

DESCRIPTION: A professional plant protection specialist, whether in the role of a grower, consultant, extension specialist, or crop protection company specialist must be able to formulate a plan to anticipate, identify, and manage threats to crop plants posed by plant disease-causing organisms.

OBJECTIVE: Students will be assigned a crop and area, and will prepare a plan to manage actual and potential disease problems for this crop. Reports will consist of the information listed below.

Grades will be earned based on the attached grading form.

PROCEDURE: The project will consist of two parts: 1. Gathering information about the crop, field, and pathogens and 2. Preparing a plan to manage or avoid the effects of both observed and potential diseases.

Part 1.

Students will collect and compile information about the condition of the crop, the field/area, diseases actually present, and diseases that are common and likely to become apparent in succeeding crop seasons. Some of the information-gathering will be done together as a class, and may be done during regular lab periods. Some information-gathering will be done by students individually.

Part 2.

Working individually, students will prepare a detailed plan to manage or avoid actual or potential pathogens, assuming that the same crop will be planted in the same field/area next season.

Report Contents in Detail

Part 1: Crop and field current conditions

Crop Information

- Common and Scientific name
- Variety
- Both actual and usual planting dates, rates (e.g. Lb/A, seed/A, seeds/ft) and planting pattern (e.g. row width, twin-row, narrow-row, drilled, broadcast, etc.)

Field Data

- Soil:
 - List the soil type present.
 - Be sure to note whether the soil in the field is not common in the area. Is there anything unusual about it: high proportion of sand, or clay, standing water, boggy, high slope, etc.
- Irrigation:
 - Is irrigation in use?
 - If not, what type should be installed?
 - Is irrigation used in such a way that the plant canopy stays wet for extended periods of time?
- What crops have been grown in this field in the last two seasons?
- Does the field have a history of especially good or poor production?
- Has a nematode assay been done? What were the results? Do the nematodes found affect the crop to be planted?

Part 2: Disease Management Plan

- Working individually, students will generate a plan to avoid or manage the disease observed and one other disease common on the crop in question. If no disease is observed, one will be assigned by the instructor.
- The plan will cover the next planting season for the crop, so pre-season and early-season disease management techniques can be included in the plan.
- Each disease will be covered in a separate section. Each section will consist of
 1. Common name of the disease
 2. Scientific name of the pathogen
 3. Actual or potential severity of this disease. (For purposes of this report, severity can be described in very general terms, such as “slight”, “moderate”, “severe”, etc)
 4. Disease symptoms and/or signs. Be sure to include the earliest visible symptoms or signs, as well as those visible later in disease development.
 5. Portion of the crop life-cycle susceptible to infection (e.g. seedling, first true leaf, full life cycle, etc.)
 6. Vector(s) necessary for disease transmission. Include common and scientific name, as well as time of season when they vector the disease. If no vector is involved, be sure to list that fact.
 7. Crop monitoring (scouting)
 - a. Note what kind(s) of crop condition monitoring will be done (i.e. will you do an estimate or measurement of defoliation, leaf area killed, plants killed, stand reduction, etc.?)
 - b. How often will the area be scouted?
 - c. Which symptoms or signs should you watch for?
 - d. How long after management methods are applied should the area be reassessed?
 8. Management methods available for this disease in this crop in this location. Outline all management methods that can be used practically. Be sure to include descriptions of cultural, mechanical, chemical, and biological methods. If no control options exist for a method, list that fact: e.g. if no biological control is available for a specific disease, list “No biological control available”. Remember to **be specific** about management methods. For example, if you choose a resistant variety, list the name of the variety; when you describe a cultural method, be sure to state what cultural method you will use or modify, how it will be used, and the time of the season it should be used.
- Chemical management methods must be chosen from those listed in the most current edition of the Georgia Pest Management Handbook from the listings for the specific disease on the specific crop.
 - List the specific chemical (trade and common names), formulation, and rate per acre.
 - Indicate what kind of application equipment you intend to use (i.e. hand, aerial, ground, high volume, vegetable sprayer, *a specific type of* granular applicator etc.) **and** list the approximate GPA at which the application(s) will be

- made.
- List application time of season e.g. “Apply in-furrow at planting” or “Make foliar application at fourth trifoliate stage“ and any repeat applications e.g. “continue applications on a 14 day schedule”.
 - If you intend to make chemical applications based on a predictive model, give details of conditions that trigger that model, such as temperature, humidity, hours of leaf wetness, etc.
9. Finally, list the management method or combination of methods you would recommend for management of this disease on this crop. Details about each method you list here should be covered in the section above. In this section, **the most important aspect is to list the reasons why** you chose these specific methods as your preferred ones.

REPORT FORMAT:

The report will be neatly typed. Handwritten reports are NOT acceptable.

Reports must be written in prose in simple, declarative sentences. Reports that consist of a list with few or no details will be penalized: where a simple list is presented, points earned in any section will be half what the student would have earned if the report were properly written.

The report will consist of:

1. **Title Page** with Title, student’s name and due date
2. **A description of the crop and field**, including condition of the crop and field as listed above (BE SURE TO INCLUDE ALL REQUESTED INFORMATION. Remember it’s better to have too much information than too little)
3. **A Management Plan** for each disease, covering all information outlined above. If no disease is observed in the field, one will be assigned by the instructor. (Again, BE SURE TO INCLUDE ALL REQUESTED INFORMATION).

Please refrain from the use of report covers.

DUE DATE: Wednesday, November 10, 2010 during the regular lab period

NOTE: 20 points off for each class meeting day late.

VALUE: 12% of course grade.