



Florida Organics Recycling Center for Excellence (FORCE)
DEP Contract: SW204
Annual Report -Year 4

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 commenced as a cooperative effort among Sumter County, the Department of Environmental Protection (DEP) and Public/Private Researchers. The partnership between these entities is intended to offer 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 fourth year of the FORCE project. Some of the more significant highlights include grant awards and the implementation of various organics research and demonstration (R&D) projects totaling approximately \$125,000 and the launch of a newly revised FORCE website (www.floridaforce.org). Both the information bibliography and technology database are now uploaded on the FORCE website and are searchable databases and much more user-friendly. In addition, one of the offices at the FORCE modular building was transferred into an actual organics library with magazines, periodicals, scientific journals, and technology files on various organics equipment.

At the beginning of Year 4, the authorization from the DEP Tampa Office was granted to finally operate the digester through a permit renewal. Throughout the year, the FORCE project team partnered with industry peers and spoke at industry conferences for the purpose of bringing the FORCE name and mission to the forefront of the Florida organics recycling industry.

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:

In April of 2004, Sumter County received a (1) Composting Permit and (2) MRF permit to begin utilizing its new Digester #2. To ensure compliance with the new permits, all necessary engineering work is continually reviewed by Kessler Consulting, Inc. (KCI) to ensure proper planning and inspection of the FORCE site and relevant equipment as required by the DEP's Southwest Office.

The County planned for and prepared a request to the DEP in prior communication regarding needed equipment for use and operation at the demonstration farm, digester and finishing building and received approval from the DEP regarding the purchase of the following: mower, trommel screens, compost spreader, tractor with a bucket and bushhog. Moreover, the majority of the equipment for a new improved Netafim irrigation system was installed at the 40-acre demonstration farm towards the end of Year 4.

1.2 Plan Certification and Permitting:

There are three regulatory documents related to the operation of the FORCE Digester. These are the (1) Compost Permit, (2) the MRF Permit, and (3) the Model Consent Order. To ensure compliance, these documents are continually reviewed to meet the said permit requirements and deadlines to operate the digester purchased through FORCE.

To reduce the potential for errors, KCI has taken the lead role in all matters pertaining to these permits. KCI is currently responsible for overseeing that Sumter County Solid Waste staff, PBS&J, The Colinas Group, and AirSpec meet deadlines and maintain proper communication with Tampa DEP office if deadlines will be missed and why (e.g. hurricanes, broken rig equipment, etc.). In Year 4 all solid waste permitting and testing/analytical work has been transferred from Springstead Engineering to the aforementioned firms.

Unlike the original digester, the FORCE digester does not have separated compartments for batches, so the DEP Tampa office requested additional laboratory compost sampling be performed at the discharge point of the digester per the Fecal Coliform testing procedures as stated in the DEP Tedder/Maguire memo dated 12/1/03 attached to the County's April 30, 2004 Compost Operation Permit. Additional sampling of the compost is underway according to the aforementioned memo, but the DEP Tallahassee office has not allowed the County to charge for these tests under the FORCE contract.

Also in Year 4, Sumter County had an Odor Control system installed as a requirement of its Compost Permit, which was approved when the Composting and the Materials Recycling Facility permits were renewed on April 30th, 2004. The County is in the process of applying for an Intermediate Permit Modification to change the current Odor Control system to another system

which will mitigate odor better and be more cost-effective. As soon as the approval from the DEP is received for the new system, this will be installed and initiate operations. The current system will continue operating to abate odors at the facility until the new system is installed.

On January 6, 2005, FORCE staff participated in the DEP's Wastewater Residuals public meeting at the DEP Tampa office. It was found that current proposed revisions to wastewater residuals rule will not impact directly the composting operations of FORCE, which uses sludge as an additive.

2.0 Construction

2.1 Office Space Trailer:

To create an atmosphere conducive to research, there are plans to make the FORCE office/library more organized and functional. Some items were purchased in Year 4 to help with the organization of files and items that were not properly organized by the FORCE Superintendent, subsequently titled, FORCE Coordinator. The purchase of new furniture is included in the FORCE Year 5 Operating Plan to properly equip the office and accommodate people and FORCE staff, who will utilize the FORCE library.

2.2 Demonstration Farm Site Preparation and Maintenance:

UF/Dr. Rockwood's Forestry Project:

Work continues on the FORCE Demonstration site. See section: 4.3 – UF/Rockwood project update, which is occurring on the FORCE 40-acre farm.

2.3 Installation and Maintenance of Digester:

Sumter County began utilizing its new FORCE digester in early May 2004. The County has been processing the approximately 94 TPD of MSW from the Tip Floor, with an average recovery of 25 TPD from the MRF. The remaining 69 tons are processed in Digester #2 with approximately 34.5 tons of sludge and approximately 17.5 tons of fresh compost, resulting in roughly 121 TPD of compost produced.

