

***Sustainable CU: Environmental Improvement Initiative
Compost Tea Brewers Funding Proposal
January 5th, 2011***

1. Project Description, Scope, Timeline, & Feasibility

The Outdoor Services Turf Management team would like to use a compost tea brewing/injection system with our current irrigation system. The system desired includes five GEOTEA Machines (250 gal. brewer, ½ hp, 110v) and GEOTEA Compost and GEOTEA Complete (microbial food) to last for one growing season. Three GEOTEA Machines would go into our 28th St. pump station and two GEOTEA Machines would go into our Varsity Pond pump station. The compost tea will be brewed and injected by the FM Outdoor Services Turf Management team. Once funding is secured for the desired system, our irrigation team will take on the labor and funding to get the injection system integrated into our irrigation system. Once complete this will allow the Turf Team to brew and then inject compost tea (beneficial microorganisms) through the irrigation system and into the soil. The results of our most recent soil bioassays suggest that we are low in microbial activity throughout campus. This system will greatly enhance our soils to help give us better root systems, improved soil structures, and better water retention for an overall healthier plant system in turf and ornamental beds. This in turn helps to create a dense turf canopy that will naturally prevent weed seed germination and establishment.

The scope of this proposal would include \$21,560.00 total cost for the materials. This project would be implemented in house by Outdoor Services Turf Management Team.

We would require that materials be shipped and received by February 11th. This will give us two weeks to get the systems online with our irrigation system. We want to have the injection systems up and running by March 1st. This will allow us to do some test runs to ensure everything is operational. Our goal is to inject compost tea by April 1st if not sooner. The first injection will be dependent on weather and warm temperatures.

If we can secure funding promptly we will be able to meet these deadlines. We already have proposals with a manufacturer. Manpower to install the system is ready to go. We need to be on track before spring or we will not be able to spend the manpower on this project as we will be getting into the growing season.

2. Environmental Impact

During the past year CU Boulder created a Turf and Landscape Pesticide Task Force, which included representatives from Housing and Dining Services, Facilities Operations, Facilities Planning Design and Construction, Student Government and the Environmental Center. This taskforce was charged with working towards implementing Non-Synthetic and/or organic solutions to campus landscape maintenance. There have been many initiatives worked through and many avenues studied during the past months. One of them is the use of compost tea brewers as a source for organic nutrients for the turf and beds on campus.

As part of the Turf Management Plan we have been injecting soil nutrients such as Sea-Weed extract, Fish Emulsion and Humates to aid in the growth of microbial life in the soil. The benefits of the microbes are numerous and the work that has been done has greatly allowed for the propagation of these beneficial microbes. With the higher levels of beneficial microbial life we have been able to transition to an all organic fertilizer program for all campus turf areas except for recreational fields and the use of one application of synthetic fertilizer in early spring when soil microbes are not active because of low soil temperatures. The microbial population has allowed for this because they are the crucial part of the breakdown of these fertilizers and releasing plant available nutrients.

During the Taskforce review a consultant was hired to help determine the status of the current turf program and changes that could be made to enhance its effectiveness. During the consultation one thing that was brought up was the use of Compost Tea Brewers to produce beneficial microbes. The first step in this process was to have Soil Bio-Assay tests done of our current campus soils. This is a relatively new soil test process which actually looks at the types of microbes and gives recommendation to help increase populations.

The recommendation was to use compost tea to help increase microbial diversity and population. Use of compost tea brewers is an all natural method to increasing overall soil health. As with any plant all growth starts with proper soil to provide nutrients which aid in growth of the plant. The better the soil profile the better plant you can produce. This action helps to protect against voids in the canopy which can lead to weed encroachment and possible subsequent applications of synthetic products to help with control.

3. Student Involvement

The compost tea brewer idea has actually been discussed on several occasions with the Turf and Landscape Pesticide Task Force which includes students on the Environmental Board. Those same students have been instrumental in identifying the proper consultant and subsequent cultural practices needed to achieve optimum soil health.

We want to showcase this concept and the innovation of injecting it through the irrigation system. We would be open to any inquiries and would offer a tour/explanation

of the brewing process. We currently have one student on our Turf Management Team who will be involved in the integration process as well.

This project will enhance the beauty and health of the campus landscape. This is another step in our overall goal of reducing synthetic fertilizers and pesticides and creating a great environmentally friendly learning atmosphere.

4. Social Equity

Our goal is to continue to reduce synthetic chemical use within the Outdoor Services department and thereby further reduce exposure to frontline staff and student employees who are consistently working out in the field.

This is a big step in improving the health of our soils which will in turn promote healthier plant systems. With this project, we as a university can advertise this to promote a healthier sustainable environment.

5. Innovation

While the concept of compost tea has been around for several years now, the method we are choosing has never been experimented with to our knowledge. The typical way to apply a compost tea has been via the use of a sprayer rig on a tractor or utility vehicle or by manpower with backpack sprayers.

Our plan, as stated previously, is to directly inject the tea into our irrigation system. By using the fertigation system we predict the time needed to complete a campus wide application will be reduced from weeks to days. We will be able to inject overnight with a typical irrigation cycle, thus reducing applications which would be typically done during the day and having to work around the campus population. This method will allow us to cover 99% of the main campus in one nights irrigation cycle. By using an injection system, we eliminate the extra use of equipment which burns fuel on a regular basis.

6. Detailed Project Budget and Savings

Please see attached spreadsheet. Other sources of funding for manpower and materials have been secured for integration of the compost tea brewers.

We do believe that eventually this project could save university funds. With the introduction of more beneficial microbial life the result will be, among other things, the added breakdown of organic material in the soil profile. This breakdown will increase the amount of plant available nutrients which over time could lead to the reduction of granular fertilizers to provide the main Macro Nutrients for the plant. This will obviously take years for the soil to start to produce enough quantities of these nutrients and we will continuously adjust organic fertilizer inputs to help determine the amounts needed on a monthly basis.

The implementation of this project will not require added staff or funds other than initial procurement. These costs are already accounted for in the annual Raw Water budgeting process.

7. Project Longevity

With proper maintenance of the aeration motors we could expect at least 10 years worth of use out of these Compost Brewers. They are very simple machines consisting of Plastic Totes, motor, blower, and associated stainless steel pipes. The benefits to the soil and overall campus landscape health will help to provide a living ecosystem which will last for decades to come. After this initial procurement all repair and replacement costs as well as material costs will be included in all future Raw Water budgets as we make this program part of our standard operating procedure.