

FROM SHALLOW TO DEEP ORGANICS; MORE THAN JUST A SHIFT IN TECHNOLOGY - Stuart B. Hill (Winter, 2000; *The Natural Farmer*, 28-29)

Those who practice 'organic' and ecological approaches to agriculture have done amazingly well, particularly given the lack of support (research, legislation, marketing, promotion etc.), misinformation in the media and the ridicule to which many producers have been subjected. Yet, at the same time, it is important to realize that we have still hardly scratched the surface of what is possible, particularly in relation to the application of ecological knowledge and ancient wisdoms to our food systems. We also need to acknowledge that we are divided and weakened by our attachments to sub-categories of 'alternative' agriculture, and that most of us have difficulty acknowledging the flaws associated with our particular models and approaches. Because of this we are prevented from making some of the progress that would otherwise be possible. Most of us are more interested in production than marketing, which often gets neglected to our detriment. Many of us tend to blame others for the difficulties we face, and some of us have become prickly characters (I'm sure you know some - you may even be one)!

The good news is that progress is well within our reach, but we do need to be willing to work on this in an integrated way at personal, social and ecological levels. This means composting our psychological shit and reclaiming our power and awareness, revising our visions and goals, and reflecting on our values and world-views. It also means collaborating across differences to find commonalities (finding our "WEs" with others), and learning from nature and indigenous knowledges and from those who know about them. Perhaps most importantly, it requires us to become better at working with the unknown. Modernism, science and an overemphasis on knowing have led us to forget that most of reality remains unknown and hidden (for some it may help to picture this as over 95%; for others it is more easily conceived as an ever unfolding mystery). What is important to acknowledge is that these mysterious processes are as essential to our lives and the wellbeing of the planet as are those that are known. The widespread failure to acknowledge this goes a long way to explaining why so many are surprised by such crises as the 'Mad Cow Disease'. It is also why so many overconfident statements are made by many scientists about the benefits and safety of genetic engineering, and also about the use of pesticides. It is clearly naive to try to base our actions only on the small amount of knowledge that we know we know; yet this is exactly what our culture encourages us to do. Biodynamics has made some attempt to address this situation; although most modern practitioners have failed to recognize the nature of the gift that Steiner gave us and they have turned his lessons on working with the unknown into dogmas.

A voice for taking a social ecology approach from down under. Who am I and how dare I be saying these things? In 1969 I joined the Agriculture Faculty of McGill University in Montreal, and by 1974 had established what became Ecological Agriculture Projects (EAP), Canada's largest and most active resource center for organic and sustainable agriculture. In 1996 I became the Foundation Chair of Social Ecology at the Hawkesbury Campus of the University of Western Sydney in Australia. In fact, I call the imperatives that I am talking about above "taking a social ecology approach".

During the 1970s, 1980s and 1990s my children and I attended and presented workshops at most NOFA conferences. I have published dozens of papers on ecological approaches in agriculture (see the EAP web site at <http://www.eap.mcgill.ca>), and my work in this area continues in Australia

My focus remains 'the big picture', the interrelationships between the separate issues we face and the need for more embracing holistic approaches. This is in contrast to the more common, reductionist, fragmented approaches favored by conventional science and most of society.

Take energy, food quality and rural decline, for example. They are invariably dealt with as separate issues, but in reality they are all interrelated; to such an extent that if we take an holistic approach to one of these in a particular context, there is every likelihood that we will also be helping to solve all of the others. On the other hand, if we try to solve any one in isolation it is likely that over the longer-term that we will impact adversely on all the others.

Working with the processes of change. Many years ago I developed a model for change, which I dubbed the 'ESR' (efficiency, substitution, redesign) model. The efficiency approach

involves finding ways to make a conventional solution to a problem more efficient. With spraying, for example, the efficiency approach might involve improving nozzles, improving formulations, using Integrated Pest Management (which tragically is usually just Integrated Pesticide Management) to reduce the amount of chemical used, and so on. There is room for huge improvements in efficiency, as Amory Lovins (Factor Four, Natural Capitalism etc.) has become famous pointing out. Pesticide use is incredibly inefficient, for example. Usually less than one per cent of pesticides applied to crops actually reach the target. The remainder is wasted and creates havoc, usually over a longer time frame than any benefits are experienced, throughout the rest of the ecosystem.

While efficiency focuses on improving the current inputs and methods, 'substitution' involves replacing the current inputs to the system with less impacting or disruptive ones, such as bio-controls. However, our problems can only really be solved when we start to 'redesign' the systems involved so that they don't give rise to the problems being addressed by our use of curative inputs.

Redesign is a 'deep' approach compared with the more 'shallow' strategies of efficiency and substitution. Redesign addresses the underlying issues by changing the structure and functioning of the systems involved so that the problems -- symptoms of mal-designed and mismanaged systems -- do not arise.

Efficiency and substitution approaches can be either stepping stones or stages in a progressive spiral towards redesign, or they can be barriers. Substitution, because it makes the system appear workable, at least in the short-term, often acts as a barrier. This is helped by the fact that it is compatible with our market economy, which is based on the repeated purchase of products whose benefits are not long lasting.