The FORCE digester equipment has been operating without any significant extended downtime to date. There were a few replacements made in Year 4 and covered under the contract warranty with A-C Equipment Services (A-C) and they included the following: Stearns electric holding brake on the main drive motor was replaced, two modules on the PLC electric panel were cleaned and reinstalled, and rotary coupling on the digester discharge end was replaced. As with all their work, A-C mobilized quickly and resolved all the issues without any major interruption to the compost production process. The digester was down for one week from January 28 – February 3, 2005 and staff took advantage of the downtime by replacing the air hub that was leaking air and performed other minor maintenance items at no expense to the FORCE project.

2.4 Laboratory:

No activity to report during Year 4. Laboratory equipment and supplies have been requested in the Year 5 Operating Plan and laboratory activities are expected to occur during the first quarter of Year 5 in relation to the feedstock testing projects.

2.5 Irrigation System and Maintenance:

Early on in Year 4, FORCE received two quotes to upgrade the current irrigation system on the 40-acre demonstration farm. The first quote was from Florida Irrigation Supply, Inc. and the second quote was from The Netafim USA. FORCE Directors approved the Netafim USA quote on June 17, 2004. The advantages of the Netafim system include: a self cleaning dripper, techline dripper line (which delivers precise amounts of water to the root zones), a more economical cost, and does not require one to manually insert the 2450 drip lines. This system is to help improve the research activity being performed on current and future grant demonstration projects at the 40-acre farm.

The Netafim system was installed on March 18, 2005 with the exception of one connector. Due to this connector and a repair on the distribution systems; the Netafim system is not fully functional at this time. The system is expected to be functional in the first quarter of Year 5. Dr. Rockwood took on the role of overseeing the installation of the Netafim irrigation system equipment and will make another trip to the demonstration site in the next quarter to sign off on the completed work.

3.0 Operation

3.1 Process Technology Procurement and Testing:

In an attempt to expand on the original solicitation for educational materials from vendors in the organics industry, KCI prepared a mailing to a total of 294 (158 new vendors and 136 existing vendors) national organics vendors to gather information and outreach materials for the technology database to be housed onsite at the FORCE office. Over 200 entries have either been updated or added as new this quarter. In addition, KCI staff has consolidated and transferred the technology files for the technology library to FORCE, which will house the library at the modular office. KCI continues to investigate new technologies and has had ongoing correspondence and received information from vendors wanting to be showcased at the FORCE technology library and on the website.

The permitting requirements for having all other potential technology equipment on one pad on the FORCE site as requested by the DEP Tampa office was just not an efficient operational scenario for the county to implement. After discussion with and approval from the DEP Tallahassee office, in Year 4, this task was changed to include technology equipment to be housed on the FORCE site like the digester, but also technology information to be maintained in both a physical library of files located at the FORCE modular office and on the FORCE website. During Year 4, a comprehensive Organics Recycling Technology Library was created in the FORCE office. The goal of this library

is to house a statewide composting education and resource center, in which the public can research organics technologies, processes, and vendors. Much of the brochures, CDs, videos, etc, housed in the library were received from the Technology Vendors Survey originally conducted in Year 2 and Year 3 and then expanded upon in Year 4.

In addition to the files to be housed in the library at the FORCE office, KCI also updated the spreadsheet of Organics vendors with all of the new companies from which educational materials were received. An Access database of all of the organics vendors was then developed for use on the FORCE website. Converting the Excel spreadsheet to an Access database allows end users and interested individuals to search the database for specific categories or regions. During Year 4, the database was incorporated into the FORCE website and can be found at the following URL: <http://www.floridaforce.org/technologylist.cfm>. FORCE website visitors now have the option of searching the entire database by keyword, company, or geographic region. This is a major improvement over the older Excel Version, in which users could only scroll through the spreadsheet. KCI continues to research new organics technologies and the monitoring of updates to the website and library files.

Although intensive coordination and planning took place during Year 4 regarding the RFT/FORCE Equipment Demonstration Event; the FORCE and RFT committee members decided to cancel the Technology Equipment Demonstration Event scheduled for April 27th and 28th. Due to the presence of other industry related conferences, low participation turnout, and an unusually low interest in vendor attendance, it was decided that the Demonstration Event should be postponed. The committee has decided to reschedule the Event to this coming winter. A cancellation and rescheduling notice went out to potential attendees and organizations that had been contacted earlier, especially those who were planning to attend. It was a lesson learned that the best time of the year to hold this event is early December or February, since these dates do not conflict with any other industry events and this is a downtime for vendors located in winter states.

3.2 Feedstock Procurement/Processing:

A request for reimbursement was made, during Year 4, to the DEP for trommel screens to help produce a better compost product to be utilized on research products such as Don Rockwood's Forestry project. Originally this purchase was denied and then it was later approved by the DEP for purchase and reimbursement with FORCE funds.

