

Quiz #1:

10/10

NAME \_\_\_\_\_

SECTION 201

1. ✓ What is the definition of a symptom (1 point)?

*the visible expression of a disease on a host plant*

2. Name two types of necrosis (2 points). An example is dieback.

*rot  
wilting*

3. ✓ If you observe a plant wilting, what area of the plant would you expect damage (1 point)?

*roots*

4. ✓ What is a sign (1 point)?

✓ *the part of the pathogen that is visible on host tissue.*

5. Name one sign of a fungal disease (1 point).

*spores*

6. ✓ Where will we be touring today (1 point)?

*campus*

7. ✓ Name one scientist that helped in developing the Germ Theory (1 point). One bonus point for describing how they demonstrated germs cause disease.

*DeBary*

*demonstrated by take sample from infected host and injecting health host to see if the healthy host would catch the disease.*

8. -1 What is the first step of Koch's Postulates (1 point)?

*to isolate the pathogen*

Step #1: Observation

Step #2

9. ✓ Name a way to sterilize instruments, or a way to surface disinfect plant tissue (1 point).

*dipping in alcohol, then heating*

8.5/10

NAME \_\_\_\_\_

1. What happened to the apple slices treated with pectinase?

THEY SHRUNK & DEFORMED

2. Did one of the apples lose its integrity faster than the other? If so, which one?

YES THE RED APPLE

3. What was the control in the enzymes (apple) experiment?

H<sub>2</sub>O

4. What is the difference between a replication and a run?

A REPLICATION IS A REPEAT IN THE EXPERIMENT (2X)

A RUN IS THE NUMBER OF OBSERVATIONS IN THE EXPERIMENT

A Run IS separated by time or space

5. What is a "zone of inhibition"?

THE AREA WHERE THE FUNGUS/BACTERIA IS INHIBITED TO GROW



6. What are the two treatments we will be applying to the tomato plants (2 pts)?

BACTERIA & WOUNDING

7. What is a hypersensitive response?

ONE THAT TAKES VERY LOW DOSES TO SHOW EFFECTS

Rapid cell death

8. Can a virus replicate in dead tissue?

No

9. Is crown gall caused by a viral, fungal, or bacterial pathogen?

BACTOIA (AGROBACTERIUM INFESTANS)

9/10

Lab Quiz #4

NAME \_\_\_\_\_

✓ 1. What is predisposition?

Predisposition is when the plant is affected by another factor before becoming infected by the pathogen. Ex. lesion, nutrient availability, temp., climate. Predisposition increases the susceptibility of a plant becoming infected by a pathogen

✓ 2. Does predisposition occur before or after the pathogen is present in the infection court?

Before

✓ 3. What is a hypersensitive response **AND** how does a plant use it to their advantage (2 pts)?

goal!  
- rapid death of an area of cells in response to a pathogen infecting a plant. Plants use HR to kill off the pathogens that are feeding off live cells, basically creating a barrier between healthy cells and the infection so that the infection cannot spread further.

- .5 ✓ 4. Why did we use phosphate buffer when preparing the Tobacco Mosaic inoculum?

• So that we could easily insert the virus into the plant. A virus is not living, so it must have a way to enter the plant.

To protect the virus particle.

✓ 5. What is a biotroph?

• pathogen that feeds off living cells, must be living or the cells are of no use.

✓ 6. *Agrobacterium tumefaciens* is a bacterial pathogen, which can infect plants and lead to the production of galls. Does this pathogen have a wide or narrow host range?

wide host range

- .5 ✓ 7. How did we inoculate the tomato plants with the crown gall bacterium?

• we created two cuts on either side of the plant in the soil and dispersed the bacteria liquid into those cuts.

The probe through the stem

✓ 8. Describe what a powdery mildew pathogen might look like on a host.

• white, powdery substance on the leaf. Usually looks like flour typically will cover a good portion of the leaf.

✓ 9. Are powdery mildew pathogens biotrophic, hemibiotrophic, or necrotrophic?

Biotrophic

Bonus: What is the name of the powdery mildew overwintering structure (must be spelled correctly to receive a bonus point)?

chasmothecia

Chasmothecia

6.5/10

Name \_\_\_\_\_

1 ✓ Name a spore that is dispersed by wind.

conidia Botrytis cinerea

2 ✓ Does a wind dispersed pathogen have a shallow or steep dispersal gradient?

steep dispersal

3 ✓ Does a pathogen spread by water have a shallow or steep dispersal gradient?

shallow

1/2 4. What was in the medium we used to trap spores that turned it blue/purple in color?

pH indicator dye Selective agar

-1 5. Is Botrytis a fungal or bacterial pathogen? Does it have a wide or narrow host range? (2 pts)

6 ✓ What is precision agriculture?

Precision agriculture is the use of GIS inputted into a GPS for the farmer so he/she can apply correct amounts of water, fertilizer, pesticides, and other various inputs. It allows a farmer to apply only what is needed while helping them to better manage his/her crop.

7 ✓ Precision agriculture is not a commonly used form of crop management because it is bad for the environment. True or False

8 ✓ What activity will be doing when we use the GPS units?

We will be locating diseased plants around campus and taking pictures along with notes on the type of location and percent diseased areas. We will then submit them to the Plant Disease & Insect Clinic.

9 ✓ Where is the Plant Disease and Insect Clinic located?

In the basement of Garner hall

8/10

Quiz #8

NAME \_\_\_\_\_

1. Please describe TWO of the following terms as they relate to how microorganisms interact with each other and the host plant. Competition, Mycoparasitism, Induced Resistance, and Antibiosis.

(2pts) competition — microorganisms competing with each other for water, food & nutrients

induced resistance — when microorganism attacks

2. What is a hemacytometer used for?  
host, the host induces a resistance mechanism  
to determine the concentration of a spore suspension

3. What is Tween 20 or Tween 80 used for?

wetting agent used to evenly distribute spores

4. Why is it important to determine spore concentration before inoculating a plot while conducting a research experiment?

b/c the concentration of spores can greatly affect the success of inoculation & the results of the experiment overall.

5. What are two differences between complete and partial resistance? (2 pts)

complete is single gene, partial is not.

partial is partially resistant to some strains of the pathogen, complete is resistant to ~~all~~ the pathogen, but not all races

6. Why was a new race of *Bipolaris maydis*, the pathogen that causes southern corn leaf blight, so devastating during 1970? Be specific. (2 pts)

because almost all of the corn varieties were susceptible — no genetic variation

7. Give at least one reason why a pathogen might become insensitive to a fungicide?

a mutation in the pathogen — or a fungicide has killed off most of the susceptible pathogens & only left the insensitive ones

**Bonus:** What is an ED<sub>50</sub> value?