

Syllabus

Organic Soil Fertility Fall 2006

Pre-requisite: SC315 – Soil Fertility

Instructor: Dr. Ron Godin

Course Goals

1. Develop an appreciation of organic soil fertility management in holistic organic farming systems.
2. Develop an understanding of an organic soil fertility system and its role in the sustainability of soil and agriculture.

Course Objectives:

1. Learn to use holistic management as a tool in organic fertility and crop production system.
2. Develop an understanding of the role of organic matter in organic crop production.
3. Learn the benefits of organic matter for soil quality and sustainability.
4. Learn and understand the importance of irrigation water quality on organic production.
5. Learn organic matter management in an organic production system for crop quality and soil sustainability including:
 - a. Manures, compost & compost tea
 - b. Cover crops & green manures
 - c. Crop rotations
 - d. Tillage

Course Outline

Organic Soil Fertility Management

1. Holistic Management: Whole-farm thinking and the role of organic matter.
2. Organic matter management and the soil: feeding the soil to feed the plants
 - a. Organic matter and soil life
 - i. Soil organisms and their function
 - ii. Processes vital to soil health
 - iii. Controlling pests with soil organisms and organic matter
 - b. Effects of organic matter and tillage on the physical characteristics of the soil
 - i. Soil structure
 - ii. Compaction & infiltration
 - iii. Moisture-holding capacity
 - iv. Erosion
3. Nutrient management in an organic system
 - a. OM decomposition
 - b. SOM & humus
 - c. Nutrient release from OM & SOM
 - d. Effects of OM on nutrient availability
4. Managing nutrients in high pH soils with high pH irrigation water
5. Soil quality and productivity evaluation
6. Putting it all together: a sustainable organic soil management system