

Florida Organics Recycling Center for Excellence (FORCE)
DEP Contract: SW204
Annual Report
Year One

The Florida Organics Recycling Center for Excellence (FORCE) was created to centralize a facility capable of promoting and supporting focused, comprehensive, and integrated organics recycling throughout the State of Florida. The FORCE project is a cooperative effort between Sumter County, the University of Florida/IFAS (UF/IFAS), and the Department of Environmental Protection. The partnership between these entities offers an ideal combination of practical experience, research capability, and public education resources. FORCE is designed to provide the structure necessary to develop Florida's organics recycling infrastructure and to support it with research and development of processing and marketing technologies.

This report will describe the events and activities of the first year of the FORCE project. Year One was full of activity for the project partners. A great deal of "start-up" work was completed, such as the installation of the digester, the establishment of the website and toll-free telephone number to facilitate direct contact, and the development of marketing and education materials to begin the work of bringing the FORCE name and mission to the forefront of the Florida organics recycling industry.

Much of the construction and administrative groundwork was laid for compost research and demonstration activities will commence in Year Two. The accomplishments conveyed below are grouped according to the six project activities:

- Design
- Construction
- Operation
- Market Development, Education and Training
- Evaluation, Monitoring and Testing
- Project Management

1.0 Design

1.1 Engineering, Planning, Construction, and Inspection:

Sumter County selected the vendor, A/C Equipment Services to design and construct the 185 ft. long, 14 ft. diameter in-vessel compost digester in December 2002. Operation of the digester is

expected to commence in April or May 2002.

1.2 Plan Certification and Permitting:

Sumter County prepared and submitted to the DEP the necessary construction permit documents. The DEP Southwest District office in Tampa approved the construction permit documents.

Additional DEP documents are expected to be approved in order to begin operation of the digester. Sumter County prepared and submitted to the DEP all necessary operating permit documents. The operating permit is expected to be approved by the Southwest district DEP office in Tampa in April or May 2002.

In addition, the digester Acceptance Testing is expected to be approved by DEP and performed in April-May 2002.

2.0 Construction

2.1 Office Space Trailer:

A modular office/laboratory to be utilized by UF/IFAS was procured, delivered, and installed. The modular building is housed at the Sumter County Solid Waste Facility in Lake Panasoffkee, Florida.

2.2 Demonstration Farm Site Preparation and Maintenance

Initial site plan development for the demonstration farm commenced. Preliminary plans for the research site are evolving, and areas for initial development are being identified.

2.3 Installation and Maintenance of Digester:

Sumter County selected and entered into an agreement with the vendor, A/C Equipment Services to construct and install the 185 ft. long 14 ft. diameter in-vessel compost digester in December 2002.

2.4 Laboratory

A modular trailer to house the office and laboratory space and staff was ordered and delivered to the Sumter County Solid Waste Facility in Lake Panasoffkee, Florida. Laboratory equipment needs were identified and many donated by the UF/IFAS. Additional laboratory equipment needs are currently being identified for purchase. Office and laboratory furniture donated by UF/IFAS was delivered to the site by Sumter County staff.

2.5 Irrigation System and Maintenance

Initial irrigation system requirements for the demonstration farm site have been identified. Initial planning preparation has commenced and installation will be ongoing.

3.0 Operation

3.1 Process Technology Procurement and Testing:

Preliminary discussions began with Eglin Air Force base regarding an available, used Ag Bag system to possibly be utilized by FORCE.

FORCE staff responded to inquiries from vendors interested in providing innovative technologies to the project. The information is being kept on file and will be utilized during the upcoming technology review.

The project team identified four categories of technology available in the market, they are: processing systems, additives, and preparation and finishing equipment, and other miscellaneous technology. This information is being documented and collated for database placement for appropriate FORCE application.

3.2 Feedstock Procurement/Processing:

Several feedstocks were identified for developing compost container media for ornamental plants as well as for field agronomic crops. The feedstocks identified include, but are not limited to, pine bark,

seaweed, meleluca, sawdust and yard waste. Certain of the sources were identified for the feedstocks. Continuous availability and cost of shipping to Sumter County Solid Waste Facility are the primary issues in considering the ultimate source of feedstocks. Preliminary planning is underway for the initial compost processing which will be conducted before proceeding to use the new in-vessel digester.

