

Soil fertility in ecological agriculture

Dr. Herbert Koepf visits the University of Guelph

Dr. Herbert Koepf is a researcher at the Michael Fields Institute in Wisconsin and author of the book *Bio Dynamic Agriculture*. He was invited to the University of Guelph on June 18 by the Ontario Ministry of Agriculture & Food to speak about soil fertility in ecological agriculture.

by David Jones

Ecological agriculture, whether it be termed 'sustainable', 'organic' or 'Biodynamic', is characterized by a farming approach that seeks to diversify crops, recycle nutrients and reduce purchased inputs according to Dr. Herbert Koepf. In his introductory remarks at the moderately well attended presentation, Koepf maintained that soil fertility depends on soil type, cultural (or accumulative) fertility and on manuring - a "systems approach to farming that focuses on integrating animals".

Koepf complained that mainstream agriculture neglects the importance of livestock. As an example, he cites the case of cash grain crop rotations that rely on large doses of purchased inputs to maintain crop yields. He warned: "We do not recycle crop residues and manure and this way of thinking is, flatly, a mistake; in the long run, it is one of the strongest negative influences of the change in farming systems that has taken place during the past few decades".

Koepf presented research results on the nutrients cycled on a farm with the use of livestock manure. Several studies of biodynamic farms in Germany suggested that animal manure was indeed an important soil building material. One case study involved a Biodynamic farm in Germany that had switched to Biodynamic management in 1930 and had not used a single kilogram of fertilizer since. The mixed dairy farm, even though it was located in harsh soil conditions and had not utilized purchased inputs, had comparable production yields with area farms which had no livestock and which used purchased fertilizer as the main source of nutrients. A complete nutrient balance was compiled for this same farm between 1951-1981.

The subject of composting was touched upon briefly by Dr. Koepf. He presented research that compared the nutrient usefulness of compost versus crude farmyard manure. Although compost has less nutrients, less carbon, nitrogen and less organic matter than crude manure, compost is still more efficient as the nutrients are more accessible to the soil. Koepf ended his presentation by displaying some different crop rotations that had been used on biodynamic farms and by questioning the accuracy and usefulness of the conventional soil test.

Koepf concluded with an optimistic vision of an agriculture that is in tune with soil fertility. Citing successful biodynamic farms that have been in operation for many years, Koepf concluded, "These farms can exist very well and produce satisfactory yields and also get economic returns, even apart from all the general inherent benefits that this type of farming system has for our environment and the reorganization of resources".

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