3.3 Administrative Costs – Supplies and Travel:

Various administrative office supplies and costs are charged to this line item, such as telephone services, satellite Internet access, utilities, etc. Any and all travel expenses will be reported and billed in task 4.4.

4.0 Market Development, Education, and Training

4.1 Educational Analysis, Outreach, and Website:

Outreach Material:

FORCE staff drafted and created the following FORCE related organics outreach and education materials. The majority of these have already been uploaded to the FORCE website. Additionally, they were distributed on a CD and samples were showcased to TAG members at the December 2004 meeting.

1. Bookmark
2. Notepad
3. Tips of the Trade for Marketing Organics in Florida (website)
4. Benefits of Compost in Florida (website)
5. Compost Testing Laboratory Options or Compost Testing Chart (website)
6. Best Management Practices for Erosion and Sediment Control (prepared by RFT)
7. FL Golf Course and Golf Properties End-User Directory (website)
8. FL Nurseries & Plant Growers Directory (website)
9. FL Sod & Landscape Companies Directory (website)
10. FL Top Soil Distributors Directory (website)
11. FL Vegetable and Fruit Growers Directory (website)
12. Spring, Summer and Fall 2004 Newsletters (website)

A CD containing these documents, except for the bookmark and notepad, was provided to the DEP contract manager at the December TAG meeting. Please visit the website and go to the Educational Materials link to view and download the above mentioned educational materials. A copy of each document will also be attached.

Newsletter:

In an attempt to enhance communications and better serve Florida's organics recycling industry, FORCE staff produced a quarterly e-newsletter for spring, summer, and fall 2004. This newsletter is expected to continue in Year 5 with three quarterly newsletters being produced.

This newsletter provides updates on upcoming training and events throughout the state, the status of FORCE grant projects and grant opportunities, website updates and pertinent organics recycling information. The goal is to provide timely, relevant and useful information as well as to solicit feedback from readers. Should the DEP like to include information in this newsletter, please contact Miriam Zimms of Kessler Consulting, Inc.

The second and third e-newsletter was sent to over 100 recipients. These recipients include recycling, solid waste, and composting industry representatives from the private sector, municipal, county, state and federal agencies, university faculty, FORCE grant recipients, workshop and training attendees, FORCE TAG members, and consulting firms.

Website:

During the first quarter, the project team evaluated changing vendor services for management and website design to update the FORCE website. The project team made it more user-friendly and more technically advanced through its functions (e.g. searchable databases) for users in order to increase usage and information transfer.

The original website was designed by PintSize Graphics. During the second quarter of Year 4, FORCE hired Advanced Network Solutions (ANS) of Central Florida, Inc. to revise the FORCE website to make it more user-friendly and more technically advanced. It is the intention of FORCE that these revisions will increase usage and information transfer. The technical information was consolidated, coordinated and website page technical text written by KCI. Quality Control for the design and technical changes to the website was performed by KCI. Stacie Stokes and Christie Revenaugh, FORCE Specialists were instrumental in updating the original bibliography produced by UF/IFAS, which had a lot of non-usable links, as well as updating the technology database with new vendor entries provided by KCI.

ANS completed revamping the new website and therefore FORCE is proud to present the new FORCE website, which was launched on March 31st, 2005. Please visit the FORCE website at www.floridaforce.org. We welcome any feedback or information the DEP would like to provide to this site. Although it is up, there are some “behind the scenes” items that KCI and ANS are finalizing. An Email announcement was distributed to the following organizations: RFT, United States Composting Council, California Integrated Waste Management Board, SWANA International and Florida Sunshine Chapter. It was also sent to the Center for Solid and Hazardous Waste and the Florida Department of Environmental Protection, Transportation, Pollution Prevention, Waste Reduction, and Organics Departments. All FORCE TAG members were provided this Email announcement too. An article was prepared for the RFT newsletter, but RFT forgot to include it in their spring issue. It will be included in their summer issue. All the major industry and Florida publications were provided an Email announcement too, including, but not limited to the following magazines: Resource Recycling, Biocycle, Waste News, and Florida Trend. Pintsized Graphics, Inc. will only continue to provide the hosting service for the website. Total hits to the website to date are approximately 3,900 visits.

Some of the features of the new website include: completely searchable website; new layout and background; several searchable organics directories; a standard form to contact a FORCE Specialist; progress and final grant reports; composting testing labs searchable directory; educational materials available for download; previous newsletters; searchable bibliography; FORCE staff photos; and announcements about events related to FORCE and the organics industry, among many other features. The upcoming events page is constantly updated to include current organics related events and conferences.

The files from the old website are saved at FORCE. A copy of the web pages from the old website has been attached for your comparison to the new website.