3.3 Administrative Costs – Supplies and Travel:

FORCE staff participated in the August 2001 Biocycle Conference in Atlanta, Georgia. FORCE staff participated in the September 2001 RFT-FDOT Initiative Team meeting in Mulberry, Florida. FORCE staff participated in the September 2001 RFT-FDOT Workshop in St. Augustine, Florida. FORCE staff participated in a planning meeting in January 2002 at Innisbrook Resort in Palm Harbor, Florida. FORCE staff participated in a compost workshop in February 2002 in Immokolee, Florida.

4.0 Market Development, Education, and Training

4.1 Educational Analysis and Outreach, Website

Press releases were distributed to a variety of media publications. Articles were published about FORCE in 2001 in the following print publications: *Composting News, BioCycle, Recycle Florida Today Newsletter, UF/IFAS Newsline, Monticello News, and the Sumter County Times.*

Presentations on the FORCE project were made at the 2001 RFT Annual Conference in St. Petersburg Beach on June 7th and BioCycles's Southeast Conference in Atlanta, GA. Wayne Smith will coordinate the Composting in the SE Conference and FORCE will be a co-sponsor and host of the event at the Innisbrook Resort in Tarpon Springs, FL.

The FORCE project was featured on a statewide PBS television program titled *Florida Crossroads: Talking Trash.*

Outreach activities included participation in the RFT Organics Division's marketing campaign to the Florida Department of Transportation and the Florida Organic Farmers.

FORCE established a national toll-free telephone number (800-566-4413) to handle incoming project calls and questions.

A FORCE logo was designed and prepared. The logo is being utilize in all media activities.

FORCE letterhead was prepared electronically to be utilized by all project team members.

A project website, www.floridaforce.org was designed, prepared, and placed on the world-wide-web. As of March 2002 the FORCE website had received over 13,000 visitors to the site.

A FORCE informational brochure describing the project was created and a total of 2,000 copies printed in Year One, in-kind donation for the 2nd print job was provided by RFT. Brochures were distributed at the August Biocycle Conference in Atlanta, GA, the FORCE TAG, and to all FORCE staff for distribution at appropriate venues to promote and bring awareness to the project.

Dr. Gladis Zinati, FORCE Research Manger, will assume responsibility for developing and publishing a bibliography of articles published on compost in Florida. The purpose of this bibliography is to: 1) provide compost producers and end-users with a comprehensive guide to published compost information, and 2) to identify gaps in the research literature, in order to allow the FORCE project an opportunity to make innovative contributions.

In order to identify composting education sources and outlets in the State, UF/IFAS staff with the coordination of the Florida Cooperative Extension Service, Orange County Faculty in Apopka, Ms. Liz Felter, visited three major ornamental and foliage production facilities to learn about and explore possibilities to use compost in the production process.

FORCE will host the Composting in the SE Conference and Exposition. To accomplish this task, a committee has been created. The conference will be held from October 6-9, 2002 at the Westin Innisbrook in Palm Harbor, Florida, near Tampa. Information for the conference can be found on the UF/IFAS website at <http://conference.ifas.ufl.edu/compost/index.html>. The Steering Committee continues to formulate the agenda, develop conference materials, and obtain sponsorships. The Co-Directors held additional discussions for the purpose of pinpointing supplemental funding sources or the conference. A brochure created and sponsored by UF entitled “First Announcement and Call for Abstracts” was mailed out in early January 2002.

4.2 Technical Advisory Group (TAG) Committee Meetings:

Two TAG meetings were held in Sumter County, Florida on June 2001 and January 2002. Preparation for FORCE TAG meeting, including agenda items, handouts, notification to and follow-up with TAG members occurred for each meeting. As required by the contract, Sumter County published announcements for these meetings in the Florida Administrative Weekly and notified DEP of this forthcoming announcement. The TAG was presented with the FORCE Annual Work Plans and Budgets for Year 1 and Year 2 during the TAG meetings for review and approval. Preparation and distribution of TAG meeting minutes, contact list, and DEP Quarterly Reports were distributed to the TAG on a timely basis.

4.3 Market Development

FORCE project team members prepared for and participated in the RFT Organic Division sponsored Department of Transportation networking reception in DeLand on May 14, 2001 targeting the Highway Beautification DOT regional staff members.

