

Southern SARE Sustainable Agriculture Core Curriculum Project
Competency 1: IPM for Organic Crops
Sub-Competency Areas

1. Biologically Based IPM: Concepts (Level I)

- a. Biologically based IPM vs Conventional IPM
- b. Benefits of biologically based IPM
- c. Basic components of biologically based IPM
 - i. Introduction to concepts of biological/genetic diversity
 - ii. Role of pest manager
 - iii. Proactive planning for pest prevention
- d. Bio-based IPM and organic certification (brief overview with information resources)

2. Scouting and Identification (Level I and II)

- a. Scouting and identification techniques for insects pests and natural enemies, weeds, and diseases (with information resources) (**Level I**)
- b. Types of pest injury (direct, indirect) and treatment threshold concept (**Level I**)
- c. Recordkeeping (design your own pest scouting sheet and data management scheme) (**Level II**)
- d. Field exercise. Design and implement a pest scouting program to include weeds, insect pests/beneficials and/or disease) (**Level III**)

3. Preventative Pest Management: Cultural Controls (Level 1, II, III)

- a. Concepts of cultural control and overview of different cultural controls for managing insect pests, diseases, and weeds. Maintaining crop diversity with pest resistant varieties (**Level 1**).
- b. Cultural practices for managing insect pests: crop rotation, inter- and mixed cropping, resistant varieties, plant spacing/date, timing of planting, sanitation, mulching, composting, trap crops, etc. Follow-up exercise to design/implement plans for cultural control of insect pests (**Level II**).
- c. Cultural practices for managing weeds: sanitation, reducing the weed seed bank, optimizing planting date, increasing crop competitiveness, water and nutrient management, mulching, crop rotation, stale seed bed, cover crops, soil solarization, etc. Follow-up exercise to design/implement plans for cultural control of weeds (**Level II**).
- d. Cultural practices for managing diseases: site selection, crop rotation, intercropping, resistant varieties, cover crops, sanitation, plant spacing, seed treatment, mulching, drip irrigation, raised beds, fallow, planting dates, etc. Follow-up exercise to design/implement plans for cultural control of diseases (**Level II**).
- e. Incorporating habitat enhancement/farmscaping into farm plans to enhance native natural enemies in specific cropping systems (e.g., vegetables, fruit crops, field crops) (**Level II**). *Could be some overlap with 3b above.*
- f. Overview of farmscaping research and procedures for independent on-farm research (trap cropping, farmscaping, etc) (**Level III**)

- 4. Mechanical and Physical Controls (Levels I and II)**
 - a. Overview of mechanical/physical insect control tactics and equipment such as flaming, tillage, hand-picking, baits/traps/lures, mowing, pruning, barriers, etc. **(Level I)**
 - b. Overview of mechanical weed control tactics (hand-weeding, hoeing, mowing, flaming, tillage, hot water, etc.) and available tools/equipment and resources **(Level II)**
 - c. Experiential training or research on mechanical weed control techniques/equipment **(Level III)**

- 5. Biological Control (Levels I and II and III)**
 - a. Overview of biological control for insect pests **(Level I)**
 - i. Predator/prey interactions, influence of weather, pesticides, introduction to concepts of habitat enhancement
 - b. Overview of biological control of diseases **(Level I)**
 - i. Beneficial microbes, induced plant resistance
 - c. Overview of biological control of weeds **(Level I)**
 - i. Weed suppression with cover crops, herbivores, bio-herbicides
 - d. Information resources (insect and disease natural enemies) **(Level I)**
 - e. Applied biological control **(Levels II and III)**
 - i. Procedures for augmentative releases of beneficial insects **(Level II)**
 - ii. Commercially available disease and weed biocontrol agents and their use; sources and suppliers **(Level II)**
 - iii. Examples of insect, disease and weed biocontrol research and on-farm research procedures **(Level III)**

- 6. Pesticides (biological and non-biological) approved for Organic Production (Levels I, II, III)**
 - a. The use of pesticides in organic production (when pesticides can/should be used; **Level I)**
 - b. Introduction to OMRI **(Level I)**
 - c. Types/classes of pesticides and their application **(Level II)**
 - d. How to conduct on-farm organic pesticide research **(Level III)**