
    - Leaf, radishes, turf, ornamentals, rice, sweet corn & beans

# Multidisciplinary DPM = Crop Diversity



# Duties & Responsibilities



- Scouting
  - Timely
  - Accurate
- Consulting
  - Thresholds
  - Recommendations
- Educating
  - Clients, self & colleagues



# DPM: Wildlife Management



- Amphibian SOP
- Mitigate risk to lettuce
- Process
  - Read research
  - Communicate
  - Balance cost/benefits
  - Implement
  - Monitor
  - Adjust

# Integrating Key Elements



- Planting location within field
- Weed management
- Frog Monitoring Stations
  - Function by providing shelter & humidity

# DPM: Microscopy

- Symptoms 1<sup>st</sup> seen as landscape consultant
- Signs seen as DPM intern at UF PDC
- Turf Take-all Root Rot
  - (*Gaeumannomyces graminis* var. *graminis*)
- Learned rating system from Dr. L. Datnoff
- Joint study symptoms & disease development
- Applied: Sprig selection for new sod fields

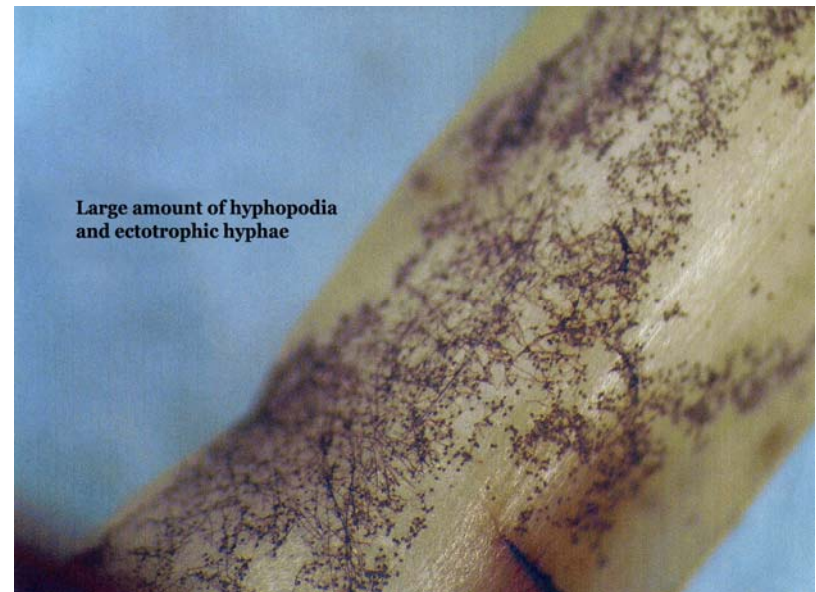


Photo courtesy of L. Datnoff



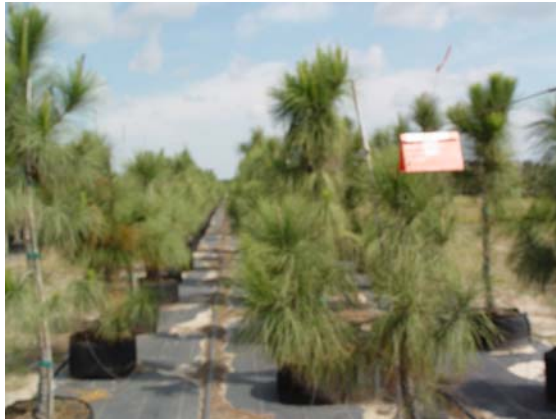
# DPM: Integrated Pest Management



- Initial observation
  - Dead tips then tops
- Inspect damage
  - Find larvae & pupa
  - Submit samples DPI
- Research pine pests
  - Lepidopterans
- Research pesticides
  - Make Recommendation



# Pine IPM Procedure (cont.)



- Consult with J. Garces, DPM ('03)
- Research pheromones
  - *Rhyacionia frustrana* vs. *R. subtropica*
- Implement & monitor

# Case Study: Sod Rescue



- Evaluate poor quality fine texture sod farm
- Initial observations
  - Good top growth
  - Traffic patterns
  - Sandy soil
  - Shallow water table
  - Poor root quality
  - Anaerobic respiration

# Sod Rescue: Recommendations

- Lower water levels
- Alternate vehicle traffic patterns
- Submit root samples to UF PDC
  - No pathogens
- Causal agent = abiotic



