



The History of Plant Food Soilution - (PFS)



By Robert Riley, Jr., Chairman of the Board

Who knew that instead of sending our “wastewater” to the cities of Des Moines and Sioux City, we could enhance and rebuild thousands of acres of Iowa farmland? Farmland, whose nutrients had been “mined” over the course of 100 years is on a trajectory that is bleak. We are running out of soil and its productive capacity at an alarming rate.

Around 1989, I met with Dr. Stan Henning, a pre-eminent soil scientist and agronomist at Iowa State University. I told him I suspected the incidental products from our production process had hidden value for soil. Dr. Henning said he was interested and willing to do a control study, so I accompanied a truckload of our “wastewater” - soon to be renamed “Plant Food Soilution (PFS)” to the Rhodes Research Farm near Marshalltown. (A little known fact, the Des Moines Lobe of the Wisconsin Glacier stopped in the middle of this farm!)

We sprayed PFS on corn ground in the fall. Dr. Henning did an analysis later and found that PFS broke down corn stalks much faster

to do a control study, so I accompanied a truckload of our “wastewater” - soon to be renamed “Plant Food Soilution (PFS)” to the Rhodes Research Farm near Marshalltown. (A little known fact, the Des Moines Lobe of the Wisconsin Glacier stopped in the middle of this farm!)

PFS control study with non-treated field on the left and PFS treated section on the right. PFS treated section shows much taller corn and significantly improved corn stover decomposition.

helping to kick-start bacterial and fungal growth – key to organic matter decomposition and the carbon recycling process of building organic matter in the soil. Being an environmentalist who was concerned with water quality and soil health, I wanted to make sure we were safe, so I decided we would apply it at 10% of the recommended rate.

Like a lot of R&D projects PFS didn’t take off very well initially. We didn’t think we had the resources to truly market and sell this material, so PFS sat dormant for 10 years. BIG mistake! Then along came Jim Lere and a bountiful tomato crop he grew in his yard with the help of PFS. It revived our faith and renewed our effort to make this into a real product again. We had hundreds of “peat pots” in the lab working on the right dosage for the right plants. We tried using magnesium, ammonium and potassium hydroxide to neutralize our water and make the product even better. We mixed it with lime, and with other fertilizers and contemplated selling it in small bottles to home gardeners.

Finally we got the formula right and with the help of James Russman, an agronomist in western Iowa, we started marketing PFS to farmers. The results for those early adapters was very positive. The farmers appreciated the long term benefits PFS provided to their fields and found it to be an effective and safe source of important nutrients for plant

growth. Those nutrients included the big four; nitrogen, phosphorus, potassium and sulfur - plus, over 900 micronutrients that were found to be essential.

Doug Doty, an Iowa State University agronomist who went on to work for Monsanto, received his Master's degree by working with PFS. Dr. Pete Reilly, an Iowa State University Chemical Engineer, helped two students get PhD's by studying PFS.

Hugh Warren, researcher for Feed Energy, has seen the potential for PFS to be the platform for many additional soil nutrients that are deficient in Iowa. "PFS is a wonderful example of a bio-renewable energy source, said Hugh. "Commonly we think of bio-renewable energies as something that powers our cars and trucks, and not so often as something that powers the organisms that make our food. PFS is a source of renewable bioavailable organic carbon. It is also a source of recyclable macro and micronutrients. Talk about a smorgasbord for any microorganisms and a win-win for the environment!"

All of these people from various disciplines have played a role in helping to turn what was once considered a "byproduct" into an environmentally friendly, energy-saving soil enhancer. Today, agronomist and farmers in western Iowa are seeing phenomenal results with PFS as it helps to build back the soil that we lost over the last 100 years. PFS is truly a remarkable product!



4400 East University Avenue, Pleasant Hill, Iowa 50327

800.451.9413 | 515.263.0408 | www.feedenergy.com