International Collaborative Consultants

Extension Foundations Training: Plant Pathology

Consultants

We worked with great consultants...

- **Amy Wright**
- **Myra Blackmon**
- **Audra Edwards**
- **Radcliffe Campbell**
- **Lindsay Wilson**
- **Sandy Wise**
- **Cheryl Gerde**

And the roles that they took were:
Grammar reviewer, process reviewer, evaluator, multimedia developer, editor

Our Client

- **Mr. Duren Bell**
  Agricultural and Natural Resources Program Coordinator, UGA Cooperative Extension

- **UGA Cooperative Extension**
  - University outreach in every Georgia county
  - Provides information, advice and educational programs to help improve people's lives
  - Agricultural, Environmental, Family, Health, Financial, Youth Development

Current Instruction

Existing training for new employees

- Acclimates employees to Extension culture
- Provides broad introduction to many potential subjects they may encounter on the job
- Face-to-face

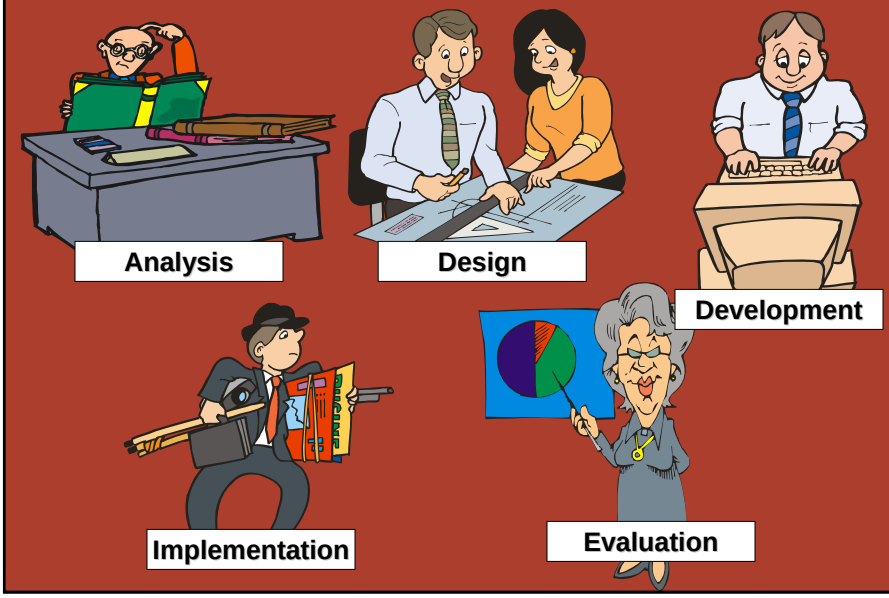
Instructional Problem

- Each employee has an area of expertise
- Training does not adequately prepare for situations outside of expertise
- Employees need training focused on problems within their county
- Training should range from basic to advanced levels

Our Project

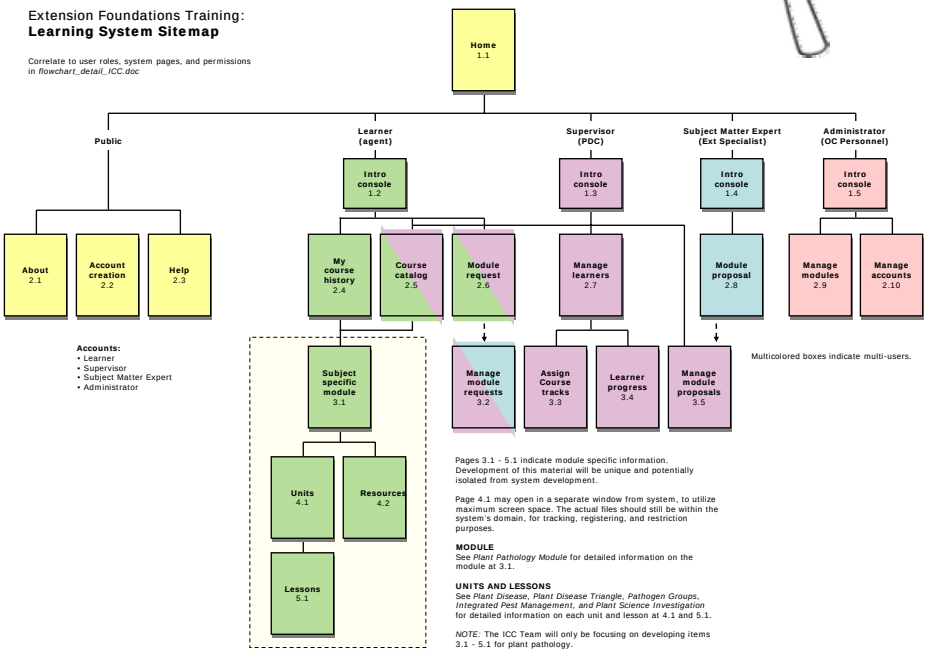
- Design a mock-up learning system for online delivery
- Design a learning module on Plant Pathology
- Fit module into learning system
- Hand-off mock-up for future development

