TEACHER REFERENCE UNIT: COMPOSTING

Dr. Jack Elliot
Mr. Dan Foster
University of Arizona

Foreword

Neither new to agriculture or technology, composting is as old as the earth itself. It is the very process that decays leaves and organic debris in nature. Man discovered composting and its benefits early in his relationship with agriculture. References to composting can be found in the Bible. Perhaps one of the first men to document composting was Marcus Cato, a Roman farmer and scientist. Cato utilized compost as a fundamental soil enhancer over 2000 years ago (The Compost Resource Page, 2002).

As a biological process wherein microorganisms convert organic waste materials into a soil-like material, compost today is viewed as the ultimate recycling process by homeowners, municipalities and commercial operations. As landfills around the country are filling up and garbage incineration continues to be a great source of air pollution, composting offers a partial solution to the issue of waste disposal. By addressing the solid waste issue, composting provides a way of instilling in students a sense of environmental stewardship (Cornell Composting in Schools, 2002).

Agricultural education teachers across Arizona have introduced bits and pieces of composting information to their students. As a teaching tool in the classroom or in outdoor land laboratories, composting provides an excellent hands-on tool for introducing Arizona Department of Education Plant Science and Applied Biological Systems competencies and agricultural industry skills. The rapidly growing population or urban Arizona demands an ever-improving system for handling waste. Composting offers a valid and practical solution to that challenge and can also provide new career and entrepreneurial opportunities for agricultural education students.

Purpose

The purpose of this project was the development of a Teacher Reference Unit (TRU) on composting. Arizona agricultural education teachers indicated that composting should be an important part of their curriculum. Utilizing the Arizona Model for Vocational and Technical Education in Plant Sciences, Level III and Applied Biological Systems, Level II the following specific competencies were addressed:

- Examine the interaction of biological systems within the environment (Level II, 4.0).
- Describe the principles of plant growth production (Level II, 5.0).
- Demonstrate personal and human relations skills (Level III, 1.0).
- Apply approved practices in purchasing/marketing to maximize profit (Level III, 4.0).
- Manage a plant disease control program (Level III, 9.0).
- Apply approved construction principles of plant science facilities (Level III, 16.0).
- Apply approved safety practices (Level III, 17.0).

Materials

The Instructor Reference Unit: Composting was developed to be an easily used tool in the modem day agriscience classroom. Concise, current, and effortlessly adaptable material is included on CD-ROM and instructors can quickly tailor the information to fit their own curriculum needs.

FeaturesTable of Contents
    - Understanding the history and benefits of composting
    - The composting process: How does it work
    - Identifying methods of composting
    - Selecting raw materials
    - Building an indoor composter
    - Understanding the value of farm/commercial composting
    - Building an outdoor composter
    - Composting and the world's environment
- Lesson Plans are detailed and comprehensive. Each lesson plan includes:
    - Instructional Goals
    - Major Purposes
    - Performance Objectives
    - Interest Approaches
    - Content and Procedures
    - Summaries
    - References and Resources
- Lesson Quizzes
    - Lesson Quizzes are designed to test the student using a variety of quiz questions. Each lesson quiz includes questions that are:
        - True or False
        - Fill in the Blank
        - Short Answer
        - Essay
    - Lesson Quiz Keys
        - Lesson Quiz Keys are easily identified and accurate.
- PowerPoint Presentations
    - Classroom presentations are entertaining and informative. Each presentation covers the objectives noted in the lesson plan, the testing material included on the quiz, and is imbedded with gold keys to alert the student and instructor to "key" information. The presentations also include photographs of actual students and instructors working with horses. Many students will volunteer to pose for additional photographs so that the instructor may customize his presentation to his population.
- Suggested Timetable and Standards
    - The suggested timetable will be valuable to any instructor using the curriculum. The standards are specific to the state of Arizona, although they are based on the National Science Standards that many states have adopted.

Summary

From an educational standpoint, composting provides real-world, hands-on opportunities for Arizona students to be introduced to competencies such as understanding plant and seed germination requirements, examining the interaction of biological systems within the environment and even managing a plant disease control program. The instructor who chooses to present the Instructor Reference Unit: Composting will be a wise and popular teacher. The program's adaptability is one of its finest features. The increasing use of technology in schools and teaching methods will allow the Instructor Reference Unit: Composting to become a custom curriculum for every agriscience teacher.