

MATT BATCHELDER FUN-GUY COMPOST COMPANY

Farmers have been raising crops for generations using harsher and harsher agricultural methods including chemicals to kill weeds and improve growth, plowing fields and leaving raw dirt throughout the fallow season without any living plants as cover. This has created a soil crisis in the United States and the world in that experts claim we will no longer have topsoil in the US by 2060.

As a farmer in the Pojoaque Valley in New Mexico I became aware of these issues and discovered the work done by Dr. David Johnson from New Mexico State University and California State University-Chico. He has been doing breakthrough work in regards to the efficacy of biologically correct, fungal-dominated compost for carbon sequestration and improved soil health and crop yields. His method is called BEAM (Biologically Enhanced Agricultural Management) and centers around the products developed using the static compost system he devised with his wife Hui-Chun Su (called the Johnson-Su Bioreactor).

Dr. Johnson's research in soil microbial community structure and function, has opened a window for viewing the interdependence between plants and soil microbes. Rebuilding a soil's microbial community, population, structure, diversity and biological functionality will also provide a robust and practical mechanism to begin reducing atmospheric CO₂ within a regenerative agricultural system.

After attending one of his seminars at the New Mexico Organic Farming Conference in Albuquerque in February 2018, I developed my first Johnson-Su bioreactor at my farm in Nambe. I had surprising success in spite of the dry environment and freezing weather conditions inhibiting daily waterings. Consequently, I moved the production to Tomball, Texas, northwest of Houston, where the climate is more temperate and water more available. After three years, I have built thirty-two bioreactors and 25 are active at any point in time.

My primary objective for creating fungi-dominant compost is to make it possible for farmers and gardeners to improve plant productivity and soil health by increasing soil microbial (fungal/bacteria) diversity. It is imperative that we relearn how to build soil (~1"/yr) through studious observation of and deliberate mimicking of natural processes.

"If we are to achieve long-term stability in our agricultural systems," Johnson wrote in a bioreactor manual, "it may be advantageous for us to start emulating the composting actives of nature and our ancestors."

This can be accomplished by adding microbial-rich compost to plants and cropland. My second objective is to encourage farmers to establish enhanced microbial diversity by protecting the soil. Croplands should be covered with mulch, cover crops planted in fallow seasons and production crops such as corn or cotton during the growing season. These activities will keep the soil covered, minimize soil disturbance, and maintain living roots throughout the year. This combination will ensure rapid plant growth and highly effective crop production.