

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 1st 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

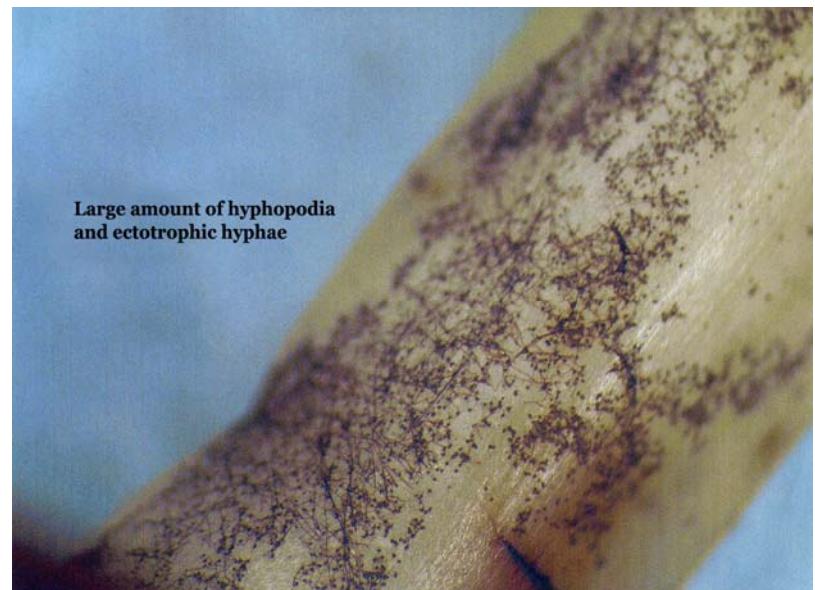


Photo courtesy of L. Datnoff

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

- 1st 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



- 1st 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



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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