As a member of the RFT-FDOT Marketing Initiative Team, FORCE staff participated in a September 13, 2001 RFT-FDOT planning meeting in Mulberry, FL to discuss and coordinate further FDOT marketing projects and develop outreach strategies for the regional FDOT departments.

A supply of FORCE education brochures were printed and copies mailed to the Co-Directors, the project manager, the research manager, at conferences and networking opportunities, and to some of the TAG representatives.

4.4. Conferences and Meetings

FORCE staff attended the RFT workshop on DOT use of compost in roadside soils on September 20, 2001, in St. Augustine, Florida. FORCE staff attended the BioCycle Southeast Conference in Atlanta, August 27-29, 2001, and a staff member gave a brief presentation about the project as part of the conference session entitled “Building an Infrastructure for Organics Recycling”.

Drs. Emino and Zinati attended a Florida Organic Farming Workshop on November 29, 2001, in

Lake Alfred, FL. The title of the workshop was “Building Bridges Between Organic Farms and Land-Grant Institutions”. At the workshop, the goals and objectives of the FORCE project were introduced to attendees, brochures were distributed, and contacts were made for possible future collaborations.

Drs. Emino and Zinati attended the FDOT/RFT initiative meeting in Hillsborough County on December 14, 2001. Dr. Emino presented an overview of FORCE goals and updated the RFT members about the project. Drs. Emino and Zinati interacted with the attendees and discussed some marketing and environmental issues of compost end products. They provided information and ideas related to compost and how these ideas can be effective for better production and marketing. They also welcomed and noted research ideas proposed by some of the members for further investigation.

On November 7, FORCE staff participated in the RFT-FDOT initiative event - an organics demonstration at the Hillsborough County South Landfill. More than 40 attendees viewed demonstrations of mulch products and methods of application. One of the handouts at the event was a binder containing a list of 13 FDOT organic recyclers state-wide – FORCE/Sumter County was listed as such a facility. KCI personnel distributed FORCE brochures to the attendees, invited everyone in attendance to browse the FORCE website, and networked with the event participants.

Papers including information on the FORCE project were presented as follows:

1. Baiz, Viviana, and E. R. Emino, 2002. Growth Response of Sunflower to Municipal Solid Waste Compost Amended Media; Presented February 2002.
2. Zinati, Gladis and E. R. Emino., Florida Organics Recycling Center of Excellence (FORCE):Research and Education Programs for Florida; Presented at the Southern Region American Society of Agronomy (SR-ASA) Feb. 2-5, 2002, Orlando, FL.
3. Zinati, Gladis, and E. R. Emino, 2002. Effect of co-compost on sandy soil properties for specialty cut-flower production; Presented at the SR-ASHS, Feb. 2-5, 2002, Orlando, FL.

4.5 Demonstration Farm Operations

The initial phase of the compost amended beds at the UF/IFAS/FAES Department of Environmental Horticulture specialty cut flower research program has been completed and the research confirms the broad base of literature that composted amended soils are beneficial for crop growth. The additional

finding was the reduced cropping time for the model crop, cut sunflowers. Additional work is ongoing on this initial project.

The identification of appropriate demonstrations to employ began during this time period. This process is ongoing. Additionally during this time period, the selection of organic products to employ in the project commenced and is continuing. A preliminary cropping plan has been developed for the first growing season.

In late November Drs. Zinati and Emينو discussed a list of nine potential projects Dr. Zinati wrote for research studies on nutrient and environmental issues using compost or compost products for horticultural and agronomic crops. In addition, Dr. Zinati established some communication with key people in the area of erosion control, nutrient management and feedstock sources. One study out of the nine has recently instituted using compost produced at the Sumter County Solid Waste Facility on herbs (parsley, the plant model) for nutrient management.

Effect of compost rates on accumulation on soil organic carbon: Soil samples were taken periodically and analyzed for organic carbon. Results of this research will be submitted in a manuscript.

A research on N management for herbs (Parsley- model plant) using compost, generated at the Solid Waste Facility, has been established at UF campus, Gainesville in December 2001. The first season will be over in March and the second season will start in April.

An experiment was initiated on February 14, 2002 to determine effect of using low and high C:N composts as a potting media for producing geraniums in 4” pots. This research will be due on March 2002.

