

## Lecture 11 Study Guide (video: 44 minutes)

### Errata (*mea culpa*)

- a. “Little Ice Ages” should be “Little Ice Age,” a period ranging from about 1150-1460 AD.
- b. “Potatoe” should (ahem) be “Potato.”

### Study Questions

1. Some pathogens thrive in warm climates whereas others prefer cooler climates. Give several examples of each.
2. Likewise, provide examples (at least two) of pathogens that require moisture and others that are more likely to do better in relatively arid conditions.
3. Ergot, like potato late blight, epidemics are most likely to occur in seasons that are both wet and cool. In terms of primary and secondary cycles, explain why. Also, what sociological implications did this weather phenomenon have, especially where rye was grown?
4. Both the rubber tree and the South American rubber tree leaf blight fungus are native to the Amazon Basin. Knowing that, explain why attempts to develop plantations of rubber trees there failed.
5. The Bengal Famine of 1942-3 was the most deadly of all plant pathogen-induced epidemics ever. Why? What parallels can you draw, if any, between the southern corn leaf blight in the US and the one that caused the Bengal famine? (Both epidemics were caused by species of *Helminthosporium/Bipolaris*.)
6. Despite high aphid populations in the Andean Altiplano, spread of potyviruses is negligible, in marked contrast to the situation in the nearby lowlands. Why?
7. How can generous use of nitrogen fertilizer abet disease development?
8. What, if anything, do the “Little Ice Age” and the bubonic plague epidemics of the 14<sup>th</sup> century have to do with plant pathology?

### Key Words

Altiplano (South American Andes)  
Bengal famine of 1942-3  
Bubonic plague (in relation to climate)  
Ergot (in relation to climate)  
Fordlandia (and Henry Ford)  
Juvenility (in relation to susceptibility)  
*Helminthosporium oryzae* (brown spot of rice)  
Malthusian limits  
Middle Ages  
Moisture (in relation to epidemics) Monsoons  
pH (in relation to disease development)  
T toxins of *Fusarium* grain molds  
South American rubber tree blight  
Temperature \*in relation to epidemics)

Ultraviolet light (in relation to sporulation)

Wheat rust pustule development (in relation to temperature)

Wind (in relation to transmission of potyviruses)