Overall Development Process



Extension Foundations Training:
Learning System Sitemap

Correlate to user roles, system pages, and permissions in *flowchart_detail_ICC.doc*



Accounts:
- Learner
- Supervisor
- Subject Matter Expert
- Administrator

Multicolored boxes indicate multi-users.

Pages 3.1 - 5.1 indicate module specific information. Development of this material will be unique and potentially isolated from system development.

Page 4.1 may open in a separate window from system, to utilize maximum screen space. The actual files should still be within the system's domain, for tracking, registering, and restriction purposes.

MODULE
See *Plant Pathology Module* for detailed information on the module at 3.1.

UNITS AND LESSONS
See *Plant Disease, Plant Disease Triangle, Pathogen Groups, Integrated Pest Management, and Plant Science Investigation* for detailed information on each unit and lesson at 4.1 and 5.1.

NOTE: The ICC Team will only be focusing on developing items 3.1 - 5.1 for plant pathology.

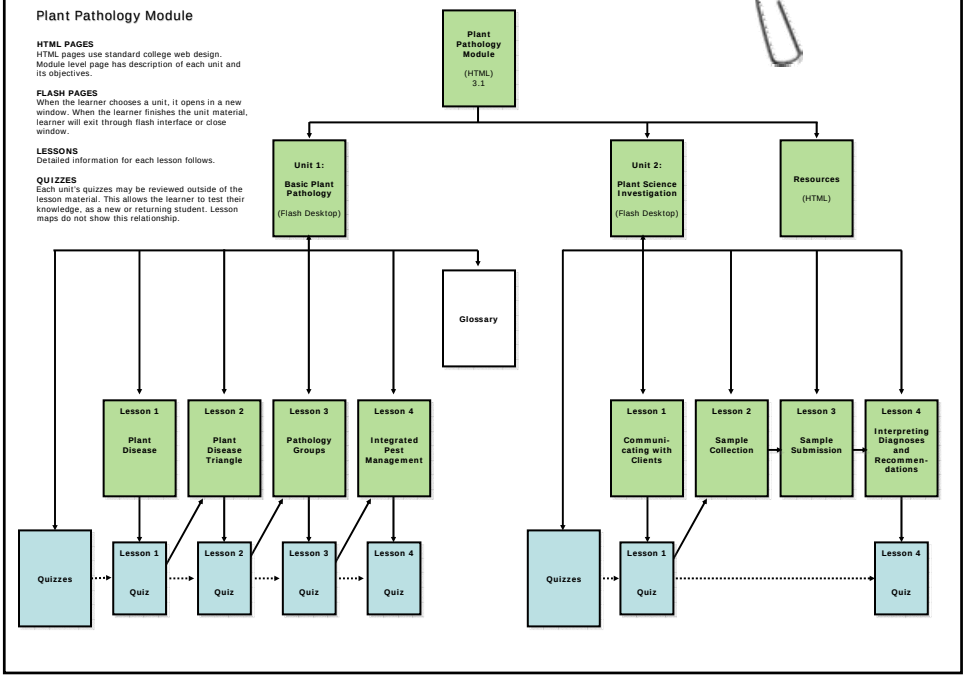
Plant Pathology Module

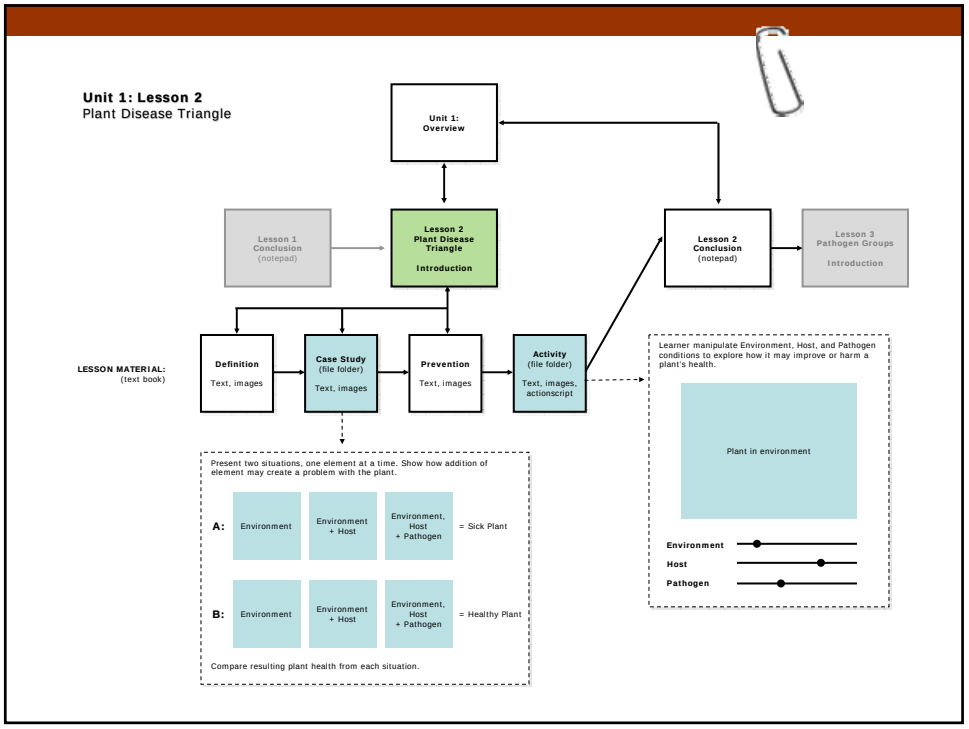
HTML PAGES
HTML pages use standard college web design. Module level page has description of each unit and its objectives.

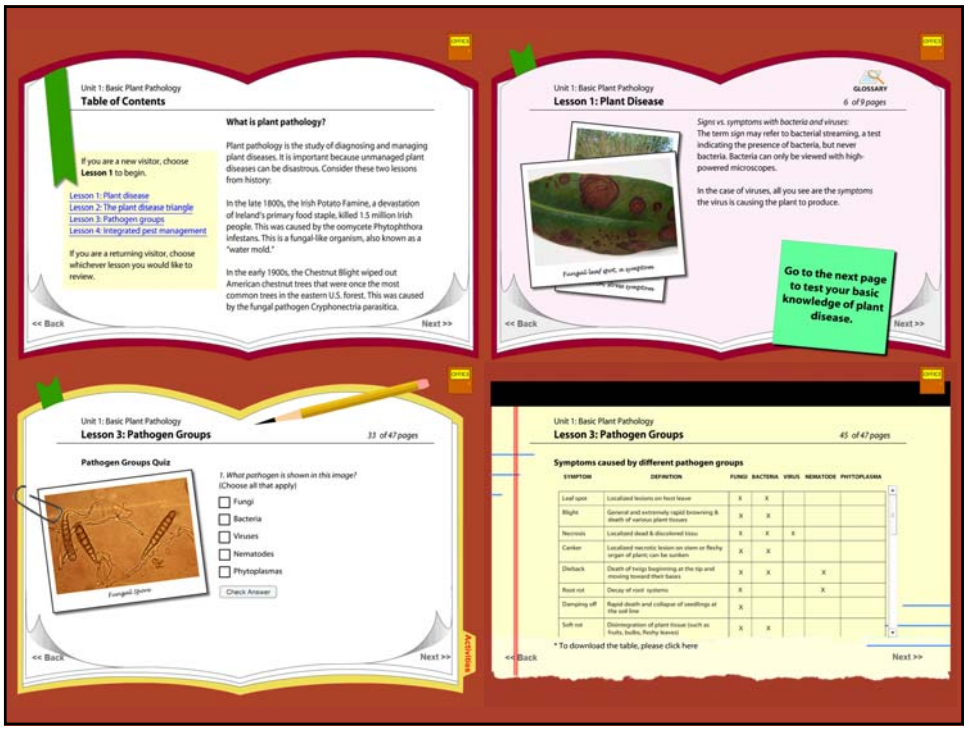
FLASH PAGES
When the learner chooses a unit, it opens in a new window. When the learner finishes the unit material, learner will exit through flash interface or close window.

LESSONS
Detailed information for each lesson follows.

QUIZZES
Each unit's quizzes may be reviewed outside of the lesson material. This allows the learner to test their knowledge, as a new or returning student. Lesson maps do not show this relationship.




Unit 1: Lesson 2
Plant Disease Triangle
Unit 1: Overview
Lesson 1 Conclusion (notepad)
Lesson 2 Plant Disease Triangle Introduction
Lesson 2 Conclusion (notepad)
Lesson 3 Pathogen Groups Introduction
LESSON MATERIAL: (text book)
Definition Text, images
Case Study (file folder) Text, images
Prevention Text, images
Activity (file folder) Text, images, actionscript
Learner manipulate Environment, Host, and Pathogen conditions to explore how it may improve or harm a plant's health.
Plant in environment
Environment
Host
Pathogen
Present two situations, one element at a time. Show how addition of element may create a problem with the plant.
A: Environment | Environment + Host | Environment, Host + Pathogen = Sick Plant
B: Environment | Environment + Host | Environment, Host + Pathogen = Healthy Plant
Compare resulting plant health from each situation.


