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A History of Sustainable Agriculture

Sustainable agriculture has evolved from three perspectives: as a system of production to achieve food self-reliance; as a concept of stewardship; and as a vehicle for sustaining rural communities. The concept of sustainability is not new to farming practice, agricultural science, nor even to agricultural policy. It is now considered to have been a part of theory and practice in English agriculture for several hundred years until the mid-19th century. The repeal of the English Corn Laws played a major role in the demise of sustainable practices because it signified a shift away from food self-reliance. The back-to-the-land and vegetarian movements of 19th century USA helped shape perceptions of appropriate production practices, and of the kind of communities to support, and to be supported by, the development of sustainable systems. The term organic, as a descriptor for certain sustainable agriculture systems, appears to have been first widely used by Lord Northbourn (1940) in his book "Look to the Land". Northbourn used the term to describe farming systems that focused on the farm as a dynamic, living, balanced, organic whole, or an organism. The term, thus, had broader meaning than just the use of living materials to achieve farming objectives, a restrictive definition that is often erroneously implied today. Its original meaning, then, is much closer to the origin of the term organic used in organic chemistry, the study of the chemistry of organisms. Unfortunately, many scientists continue to equate the term with the present-day meaning of organic chemistry, the study of carbon-containing compounds.

The term organic was first widely used in the USA by J.I. Rodale, founder of Rodale Press, in the 1950s. Rodale was both the popularizer of the term organic (and by implication notions of sustainability), but also, in the scientific community, the inspiration for the denigration of the term. Rodale failed to convince scientists of the validity of his approach because of his reliance on what were perceived to be outrageous unscientific claims of organic farming's benefits. This was unfortunate as a number of scientists in the USA and Europe were investigating and promoting sustainability in agriculture at the time, most notably Sir Albert Howard and William Albrecht. The scientific and governmental fascination with using agrichemicals, monoculture, and specialized equipment for food production severely constrained professional interest in questions of sustainability.

One other important historical influence on the development of sustainable agriculture was the research on the connection between the condition of the soil, food quality, and human health. Some members of the medical community in the UK had been performing clinical research experiments on the subject since early in the 20th century. This community was of the view that human health was greatly negatively affected by poor soil management practices in agriculture, particularly poor organic matter management.

Although some scientists played a significant role in the early development of sustainable agriculture, almost all scientific disciplines have ignored it, with the notable exception of ecology and agroecology. Ecology as a scientific approach has only existed since the late 19th century, and agroecological research is less than 50 years old. Ecology is concerned with the relationships between organisms (including humans) within ecosystems and with the associated flows of energy and materials. Agroecosystems differ from natural ecosystems in that they are partly powered by auxiliary energy sources (fossil fuels, animal and human power), human management has reduced species diversity, the dominant plant and animal species are

artificially selected, and they are controlled by humans rather than through natural feedback mechanisms. Within the agroecological paradigm, the sociocultural elements are regarded as important because human relationships with agricultural systems are prime determinants of the form any given system takes. Concern for the whole and for the study of relationships as they exist within their natural environment are features that distinguish ecology and agroecology from most other scientific disciplines. Scientists, given a choice, strive for completeness of understanding, and the ecological paradigm is one of the few in common use that provides a reasonable opportunity to achieve this goal. Although agroecology has been used since its inception as a means to help explain why sustainable systems are successful, agroecologists are now having an influence on our perceptions of sustainability. It is now apparent how agroecological principles can be used to design sustainable farming systems.

Recently, concepts of sustainable yield in fisheries have contributed to our understanding of sustainability in agriculture. In fisheries, the focus has been on optimizing yields by ensuring that harvest rates equal replacement rates, thereby permitting harvest to continue in virtual perpetuity. Similar ideas are being applied to agriculture by emphasizing optimal replacement rates of soil, soil nutrients and organic matter, soil organisms, water, energy and genetic resources.

The sustainable agriculture movement in Canada

Canada's sustainable agriculture movement began in the early 1950s with the establishment of an Ontario-based organization, The Land Fellowship. Its principal leaders, Christopher Chapman and Spencer Cheshire, focused their activities on the production and dissemination of popular education in print and film. A few vocal producers, influenced by sustainable agriculture developments in Europe and the USA, also spoke out against the agricultural practices and policies of the period and promoted sustainable approaches. They received little attention from the agricultural establishment, although there was a slow but steady increase in interest in the farm community. This was particularly so in Quebec due to the presence of Europeans who had been practicing sustainable practices before arriving in Canada.

In the 1970s, many environmental and sustainable agriculture organizations were created in response to the nascent global concern about the environment. All of these organizations started with small budgets and largely volunteer labour, but did have an impact on the media and the public consciousness. Most focused their activities initially on local issues, and relied on local financial support for their survival. The 1980s have witnessed a dramatic increase in the number of organizations and promotional initiatives, increased levels of funding from public and private sources for some, and, in some cases, a greater degree of influence over public policy.

Canada now has over 100 private and para-governmental organizations involved in promoting sustainable agriculture, encompassing a wide range of sizes, organizational capacities, and goals. These groups are of various ages, have budgets of a few thousand to a few hundred thousand dollars, focus on local or national issues, and have zero to substantial influence on the thinking of provincial or federal governments. This diversity is both a strength and a weakness for the movement. There are now groups addressing agricultural problems in most parts of the country.

This is an excerpt from Dr. Rod MacRae's Ph.D. thesis, "Strategies for overcoming the barriers to the transition to sustainable agriculture". The full text of the thesis will be available on this site in June.

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