Howdy Krystal and Aurora,

So far no concerns from Jeff.  Aurora, Jeff said that he would like a memorandum stating the purpose of the project, how long it will last, and hours you might be on site. I know it sounds nerdy, but if you can text me when you are heading to/ from GH for safety that would be great. Here's my number (832) 744-1076.

Jeff or I will connect with Landscape and let them know that the area by the house will be used. We might take pictures of you and your project too! Be prepared to become famous 🙂.

Peace,

Bri

Aurora Mokris

Krystal York

Silvia Rossbach

COMPOST MICROBIOME PROJECT

**Purpose**

The main objective of this project is to compare the bacterial communities between different types of compost and possibly draw connections between biological activity, rate of decomposition, and mature compost soil quality. More precisely, we would like to explore how microbial communities differ between the traditional static pile and an aerated pile during three stages of degradation (mesophilic, thermophilic, and mature). Two replicates of each compost treatment (two static and two aerated) makes for a total of four compost piles to be tested. Microbial communities will be correlated with nutrient availability in the mature compost of both compost treatments to determine the best composting method.

Timeline:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | September | October | November | December | January | February | March | April |
| Order sensors, compost bins, and other materials | x |  |  |  |  |  |  |  |
| Set up and program sensors\* | x |  |  |  |  |  |  |  |
| Set up compost piles | x |  |  |  |  |  |  |  |
| Compost degradation and sampling\* | x | x |  |  |  |  |  |  |
| Soil DNA extraction | x | x |  |  |  |  |  |  |
| Mature compost sent to MSU for nutrient analysis |  |  | x |  |  |  |  |  |
| MiSeq Illumina Sequencing |  |  |  |  | x |  |  |  |
| Compare sequencing results (using QIIME II) with sensor variables and nutrient analysis |  |  |  |  |  | x | x | x |

Table Notes

\*sampling: soil samples collected in sterile 15ml plastic tubes throughout the degradation process will be used to extract microbial DNA

\*sensors: sensors embedded in compost pile allow tracking of pertinent variables including: atmospheric oxygen concentration, moisture, temperature, and pH. These variables characterize distinct stages of degradation and should correlate to distinct microbial communities.

Hours spent onsite:

An estimated 8 hours for compost set up (set up boxes and mix food) as well as 20 minutes for daily sensor maintenance and oxygen probing.