FORCE 1-800 Number:

The FORCE toll-free telephone line was transferred from the KCI office in Tampa to the FORCE office. Calls continually come in and staff provides answers, solutions, and/or direction as appropriate. On average a half to one dozen calls come in monthly regarding organics related assistance.

USCC Listserv:

The USCC listserv is monitored by KCI regularly for items of relevance to the FORCE program. Additionally, industry journals and the Florida Clipping Services are monitored for articles of relevance to the project and appropriate articles are forwarded to TAG members.

Industry Articles and Publications:

FORCE was featured in a couple industry publications during the last year.

- ❑ Zimms, Miriam. 2004. “In-vessel System Grows Composting Operations in Florida.” *Biocycle* (June): 30
- ❑ Zimms, Miriam. 2004. “FORCE: New Organics Bibliography Available On-line.” United States Composting Council - *Compost Communicator* (spring).
- ❑ Rockwood/Hampton, RFT August 2004 Newsletter – Demonstrating Applications for Compost Utilization.
- ❑ Barrett, Shane. RFT November 2004 Newsletter – FORCE – Composting Resources Available.

Additionally, FORCE staff prepared a press release (PR) that was sent at the end of January 2005 to the *Sumter County Times* and *The Villages Daily Sun*, both local newspapers of Sumter County. The article mentioned a television program about home composting and it explained the composting process. Unfortunately, FORCE staff did not see this article published in either newspaper. A copy of the PR is attached.

State Regulatory Research:

Since DEP staff is aware of the need for revising the compost regulations and because the staff currently does not have the time and resources to take on this task, FORCE is performing an analysis of the solid waste regulations of the DEP for organic recycling facilities and comparing them with the compost regulations of seven other states.

It is hoped that the report will: 1) support the conclusion that Florida’s organics recycling regulation needs to be updated, 2) help the DEP establish a schedule for revising the compost regulations, 3) establish the impetus for an Organics Technical Advisory Committee, and 4) provide useful information during the regulatory revision process. The reader should note that the report’s original scope was limited to organic recycling facilities regulated under solid waste rules. It does not include biosolids (municipal wastewater sludge) regulatory research from the seven states when their treatment and beneficial use are regulated under separate rules (e.g., residuals management or wastewater regulations). The report has been funded through the FORCE and being prepared by KCI.

The compost regulations for a total of seven states have been reviewed and summaries of each have been prepared. These seven states include: California, Massachusetts, Maine, New York, New Jersey, Virginia, and North Carolina. KCI also held telephone interviews with contacts in each of these states.

A draft report was completed and is undergoing a series of internal modifications. In particular, an analysis of the Florida Regulations as they pertain to the existing restriction on the Sumter County facility to accept only Class B or better sludge, was included in the report. The project team anticipates its completion in the first or second quarter of Year 5.

Education & Outreach Grant Project:

The following describes one of the five R&D grant projects funded by FORCE in Year 4.

UF/Dr. Monica Ozores-Hampton Organics Training Project:

Dr. Ozores-Hampton held the following training, education, and marketing workshops on the following dates and locations:

1. Training in the Production and Utilization of Compost in Florida, May 5, 2004, Immokalee, Florida.
2. Training in the Production and Utilization of Compost in Florida, June 23, 2004, Tallahassee, Florida.
3. Training in the Production and Utilization of Compost in Florida, October 27, 2004, Sumter County, Florida.

Training CCE, CEU, and CCA units were arranged by Sumter Extension Service for the citrus, vegetable, turf and ornamental growers as continuing education for their licenses. Representatives from county and city governments, Universities, DEP and a variety of organics industries participated in the training workshops. Following the tours, presentations were made on topics such as: compost biology, compost technologies, operational consideration for safety, compost quality and testing, Florida regulation and multiple uses of compost in the turfgrass, nursery and vegetable industry.

Due to the relentless hurricane season the program scheduled for September 15, 2004 at Sumter County had to be canceled and was rescheduled for October 27, 2004. All registered program participants received a telephone call and were mailed a follow up announcement of hurricane reschedule date.

This project is completed according to the original contract. All three of the trainings have been delivered, however a contract extension and funding use through September 30, 2005 was approved on January 18, 2005 by the Board. The contract extension is attached. Dr. Hampton has requested to hold an additional training for the Citrus Industry with the remaining funds available. This

training is pending approval from the Director's until there is full accountability of funds remaining. FORCE staff is in the process of reconciling Monica Ozores-Hampton invoices and calculating the remaining balance in the grant.

Details of the training activities are included as attachments. The quarterly reports submitted by Dr. Ozores-Hampton are also attached. There was no quarterly report submitted for the fourth quarter. A final report will be prepared and final reimbursements will be requested next quarter.

