Minutes of the Technical Awareness Group Meeting (3rd meeting)
For the Seaweed Composting Research
Supported by the Hinkley Center for Solid and Hazardous Waste Management

Meeting held, March 17, 2022, 10:30 to 12:00 pm (eastern)
Meeting Participation was through Virtual Connection
Registration was required to attend this meeting via Zoom

Attendees:

Speakers:
Afeefa Abdool-Ghany, University of Miami
Amanda Oehlert, University of Miami-RSMAS
Helena Solo-Gabriele, University of Miami
Peter Swart, University of Miami-RSMAS
Trent Blare, University of Florida-IFAS-Homestead

Attendees via computer webinar:
Abby Crombie, Georgia Institute of Technology
Alejandro Quintas, NEAT Sand
Ashley Smyth, University of Florida, Tropical Research and Education Center in Homestead
Danielle Jimenez, Division of Environmental Resource Management (DERM)
Dan Meeroff, Florida Atlantic University
Emilio Lopez, SOP Technologies
Evan Blanchard, Brizaga
Jeffrey A Davis, Georgia Institute of Technology
John Schert, Hinkley Center for Solid and Hazardous Waste Management
Kimberly Moore, University of Florida, IFAS-Fort Lauderdale
Lauren O'Connor, Florida Department of Environmental Protection
Ligia Collado-Vides, Florida International University
Mark Almy, City of Fort Lauderdale
Mark Richard, Miami-Dade County Parks
Mary Beth Morrison, Solid Waste Authority of Palm Beach County
Michael Antinelli, Brizaga
Rebecca Wakefield, Commissioner Regalado's Office in Miami Dade County
Samir Elmir, Florida Department of Health in Miami-Dade County

Agenda
TAG Meeting, Sargassum Composting

Date: March 17, 2022
Time: 10:30 am to 12:00 am (Eastern)
Location: Virtual

1. Welcome and introductions PPT Video

2. Year 1 Updates
   - Tumbler Composters, Phase I PPT Video
   - Hallandale Compost piles, Phase II PPT Video

3. Year 2 Updates PPT Video
   - Objectives
   - Economic Analysis
   - Approach for Phase II

4. Next Steps PPT Video

5. Additional questions and answers, wrap up

6. Adjourn

Questions: hmsolo@miami.edu

Minutes

Questions, Answers, and Comments #1 (After item 2 on agenda, Year 1 Update)

1. Q:Were the nitrogen levels reached for both phases of the project?
   A: Under the guidelines outlined by the USCC, the total nitrogen percentage is about 0.5% to 2.5%.Within the first phase of the project, the final samples all were within the range outlined. For phase II, the final samples were also within the range outlined. Overall, the C:N ratios were not within the range outlined by the USCC, which is less than 20. The samples from phase I were a little light on the nitrogen side.
2. Q: Are radishes used for cleanup methods of heavy metals?
   A: Radishes may be used as a cleanup technology because it does have the ability to bioaccumulate. The radishes grown in this project will be harvested and tested for trace metals to assess the metal content and levels. There is potential for there to be a study for the agricultural use of *Sargassum* compost as it is not your typical compost material. Perhaps the *Sargassum* compost can be recommended for plants that are not known to bioaccumulate heavy metals.
3. Q: Is the *Sargassum* a source of bacteria to the beach or is it a source of food for the bacteria and how does the bacteria levels change? How important is the locality of where the *Sargassum* is collected and the bacteria levels?
   A: The main conclusion that we have come to with this study and other studies dealing with bacteria levels at the beach is that when there are large influxes of *Sargassum* to the beach it acts as a substrate for the proliferation of bacteria. As the fresh *Sargassum* makes its way on to the shore, it has relatively low levels of bacteria. When the *Sargassum* starts to decompose, the bacteria levels begin to increase. The large mats of *Sargassum* act as an insulation and the temperatures within the *Sargassum* reach temperatures that are equivalent to the incubation temperature of enterococci. In terms of locality of the *Sargassum*. The *Sargassum* for phase I was collected from the City of Fort Lauderdale and was decomposing while the *Sargassum* for phase II was collected from Hallandale and was fresh. Within the closed tumbler composter systems, the bacteria levels were higher than the outdoor compost piles. This can be attributed to the piles being open to the atmosphere and solar inactivation of the bacteria can occur in the piles.
4. Q: How broadly can this research be applied? If someone wants to use the *Sargassum* in a similar fashion, what guidelines must they follow and what additional testing should they be aware of?
   A: The concentrations of elements will vary from region to region. *Sargassum* also changes with seasons as well. The arsenic levels from this study were lower than other studies and can vary even within Florida. Levels of arsenic can vary even within a batch. For example, samples in April 2020 were as high as 75 ppm and then decreased to 40 ppm later that year.
5. Q: Are we looking at commercial or residential use once this material is composted?
   A: It all depends on who is the target end user. From the results collected from the outside laboratory, the levels of arsenic are within what is outlined by FDEP for the Soil

Cleanup Target Levels for commercial/industrial use. Now for an agricultural use, there are different guidelines that need to be followed.

6. Q: How was the seaweed washed during the first phase?
   A: The *Sargassum* was collected from the City of Fort Lauderdale. Once collected, it was brought back to the University of Miami, RSMAS campus. A 5-gallon bucket was filled and timed to estimate the amount of water used for washing. Sargassum was then placed on a tarp and sprayed down with a house and shaken to remove as much of the sediment as possible.
7. Q: After a long period of time the arsenic levels start to increase, if this was to be used in a residential area, how would we track the levels?
   A: Soil cores can be taken in the area and see how arsenic profiles change with depth.

Questions, Answers, and Comments #2 (After item 3 on agenda, Year 2 Update)

1. Q: What are beach cleaning companies doing to clean the beach and how would this work impact their methods?
   A: Some companies in South Florida do implement composting of *Sargassum* once collected from the beach, but it is not done with all *Sargassum* collected. It is only done in batches. Most of the *Sargassum* does make its way into landfills.
2. Comment: There should be a health risk analysis conducted on the end product, especially if it will be used on a residential setting and parks. An assessment would be useful to see the arsenic levels in the compost and how it affects health.

Questions, Answers, and Comments #2 (After item 4 on agenda, Next Steps)

1. Q: Does the City of Fort Lauderdale collect vegetation and add it to their compost pile?
   A: From what we observed when visiting their pile, it was only *Sargassum* that was collected from the beach that was added to their pile.
2. Comment: One challenge that composting facilities face is acquiring a piece of property to build such a facility. Zoning requirements are usually the challenge because people don't want things of this nature in their backyards.