



CONTRA COSTA COLLEGE

Biotechnology Program

# Overview of Soil Microbiome Project Spring 2017

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## CCC Biotechnology Program



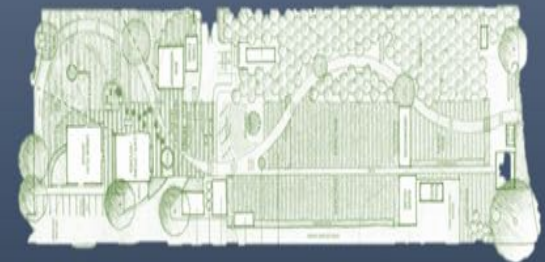
In the birthplace of the biotechnology industry Contra Costa College's biotechnology program provides students with the unique opportunity to learn core fundamentals to successfully step into the biotechnology industry. Through instruction from professors with industry insight, as well as hand-on project experiences, the biotechnology program at Contra Costa College benefits local business by providing biotechnology companies with a local source of skilled employment prospects.

## The Microbiome Project



The goal of the Microbiome Project is to provide accurate time point data to Urban Tilth regarding the microbial composition of their soil. Because we know certain microbes can provide plants with beneficial growth promoting factors, a snapshot at any given moment gives Urban Tilth the ability to monitor microbial changes in response soil-development methods.

## Urban Tilth, a Local Leader in Sustainable Food Systems



Urban Tilth is a local farming project in Richmond, California. Their goal is to develop a healthy, reliable, and sustainable food system in the local community. Recently the group has begun to develop a new site, the "North Richmond" site.

## Core Research Team Goals



SOP Development to address and complete the following:

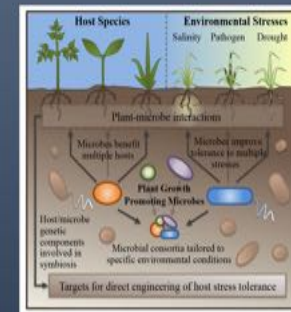
- Label and keep track incoming soil samples.
- Grow and transplant model organism to assess soil growth capabilities.
- Culture microorganisms to develop a positive control to validate DNA extraction protocols
- Harvest plant tissues (roots, rhizosphere) and soil for DNA extraction.
- Extract, purify, and amplify DNA from each samples.
- Run electrophoresis gel to confirm for DNA
- Tag amplified DNA
- Identify members of microbial community at each time point.

## Field Research Team Goals



At each time point three soil samples will be collected from the 18 separate soil sites. Each sample will be collected from a 8-10 inch depth. The field team also documents various observations relating to soil samples collected. Deliver samples and communicate observations and data to the core lab team.

## Importance of Microbiome Project



The goal of the Soil Microbiome project is to provide Urban Tilth with reliable data over the course of their soil development. Over time the methods that give way to the most beneficial microbial communities for crop growth can be discerned and replicated more efficiently. Contra Costa College is proud to partner with Urban Tilth to aid in achieving their goal of developing soil efficient for local food production by offering our scientific expertise.