4.2 Technical Advisory Group (TAG) Committee Meetings:

A TAG announcement was placed as required by the contract under the FAW announcement process. A TAG meeting was held on December 9, 2004 at the Sumter County Public Works Office in Bushnell, Florida. Some of the items discussed during the TAG meeting included a discussion about the upcoming 2005 Equipment and Vendor Demonstration event, a PowerPoint presentation of all the R&D projects and their status to date, including the results and completion of one of the projects, the 2004 educational materials developed, and the intended improvements to the FORCE website through a presentation by ANS and KCI. The TAG also discussed upcoming 2005 activities including the completion of the four remaining R&D projects, the completion of the Organics Report for Florida, and the goals for the completion of the new website (the TAG provided website technical and user feedback), and goals for additional funding. They also were provided electronic copies of the educational materials developed to date on a CD. As required by the contract, they were also sent the Year 5 Operating Plan and Budget following the meeting via Email and subsequent feedback/approval was received from the various members.

KCI feels that the current and active members of the TAG form a strong core for Year 5 and we continue to appreciate their consistent input and feedback. Additionally, TAG members that received direct, personal compensation for any activities involving a FORCE grant or who have consecutively not attended a FORCE meeting in over a year were notified that they are no longer eligible to participate on the committee. The Sumter County attorney approved this recommendation.

The TAG was notified that the FORCE/RFT Equipment Demonstration Event was cancelled and rescheduled. The cancellation and rescheduling announcement was forwarded to each TAG member for them to notify the companies in their industry, if any previous announcements about the event had been made.

4.3 Market Development:

Research, Demonstration, Education, Marketing, and Outreach Projects (Grant Projects):

At the beginning of the Year 5 grant projects awarded funding started implementation. In the first quarter, two of the original seven short listed projects were determined to be unfeasible for the County to manage and operate on site at this time. "The Reduction of Organic Matter in MSW and Agricultural Waste" and "The WRT/Biomass Utilization Project" were not awarded and company

representatives were notified. Reasons for the County not proceeding relate to operational, permitting, and staffing constraints the County was currently facing (e.g., original digester inoperable, capacity limitations, and limited staff operational time). The DEP Tallahassee office was notified of this change and understood.

Intensive Production System for Turfgrass Utilizing MSE Compost over Ground Cover:

The turf grass project Investigator researched the development of a viable cropping system for turfgrass production that will conserve both water and land. This project's goal is to develop a system for the commercial production of turfgrass and target small and medium producers and create a niche for this type of producer.

During the second quarter the majority of turf planting was completed and the rate of growth was measured. Soil and tissue samples were used to develop a fertilizer program that was monitored and adjusted. Efforts were also made to monitor the turf for weeds, insects and diseases and apply pesticides as needed. Irrigation application rates were monitored and recorded.

Chuck Todd completed all of his contract requirements. Mr. Todd has prepared a final report and he has received his final reimbursement. A copy of the final report PowerPoint presentation is attached.

UF/Dr. Rockwood's Forestry Project:

During April and May 2004, 1600 Eucalyptus sp. replications were planted in the FORCE demonstration area during four days of planting. Nineteen Department of Collections' participants, four University of Florida staff and faculty, and Dr. Bradshaw prepared the site, planted and fertilized 11 designated rows.

During the second quarter, research continued on the FORCE demonstration farm and to further extend the evaluation of compost on forest crops, a study was installed at the UF/IFAS Southwest Florida Research and Education Center (SWFREC) at Immokalee. This study was established at the SWFREC near Immokalee, FL, on July 6-8 to evaluate the opportunities for growing Cyprus and Cottonwood with and without compost in the vegetable producing sand lands of southwestern Florida. Due to droughty conditions at and following the planting, which resulted in survivals ranging from very high to low, dead trees were replanted on August 12th with the same or best available genotypes.

In July, the two Summer Science Training Program (SSTP) students successfully completed their research projects, one based on the FORCE project and the other based on the Archer project, with an award-winning presentation and poster, respectively, to the 97 SSTP students and some 12 SSTP faculty and staff.

During the third quarter, a site evaluation visit took place at the Withlacoochee State Forest Project. Due to extensive drought during early stages of growth in the spring, coupled with excessive flooding conditions during the hurricane, the project exhibited a high mortality rate on new trees planted in the spring of 2004. A comparison will be made between the growth of trees planted

during the same year at the FORCE site and Withlacoochee site. The FORCE site provided supplemental irrigation during the establishment phase of growth.

To enhance the educational quality of the 2004 program year's plantings, a series of signs were requested in August. The Sumter County Sign completed the trial replication signs and tree ID signs at the end of October. The newly developed signs were installed in November.

During the October 27, 2004 Compost Production and Utilization training, a tour of the FORCE Forest Crop compost demonstration area took place. Brian Becker of the University of Florida provided an explanation of the advantages of growing forest crops on Sumter compost enhanced soils. A handout and schematic of the field trials was provided to all participants. The full quarterly report submitted by Dr. Rockwood is attached.

