

A Fishy Advantage?

Canadian Researchers are Trying to Explain the Popularity of Fish Emulsion as a Soil Amendment

By Jeffery Carter, Special to Ontario Farmer, Jan 2004.

North American Farmers who use “fish soup” for their high value crops are not breaking new ground. By-products from the seafood industry have been used for a millennia – since the days of ancient Greece and Rome.

What’s relatively new, according to an Agriculture and Agri-Food Canada researcher in London, is the effort to evaluate the practice from a scientific perspective.



George Lazarovits and Pervaiz Abbasi take a look at an indoor potted plant trial at Southern Crop Protection and Food Research Centre in London

Dr. George Lazarovits is excited by trial results. The senior scientist at the Southern Crop Protection and Food Research Centre is working with Dr. Pervaiz Abbasi, project lead, and others on the effort.

The fish soup is a by-product from a species netted in the Gulf of Mexico by Omega Protein, Inc., a company based in Houston, Texas. The sardine-like Menhaden isn’t used for human consumption, but there’s a market for the oil and meal.

The rendering process also leaves behind a soup-like liquid that is concentrated into fish emulsion (FE) that’s being used by farmers across North America who claim a variety of agronomic benefits.

That’s where Lazarovits and his associates came in. They’ve been working in the field of organic amendments for several years. Omega Protein, Inc. was looking for a scientific assessment of their soup.

“There’s virtually no published work concerning the use of fish emulsion in agriculture,” Lazarovits says. Lazarovits and his associates have documented the ability of FE to suppress fungal diseases that destroy plant roots, including *Pythium* and *Rhizoctonia*, and the bacterial disease, bacterial spot, that causes lesions on the leaves and fruits of peppers and tomatoes. It also contains nutrients essential to plant growth but what’s coming as a surprise is its apparent ability to increase yield.

A potato trial, conducted last summer, showed the addition of FE boosted yield beyond what could be explained by the level of nutrients the material contains.

“We’ve been doing experiments on potatoes for 10 years but we’ve never seen anything like this. It was pretty exciting,” Lazarovits says.

The potato trial involved a variety of different soil types placed into 10-inch, vertically-positioned tiles in an outdoor site. Half the tiles included soils into which the FE was incorporated. The soils in all the tiles were adjusted to contain an equivalent level of nutrients, whether derived from commercial fertilizer or a mixture of commercial fertilizer with FE.

Yields were increased significantly across all soil types with the addition of FE.

“We had a hard time digging the potatoes out of the tiles (with the FE), they were just that full,” Lazarovits says.

Lazarovits cautions that results from a single trial can be viewed as preliminary, at best. He and Abbasi speculate that the nutrients in FE may be available in a manner that is conducive to higher yields or that some other biological process is occurring. There also appear to be reductions in soil-borne disease. More study is warranted.

Meanwhile, Abbasi, Lazarovits and their associates have published, or are in the process of publishing, more extensive documentation concerning the use of FE as a bacterial disease suppressant.

In pepper and tomato trials, foliar applications of FE were shown to control bacterial spot. It appears to be as affective as Actigard, a product that induces systemic resistance in plants, and would likely provide a cost-effective alternative to copper-based sprays.

In trials involving radish and cucumber seedlings, FE was shown to control Rhizoctonia and Phthium damping-off in peat-based substrates. For these trials, the FE was mixed with peat-based greenhouse mix.

Lazarovits, who's also studying the use of liquid manure as a disease suppressant, says there are relatively few researchers examining the positive impacts of organic amendments for crop production. Unfortunately, manure, seafood by-products, and similar materials are often viewed as waste, he says.

“We have a lot of people looking at the negatives; we don't have many looking at the positives.”

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