5.0 Evaluation, monitoring and testing

5.1 Scientific Advisory Council (SAC) Protocol Development

Three candidates, Drs. George Fries, Lewis Carr, and Rufus Chaney, were identified and appointed to the SAC with DEP concurrence. The SAC was provided appropriate appendices of the Grant Agreement for review. The SAC is currently planning its initial meeting in 2002 to develop

environmental measure priorities and protocols.

5.2 Feedstock and Products Testing:

(Plant Growth Studies)

Dr. Everett R. Emino, as part of his ongoing research with cultural systems of specialty cut flowers, has added a compost component to this work. Three ground beds have been created and divided into four sections at the University of Florida. The sections were treated with 0, 5, 10, and 20 cubic feet of Sumter County compost roto-tilled into the existing soil at a depth of six inches. The compost rates approximate 0, 25, 50, and 100 tons per acre at a 50 percent moisture level. Sunflower (*Helianthus annuus*) and Zinnia (*Zinnia elegans*) are the model plants used in this study and planted sequentially at weekly intervals. Preliminary observations indicate the compost treatments are supporting growth the same as and in some cases better than the controls. No deleterious effects have been observed.

Similarly, a greenhouse pot experiment using compost as a growing media component is underway at the University of Florida with two commercial growing media being supplemented with 25, 50 and 100 percent rates of compost. Again, no deleterious effects have been noted even at the 100 percent rate.

5.3 Environmental Monitoring

Not applicable this period.

6.0 Project Management

6.1 Personnel:

(University of Florida Staffing)

Dr. Gladis Zinati was identified as the most qualified person that applied for the postdoctoral position. She was offered the job and accepted and began work on September 4, 2001. Dr. Zinati has a Ph.D. in soil science from Michigan State University and has an established record of accomplishment with compost research. Dr. Zinati will be the Research manager for FORCE and is currently developing research protocols and reviewing literature relative to compost and other

recycled organics.

The position for the Multi-county Extension Educator (Program Extension Agent I) has been posted and interviews taken place. Erik Spalvins was offered and accepted the Extension position. The Agricultural Technician position has been submitted to the University Human Resources Department for posting.

6.2 Administrative Fees – Indirect Costs:

Not applicable at this time.

6.3 Annual Work Plans and Budgets:

The co-directors prepared the Year One Operating Plan and Budget to the DEP for approval on June 15, 2001.

The revised FORCE Year One Operating Plan & Budget was approved by the DEP, along with the Year 2-5 Projected Activities.

The project team began preparations for and completed the Year 2 Work Plan and Budget, and projected Year 3-5 activities.

Since all DEP reporting documents are due on March 21, 2002, the FORCE team will submit an addendum with any necessary revisions to the DEP for the Year 2 Operating Budget and Annual Report. It is logistically impossible for the Project Team to close out the year before the period ends and report an annual budget for the previous year and projected future years properly before the reporting period ends. The project team is requesting a 30-day period after the end of the annual reporting period to properly prepare the year-end reporting documents.

6.4 Project Coordination and Administration:

The co-directors, Garry Breeden, Sumter County, and Dr. Wayne Smith, UF/IFAS, meet on the second Wednesday of every month and generally hold their meetings at the SCSWF. FORCE Project Manager, Everett Emino; FORCE Research Manager, Gladis Zinati; SCSWF Manager, Terry Hurst; and Sumter County subcontractor, Kessler Consulting, also attend these monthly planning meetings. If it is not possible to meet in person, a telephone conference call is scheduled at a day

and time convenient for all parties involved.

A conference call was coordinated between the DEP project manager and project participants regarding the use of a DEP-drafted spreadsheet to track Reimbursement Requests against the FORCE annual budgets. The County is currently utilizing this new spreadsheet.

FORCE staff sought funding from EPA Region IV and the National Foliage Foundation. These proposal requests were unfunded. In addition, Sumter County sought additional funding from the State legislature and this request was vetoed.

A US government excess-property vehicle was obtained through the UF/IFAS/Florida Agricultural Experiment Station at no cost to FORCE and is now assigned to FORCE and is being used for transportation between Gainesville and Sumter County. The vehicle is a Plymouth Acclaim (a 4-door sedan).