# DPM: Weed ID & Management

- New winter weed in sod
- Similar to annual sedge when mowed
  - Rain = no mowing
- Weeds taller now
  - Leaves softer
  - Purple pigmentation
- Diagnostic key
  - Annual Ryegrass
  - *Lolium multiflorum*
- Dr. C. Rainbolt confirms





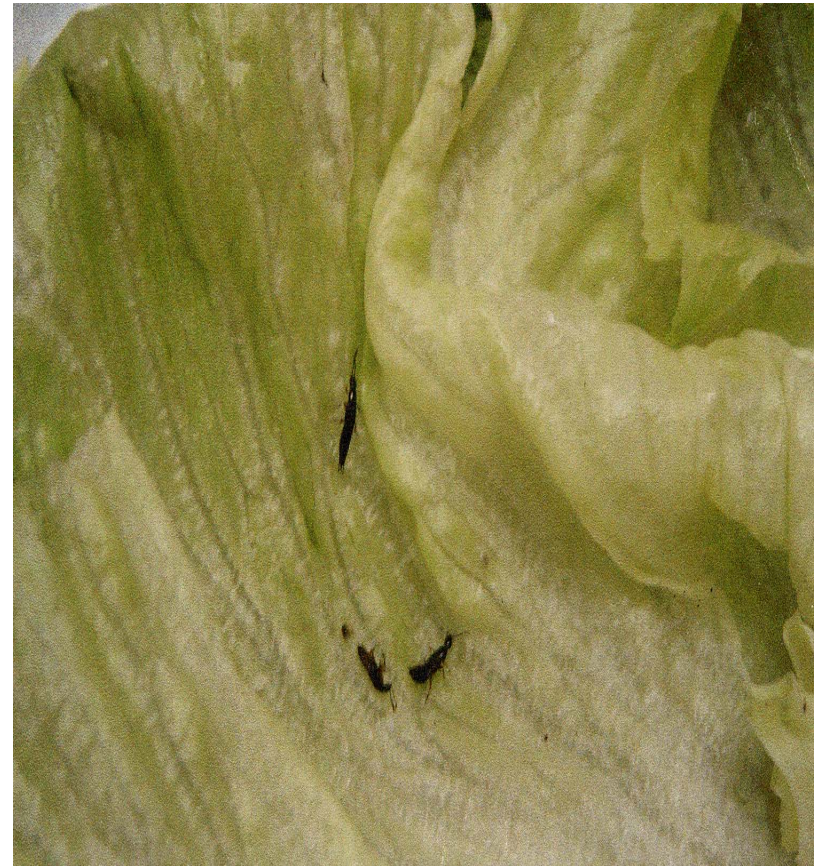
# DPM: Insect Identification



- Northern distributor reports bugs in lettuce
- Photos sent to grower
- Called in to ID
- Stop scouting to address problem
  - Anything missed?
  - Issue severity?

# Insect ID: Rove Beetles

- 1<sup>st</sup> seen in DPM
  - Also night collection
- Never seen in field or on yellow sticky traps
- Staphylinids
  - Hunters/scavengers
- Attracted to lights during evening harvest





# DPM: Plant Pathogen ID



- 1<sup>st</sup> report Spring '05
- Pathogen or residue?
- Dr. R. Raid confirms
  - *Erysiphe heraclei*
  - Powdery mildew
- Resurfaced Spring'06



# Case Study: Radish Rejection

- Evening call to meet at the packing house
- Harvested crop being rejected
  - Grading out at +40% wireworm damage
  - Scouting report indicates 6%
- Grower, quality control officer, line supervisor & crew await evaluation



# Radish Rejection: Evaluation



- “Wireworm” counts = mostly mechanical damage
  - Higher than report due to lag time & dry conditions
- Grower: “If I charged Chris \$1 for each one he missed, I wouldn’t feel right taking his money.”



# DPM: Key Program Points Summary

- DPM Program covers the bases
  - Plant science, pathogens, insects, nematodes, weeds, abiotics problems
- Creates & promotes communication networks
  - Research, extension, peers, grower communities
- Whole system approach for problem solving
  - Addressing the cause not just the symptoms
- Provides knowledge & skills for practical IPM application

# Contact Information

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# DPM: Applied Knowledge/Skills

- Wildlife Management
  - GCC Food Safety
  - Amphibian SOP
- Light Microscopy
  - Sod sprig selection to limit Take-All
- Arthropod IPM
  - Pheromone traps for Subtropical Pine Tip Moth
- Cultural Practices
  - Anaerobic sod rescue
- Abiotic Damage
  - Radish rejection
- Pest & Pathogen ID
  - Annual Ryegrass
  - Rove beetles
  - Powdery mildew of parsley