A contract extension through March 21, 2006 was approved on January 18, 2005 by the Board. The contract extension is attached. As requested by Dr. Rockwood, the Director's have also approved for renewal of funds, the proper paperwork is expected to be done in the upcoming weeks.

From January – March 2005, activities included upgrading the irrigation system for the 2004 planting from drip tape to Netafirm polyhose with emitters, weeding with DOC assistance, and arranging with Chuck Jett for Fusillade and compost applications and other maintenance, utilizing a tractor and related implements recently acquired by FORCE for this project. On March 18, an onsite review was conducted by Chuck Jett and Jose Rivera. Funding was arranged for the 2005 NSF-sponsored Summer Science Program, involving a one day visit to FORCE on June 21, 2005, by participating Alachua County School science teachers and students.

A site visitation was conducted by Don Rockwood on March 18, 2005 with the goal to document the findings year to date. Some of the highlight results of the different tree species of this grant up to this point include:

- Cottonwood (*P. deltoides*) performs better with compost than fertilizer over its 1st year growth.
- Cypress performs better with compost than fertilizer over its 1st year growth.
- Eucalyptus *Amplifolia* performs better with fertilizer than compost over its 1st year growth.
- *E. grandis* performs better with fertilizer than compost over its 1st year growth.

Organic Matters – Double S Ranch - Food Waste to Animal Feed Project:

Jim Stevens with Organic Matters presented information about the project to the attendees of the 2004 RFT Annual Conference. Jim spoke about his project and the role FORCE played to help with the project and industry marketing, education, and outreach efforts. This project was underway mostly through Organic Matters own investment in this project.

During the month of July, communications continued regarding requests for reallocation of grant dollars to support project expenditures. A decision was made at the August FORCE Directors

meeting and after discussion with DEP staff to approve Organic Matter's request to submit personnel salaries for reimbursement under the FORCE grant. FORCE indicated that the details for tracking employee (Ranch Manager) time would be clarified with Organic Matters by telephone and this occurred.

The effects of Hurricane Charley (August 14, 2004) and the subsequent cleanup directly affected progress on expanding the project, disrupting many activities relative to the project.

On October 12, 2004, Jim Stevens provided an onsite visit to *Double S Ranch* with the goal of meeting Ranch Manager, Bob Stossel and touring the facility. Jim suggested that FORCE establish an awards and recognition program for businesses contributing to and participating in food recycling programs. FORCE staff notified Mr. Stevens that until project results were obtained and finalized, staff could not entertain an awards or recognition program.

Hurricane issues delayed the completion of fencing and pen construction until the third quarter. Containment of cattle was critical to ensure control of their feed consumption. The cattle inventory owned by Double S Ranch also grew this quarter to 206 plus a bull and 16 calves, all dedicated to the project. During the last week of the quarter, the Organic Mattes paid for and acquired a 1997 International feed truck (at a cost of \$36,000). The feed truck will aid in delivering the waste product (blended) directly to feed troughs at local ranches. Nearby, Seneca Farms has signed on with 50 head designated to be fed at their location.

A contract extension and funding use through September 30, 2005 was approved on January 18, 2005 by the Board. The contract extension is attached.

During the fourth quarter, fencing and traps have been finished to separate 6 different pastures, but at the moment only 3 are being used, since 3 are pending a water line.

At the beginning of 2005 Double S was feeding approximately 250 head of company owned cattle, including approximately 21 calves, and also feeding 150 head for other cattle owners. These customers want to test the results of feeding cattle with the project's alternative cattle feed. Since this project has already had positive results from feeding cattle with the alternative feedstock, Organic Matters plans to be feeding 600 head of company owned cattle and 200 head of clients, by June. Cattle brought to the ranch consist of any type of breed. The first two batches of cattle sold consisted of 63 and 23 cattle respectively. The first batch was overweight and the FORCE project team is researching what market sales impact might be.

Cattle are currently being fed 100% by-products or waste streams. The sources of waste are: Bagels from Bagel Bites, Dominos pizza dough, Lykes hotdog casings, Bakery waste from Publix Bakery, Deep stacked poultry litter from GoldKist and Citrus pulp waste from Cutrale Citrus.

Several attempts were made to utilize ice cream waste as part of the feed mix in December 2004 and January 2005, but its use was discontinued for several reasons, particularly because it is difficult to

handle and to contain. It is quickly perishable, quicker than the other waste streams used, mainly because of dairy content. It had to be mixed with all the other waste streams within 3 days, otherwise it went bad. Ice cream waste was delivered to Bartow location and each load was mixed with citrus pulp and chicken litter immediately after delivery. Then this mix was delivered to the Ranch. It was observed that the chicken litter prolongs the life of the ice cream a little longer.