Unit 1: Basic Plant Pathology
Table of Contents
What is plant pathology?
Plant pathology is the study of diagnosing and managing plant diseases. It is important because unmanaged plant diseases can be disastrous. Consider these two lessons from history:
In the late 1800s, the Irish Potato Famine, a devastation of Ireland's primary food staple, killed 1.5 million Irish people. This was caused by the oomycete Phytophthora infestans. This is a fungal-like organism, also known as a "water mold."
In the early 1900s, the Chestnut Blight wiped out American chestnut trees that were once the most common trees in the eastern U.S. forest. This was caused by the fungal pathogen Cryphonectria parasitica.
If you are a new visitor, choose Lesson 1 to begin.
Lesson 1: Plant disease
Lesson 2: The plant disease triangle
Lesson 3: Pathogen groups
Lesson 4: Integrated pest management
If you are a returning visitor, choose whichever lesson you would like to review.
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Next >>
Unit 1: Basic Plant Pathology
Lesson 1: Plant Disease
6 of 9 pages
GLOSSARY
Signs vs. symptoms with bacteria and viruses:
The term sign may refer to bacterial streaming, a test indicating the presence of bacteria, but never bacteria. Bacteria can only be viewed with high-powered microscopes.
In the case of viruses, all you see are the symptoms the virus is causing the plant to produce.
Go to the next page to test your basic knowledge of plant disease.
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Next >>
Unit 1: Basic Plant Pathology
Lesson 3: Pathogen Groups
33 of 47 pages
Pathogen Groups Quiz
1. What pathogen is shown in this image? (Choose all that apply)
Fungi
Bacteria
Viruses
Nematodes
Phytoplasmas
Check Answer
<< Back
Next >>
Unit 1: Basic Plant Pathology
Lesson 3: Pathogen Groups
45 of 47 pages
Symptoms caused by different pathogen groups
SYMPTOM | DEFINITION | FUNGI | BACTERIA | VIRUS | NEMATODE | PHYTOPLASMA
Leaf spot | Localized lesions on host leave | X | X
Blight | General and extremely rapid browning & death of various plant tissues | X | X
Necrosis | Localized dead & discolored tissu | X | X | X
Canker | Localized necrotic lesion on stem or fleshy organ of plant; can be sunken | X | X
Dieback | Death of twigs beginning at the tip and moving toward their bases | X | X | | X
Root rot | Decay of root systems | X | | | X
Damping off | Rapid death and collapse of seedlings at the soil line | X
Soft rot | Disintegration of plant tissue (such as fruits, bulbs, fleshy leaves) | X | X
* To download the table, please click here
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OFFICE

Unit 1: Basic Plant Pathology

Table of Contents

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Unit 1: Basic Plant Pathology

GLOSSARY

Lesson 1: Plant Disease

6 of 9 pages

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The term *sign* may refer to bacterial streaming, a test indicating the presence of bacteria, but never bacteria. Bacteria can only be viewed with high-powered microscopes.

In the case of viruses, all you see are the *symptoms* the virus is causing the plant to produce.

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OFFICE

Unit 1: Basic Plant Pathology

Lesson 3: Pathogen Groups

33 of 47 pages

Pathogen Groups Quiz

1. What pathogen is shown in this image?
(Choose all that apply)

- ☐ Fungi
- ☐ Bacteria
- ☐ Viruses
- ☐ Nematodes
- ☐ Phytoplasmas

Check Answer

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Activities

Lesson 3: Pathogen Groups

Symptoms caused by different pathogen groups

SYMPTOM	DEFINITION	FUNGI	BACTERIA	VIRUS	NEMATODE	PHYTOPLASMA
Leaf spot	Localized lesions on host leave	X	X			
Blight	General and extremely rapid browning & death of various plant tissues	X	X			
Necrosis	Localized dead & discolored tissu	X	X	X		
Canker	Localized necrotic lesion on stem or fleshy organ of plant; can be sunken	X	X			
Dieback	Death of twigs beginning at the tip and moving toward their bases	X	X		X	
Root rot	Decay of root systems	X			X	
Damping off	Rapid death and collapse of seedlings at the soil line	X				
Soft rot	Disintegration of plant tissue (such as fruits, bulbs, fleshy leaves)	X	X			

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