Most modern organics is dependent on substitution strategies, with synthetic chemicals being replaced by 'natural' fertilizers and sprays, and by biological controls. Organic producers commonly purchase things like humates, seaweed sprays, micro-organism inoculants and bio-controls; all of which provide benefits that could be created on-site if the systems were designed and managed in better ways.

For example, optimal decomposition of organic matter in soil results in the production of growth promoting hormones, such as cytokinin, and the release of trace minerals, which are two of the main benefits that seaweed products provide. Decomposition also results in the formation of humate-like materials.

The problem with imports is that their benefits are always temporary. At least some of the resources that they are made from are exhaustible and will eventually run out, so systems dependant on them can never be sustainable. Taking such approaches also encourage us to postpone dealing with the underlying causes of our problems. Many parallels can be recognized in the health field and in society in general.

What I am describing here is a progression from taking a "deceptively simple" approach, in which we think pesticides and fertilizers or their substitutes are the solution, progressing to a "confusing, and sometimes paralyzingly, complex" approach, in which we try to understand, control and micro-manage everything. We usually need to pass through this frustrating stage in order to achieve the more sustainable and rewarding "profoundly simple" approaches, which usually involve paradox, and tuning in to the wisdoms of natural systems, including our own often untapped natural intelligence and intuition.

Sadly there is virtually no support for genuine redesign in our society because of the influence of primarily the pharmaceutical and petrochemical industries on governments, because they know that with appropriate redesign many of their products would no longer be needed.

The beginnings of redesign strategies are evident, however, in some aspects of Permaculture, Fukuoka's Natural Farming, Biodynamics, Deep Organics and Holistic Resource Management, but they have a long way to go to reach their full potential. We could learn so much from nature if we would just pay better attention to it - instead of so often trying to control it with interventions based on physics and chemistry.

For example, we know that soluble nitrogen fertilizers inhibit the nitrogen-fixing organisms in soil. So an ecological soil management strategy designed to minimize this might be to manage land in alternating strips that are high and low in nitrogen (and probably also some other elements), with the crops being grown between them so that their roots have access to diverse rather than homogenous conditions. Some recent work in Australia has shown, for example, that irrigating on one side of a tree, rather than all around it, results in a dramatic increase in the efficiency of water uptake. Being more creative in working with complexity, chaos, diversity and the unknown can certainly be expected to lead to a diverse range of improvements. Most modern farming systems, and indeed most modern lives, are far too homogenized and simplified.

If we are to develop sustainable systems we will need to get together with one another and with the larger community, including industry and government, to initiate programs for fundamental redesign. This is paradoxically being made easier by both the benefits and challenges of globalization. Only through such collaborative and participatory processes can we hope to significantly reduce our wasteful levels of consumption and achieve genuine sustainability.

The type and level of change needed to develop sustainable systems of food production will occur only when growers start to be paid fairly for their 'systems maintenance' work, either by government or by consumers. In natural systems over 90 per cent of the available resources are used for system maintenance, which is what genuine sustainability is all about. Because in our society we only reward productivity, and not maintenance, it is not surprising that producers tend to neglect and over-tax their production systems. If we were to reward producers for the maintenance of the environments they manage they would be able to build up the natural capital in the system, and so establish the basis for sustained productivity. This is what Paul Hawken and Amory and Hunter Lovins are arguing for in their book "Natural Capitalism", although their chapter on the food system also only scratches the surface of what is possible. Paying producers to maintain the environment and the natural systems upon which they rely, whether through higher food prices or through government subsidies, would be a national investment in natural capital, an investment in which the benefits over time would far exceed the costs.

The key to sustainable change is to start small with achievable goals. So often people embark on huge, undoable, Olympian tasks, go off half-cocked, and then hit a barrier, get discouraged and burn out and give up. When I'm working with producers in Australia I encourage them to work with the 'smallest meaningful initiative they can guarantee to carry through to completion', even if it is only phoning someone to talk through an issue. This gets them into the habit of starting to do things. In parallel with this, I encourage them to publicly celebrate completing their small initiatives and achievements in order to make them contagious. As I said at the beginning, the possibilities are endless. Go for it and celebrate as you go!

Professor Stuart B. Hill is committed to working for change that improves ecological sustainability, community and personal wellbeing, and our psychosocial co-evolution. He is critical of the still dominant tinkering (shallow) responses to problems, as well as their endless measurement, and is a tireless campaigner for the proactive, fundamental (deep) redesign of our lifestyles, our institutional structures and processes, our managed ecosystems and our technologies. His background in ecology, soil biology, entomology, agriculture, psychotherapy, education, policy development and international development, and his experience of working with change, have enabled him to be an effective facilitator in complex situations that demand both collaboration across difference and a long-term evolutionary approach to situation improvement. As this is a focus of social ecology, he is currently in an euphoric state as a member of a dynamic learning and action community (of over 300 staff and students) with overlapping values and mutually supportive projects. Enquiries about the Social Ecology programs at the University of Western Sydney should be directed to Kathy Adam, Faculty of Social Inquiry, UWS-Hawkesbury, Locked Bag No. 1, Richmond, NSW. 2753. Phone: 612 4570-1288. Fax: - 1531. Email: k..adam@uws.edu.au.