Cattle is kept at the Ranch a between 90-120 days in order to reach the desired weight gain. Each cow receives about 20 pounds of feed a day and has gained about 2.5 pounds of weight a day for a feed to weight conversion rate of eight pounds of feed for each pound of gain. Available data shows that the average incoming weight of cattle is 850 lbs. (from 141 cattle) and the outgoing cattle weight is 1,075 lbs. (from 119 cattle).

Note: This project is in the first stage of reaching a commercial size. These numbers are very preliminary and will get much more meaningful as the operation matures.

RKB Enterprise, GOC – Vapor and Odor Control at FORCE Sumter County, FL:

A Vapor and Odor Control system was installed by RKB Enterprises in the MSW Tipping Building and in the Biosolids Tipping Area. This system has been installed as a measurement to prevent odors escaping the building and bothering the neighbors. It was installed at the beginning of December.

This project has completed the pilot period on January 28, 2005; however a contract extension through September 30, 2005 has been approved by the Board on January, 18, 2005. The contract extension is attached.

On January 28, 2005 the grant project period ended. Thereafter, Sumter County entered a period of evaluating the installed system and deciding whether it is worth keeping it or if they have to look at other alternatives for odor abatement.

The mechanisms of the installed system worked properly, but this system did not solve or eliminate odor completely. No odor complaints were received from off-site properties. However, some minor concerns have been expressed by staff in the biosolids area. A new system similar to the one Sumter County already installed will be proposed to the DEP next quarter through an application of an Intermediate Permit Modification to be kept at Sumter County. A final report will be submitted and final reimbursements will be requested next quarter.

The following project was not a R&D funded project but was a project FORCE partnered in with UF/IFAS.

University of Florida Zero Waste Project:

During the second quarter, FORCE teamed up with the University of Florida to assist the University as it initiates a Zero Waste Program for home football games at Ben Hill Griffin Stadium. Only a small load (approximately 8 cubic yards) of the waste generated from the skyboxes at all UF home

football games was collected and delivered to the FORCE facility where it was composted. Due to the hurricanes the entire amount anticipated to be received was not delivered. FORCE agreed to pay the compost tipping fees for the waste generated during the University's Zero Waste Program's pilot study. The MSW from the BHG stadium was composted with the Sumter County MSW and biosolids.

4.4. *Conferences and Meetings:*

Sumter County FORCE staff and KCI attended the June 2004 RFT Annual Conference in St. Petersburg, Florida. No travel expenditures were charged to the FORCE project by KCI. Participation included:

- Organic Sessions
- Organics Committee Meetings and Networking Opportunities
- Discussions with R&D Grant recipients about their respective projects

During the second quarter, charges were applied here for training activities provided by University of Florida to FORCE staff. In addition, BOCC transportation charges were also applied here for travel time.

FORCE facility staff attended the *First Annual In-Vessel User's Conference* in Pinetop, Arizona to obtain additional operational training for operating the digester as well as utilizing various feedstocks for innovative research applications. At this workshop, the FORCE Digester and Sumter County were awarded the *Eweson Award for Facility Excellence* voted on by representatives from other in-vessel operations throughout the US and Canada for its facility and FORCE activities.

FORCE facility staff attended the *US Composting Council Conference* in San Antonio, Texas from Monday January 24 - June 26, 2005 to obtain additional operational training in relation to the digester as well as utilizing various feedstocks for innovative research applications. A presentation about FORCE was given by Miriam Zimms from KCI at the conference. Miriam Zimms, Chuck Jett, and Jimmy Wise all received their Compost Manager Certification from SWANA/USCC at the conference.

4.5 *Demonstration Farm Operations*

See section: 4.3 – UF/Rockwood project update, which is occurring on the FORCE 40-acre farm.

5.0 Evaluation, Monitoring and Testing:

5.1 Scientific Advisory Council (SAC) Protocol Development

During Year 4 the permit to operate Digester 2 was obtained. Therefore, the SAC Protocol is in the early stages of being implemented for the feedstock testing projects. FORCE staff is working

diligently to locate a laboratory that has the equipment and technology and in which they can get the results back in a timely fashion.

5.2 Feedstock and Products Testing:

As part of the Year 5 Operating Plan, a schedule for testing different feedstock using the FORCE digester has been included. The schedule is expected to be finalized at the beginning of next quarter to be included in the revised version of the Year 5 Operating Plan. Year 5 will see activity in the area of feedstock testing, procurement and compost product testing.

5.3 Environmental Monitoring:

No activity to report at this time. Environmental monitoring activities are expected to begin with the testing of the different feedstock in the FORCE digester in Year 5.

