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A Biosolids Technician Training Course with a "Hands On" Team Approach Using Professionals from the Field

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Abstract
Biosolids are one of the major end products of the wastewater treatment process and are used primarily for agricultural land application in Florida. An adult education course, Biosolids Technician, was initiated in 1999 for biosolids professionals in Florida. The team course format was "hands on" interactive experiences combined with biosolids professionals facilitating learning. The Florida Water Pollution Control Operators Association, Florida Department of Environmental Protection, and Brevard Community College combined to coordinate the statewide course. Students were presented with basic knowledge and developed positive attitudes.

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Introduction

Whether it is called biosolids, residuals, or just plain sludge, the word carries an ominous weight. All of these words mean the same thing, the solid, liquid, and semisolid residue produced by a domestic sewage treatment facility processing the domestic wastewater from its residential customer base.

People are readily aware of the water generated by a wastewater treatment facility, but the biosolids are a major end product of all sewage treatment facilities that is not commonly recognized. Even so, there are few words or actions that can evoke as immediate and highly emotional response from a citizenry faster and with more negative connotations than the use of biosolids (sludge) for agricultural land application. This is especially true when the biosolids are going to be land applied near the people's residences.

In Florida, F.A.C. 62-640 is the state rule that governs the proper use of biosolids, including the agricultural recycling process of biosolids land application as a fertilizer product. The US EPA also regulates biosolids with its Part 503 Rule, as well as some local ordinances such as Orange County, Florida. Florida biosolids land application sites are permitted specifically for each wastewater facility. The biosolids are predominately land applied either as a liquid or solid (cake) at ranches or farms to help crops (grass for cattle, sod farms, citrus crops, or other agricultural crops that can benefit from the product).

The often extremely negative vocal response from citizens is that biosolids are unacceptable for use anywhere. Subsequently, nothing anyone can say or do will change their minds. With all the innate public resistance already in place, the professionals who work with biosolids in the fields and with the trucks that transport the biosolids could certainly benefit from guidance and an understanding of the biosolids generation and land application process.

The Florida Water Pollution Control Operators Association, Florida Department of Environmental Protection, and Brevard Community College in 1999 initiated a Biosolids Technician Training Course for all interested people.

Course Design

A team approach was developed for the adult learners. A 4-day intensive learning experience focusing on "hands on" experiences with practical and relevant information was the format. Because the main focus of the course was on the people who actually work with biosolids, such as truck drivers, wastewater treatment facility personnel, and field people, the course design incorporated practical aspects of their everyday duties. Public service, regulations, safety, vehicle operation, and land application were key elements of the educational experience. There was even an exercise involving role-playing and successful complaint resolution.

Every attempt was made to ensure that the experience did not become a pedantic lecturing format in a strict formal setting. Even though the learners would obtain continuing education credit from the community college and a voluntary certification, the learning experience was designed to be informal, with extremely active participation by the students. Not only was knowledge a focus, but creating positive attitudes was also a goal.

One of the techniques employed in the team approach was that of using many people in the professional community as "real people" facilitators for the learners. A wide variety of professionals in the business of regulating and working in biosolids related areas provided interactive presentations presenting their relevant perspectives to the students. For example, at the most recent course, people from the FDEP in such areas as civil enforcement, criminal enforcement, permitting, and emergency response presented the State of Florida regulations and their direct application to the students. The US EPA presented their regulations, as did a geographically local agency, Orange County Environmental Protection Division. Also, another local agency, the Orange County Fire Department, provided valuable everyday lessons on safety and first aid.

Throughout the 4 days, each professional interacted with the students, while a leadership team of three main instructors coordinated the course and ensured presentations went smoothly. Flexibility was important in scheduling the professionals and all activities.

Because the course was intended for statewide use, it was important that each be designed with statewide value as well as value to the local area where the course was being held and where many of the students resided. For example, in Orlando, Florida at the most recent course, a local licensed CDL Examiner brought a land application vehicle from a nearby participating city (Titusville, Florida) and took the biosolids technicians through actual check lists and vehicle inspection. FDOT Law Enforcement demonstrated the details of a potential field stop by one of their officers. A biosolids stabilization company conducting land application in the area provided a field site inspection experience, while another local biosolids stabilization company provided a tour and inspection of its facility.

Evaluation

In order to evaluate and increase the effectiveness of the course, informal qualitative evaluation techniques were used. The learners were encouraged to freely communicate their ideas and comments on the course at any time throughout the course, and, upon completion, the adults commented on an evaluation instrument. As part of ongoing course development, all student and facilitator evaluations were analyzed, and those aspects of the evaluations that would enhance the course continue to be incorporated into each future course. As in Extension education, the needs of the students remain the highest priority, and it is necessary that the experience be of personal value to adult students in an informal education setting.

Conclusions

Developing an adult education course for use with people interested in everyday practical applications of a field where not only knowledge, but positive attitudes are a job necessity can be successful when numerous professionals are presented to the adult learners in a semi-structured informal learning format. For such a course to be effective, the students should not only be taught factual information but should see and interact with the very people directly involved with their job duties. This helps provide the students a sense of personal value connecting them to the far-reaching and varied group of people working in their professional area. They can more readily understand the niche they occupy in that profession.

The "hands on" experiences incorporating actual professional people in a biosolids technician training course allowed the students to become "connected" in a holistic way to the entire field of biosolids. They developed a broader knowledge base and even obtained a measure of "wisdom." This format can have successful applications in many of the areas in which Extension wishes to educate the public. From a high-level executive in a biosolids company to a land application truck driver, all people who took the biosolids course found it a valuable experience.

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