6.0 Project Management

6.1 Personnel:

In Year 4, Dr. Joan Bradshaw's title was changed from Superintendent to Coordinator; however, there was no monetary change in salary, and it was reflected in the appropriate areas of the budget tracking sheet and the County G&L History report for the appropriate quarters. In November 2004 however, Dr. Bradshaw resigned from FORCE to pursue a career in the education/outreach field of IFAS. FORCE executive staff understood Ms. Bradshaw's desire to resign from FORCE and fully supported her change to a position solely focused on environmental education for a regional area of Florida for IFAS.

FORCE responded to this change by appointing Chuck Jett as FORCE Superintendent, and Stacie Stokes and Christie Revenaugh as FORCE Specialists. All work activities in Year 4 stayed on track, despite this unforeseen setback. Following the transition from Dr. Bradshaw to the FORCE project team, Christie Revenaugh returned to her original position at Sumter County Public Works. Her help was very much needed during the transition and FORCE thanks her for a job well done.

As with all start up "Centers", the county has gone through growing pains to establish the correct mix of team players working toward the same objectives. The County feels that at this time, the FORCE project team has the goals and management of the FORCE objectives on track with a working combination of team players that understand the County's commitment to organics and its commitment to the requirements of the DEP contract and project objectives for the State.

The FORCE office is currently being operated by and many County activities being coordinated by FORCE Specialist, Stacie Stokes. She will continue to develop the FORCE office into a statewide composting education and resource center.

6.2 Administrative Fees – Indirect Costs:

No activity to report this period.

6.3 Annual Work Plans and Budgets:

The FORCE project team coordinated, prepared, and transmitted, to the DEP, four quarterly reports for the periods ending June 30, 2004, September 30, 2004, December 31, 2004, and March 31, 2005. The Year 4 Operating Plan and Budget were submitted to and approved by the DEP. In addition, dialogue between the County, KCI, and DEP staff regarding outstanding UF/IFAS invoicing and vehicle reimbursement continued and it is hoped will be brought to closure in Year 5.

In addition, the Year 5 Operating Plan was prepared by the FORCE project team, reviewed by the TAG and transmitted to the DEP. A conference call was held on March 9, 2005 between the DEP, FORCE staff and Kessler Consulting, Inc. to discuss specific items of the Year 5 Operating Plan. All of the items in question were discussed, revised where appropriate and were approved during the call, except for Attachment A, Feedstock Testing Schedule. Furthermore, the DEP requested that a laboratory is identified to be able to perform testing according to the SAC Protocol. After these two items have been finalized, the revised Year 5 Operating Plan will be submitted to the DEP for complete approval.

While trying to find a lab to meet all the timing and testing requirements of the SAC protocol, FORCE staff encountered numerous set-backs with labs being able to perform all the requested testing and analysis, as well as some of the labs stating that technology had changed and the method being requested by the DEP/SAC Protocol was outdated. These items are going to be submitted to DEP for review. The FORCE staff finally found a lab to perform all the required testing in early April.

6.4 Project Coordination and Administration:

The FORCE project team meets one time per month either by telephone conferencing or physical meetings at the FORCE modular office or FORCE Director office at the County Administration building to discuss all facets of the project.

FORCE continues to pursue potential legislative and private sector funding. Dr. Bradshaw has prepared a draft funding plan, as well as delineation of specific goals and objectives of the program. It is the goal of the project team to continue to pursue additional legislative and private sector funding. Avenues of funding continue to be vigorously investigated, including state funds, the potential for additional legislative funds, and other Federal grants in the areas of solid waste, energy, water, and agriculture. Additionally, KCI has provided FORCE shared user access to KCI's DemandStar Account to locate potential funding sources. FORCE reviewed the criteria for applying for a 2005 Resource Conservation Funds Grant and will submit an organics marketing pre-proposal to the EPA Region IV by April 15, 2005. We also anticipate pursuing additional funding

in the first quarter of Year 5 with the Department of Transportation.

FORCE applied for a Water Conservation and Pollution Prevention Assistance Grant offered by the Withlacoochee Regional Water Authority. FORCE received \$19,500 and will match it with a \$19,500 contribution for a total grant amount of \$ 39,000. A presentation was made by FORCE staff to the Withlacoochee Regional Water Supply Authority Board of Directors and received approval for the project. Copies of the grant proposal titled, *Water Conservation & Pollution Prevention Assistance*, and the grant contract are attached. The project will develop an organics water efficient landscape demonstration and learning center to be developed at the newly constructed *West Central Florida Agricultural Education, Marketing and Development Center (WCFAEMDC)*.

Kessler Consulting, Inc. continued to play its role as FORCE Technical Director and Project Technical Consultant, and Contract Administrator for the project and is working with the County on every task, where applicable. In addition, KCI continued to train the FORCE Specialist(s) on all County related aspects of the project including contractual items, invoicing, R&D projects coordination, education and marketing, marketing/outreach partnerships, database maintenance, and administration.