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Featured Speaker

Organics in Europe – Lessons For North American Agriculture

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The EU Common Agriculture Policy
The origin of the EU Agriculture Policy (called the CAP - Common Agriculture Policy) was food shortage after World War II. The official aims of the CAP are:

- Increased productivity
- Increased income for farming communities
- Stabilized markets
- Sufficient food supply
- Ensure supply of food to satisfactory prices

Over the years a number of additional goals have developed. They are supported by various policies – but not included in the basic aims, i.e. not included in the basic treaty:

- Moderate depopulation of countryside – living countryside
- Sustainability
- Safe and nutritious food
- Protection of environment
- Bio-diversity
- Ethics in animal keeping

There are huge contradictions built into the system. So on one hand the policy is promoting rural development on the other hand it still follows the 80-20 model, i.e. 80% of the support measures are benefiting 20% of the producers (the larger ones). On one hand you can get subsidies for organic farming, on the other hand the general support programs are discriminating against good crop rotations, or other typical features of organic.

The state of the art of EU agriculture – some basics
There is a huge specialization in different areas. Livestock is concentrated, often close to harbor areas as feed is imported. This concentration lead to serious environmental problems in these areas. The Netherlands and parts of Spain are producing most of the horticulture crops, with huge use of inputs.

The average use of chemical fertilizers in the EU is 200 kg/ha compared to less than 100 kg per hectare in North America. Use of pesticides is also high – higher than in North America. Pesticides are found in ground water all over Europe. Pesticides are also found in food to a large extend. France is leading the league in terms of pesticide residues in food, despite its image of being a defender of a traditional food culture.

The number of farms has declined with 10-30 percent 1985-1995. Agricultural land has diminished with 5 percent in the same period

There are substantial external effects of the EU agriculture policy:
The whole system supports a perverted trading system where cheap feed stuffs are imported (without tariffs) to the EU, while the EU is producing (with huge subsidies) a surplus of grain and meat which has to be exported at loss (and again be subsidized). Another example: Tobacco production is heavily subsidized in the EU, which of course is absurd as the same organization is running all kind of programs to reduce tobacco consumption. To make things even worse, the quality of the tobacco produced by the European farmers is in average so low that it has to be exported (at loss again) while huge quantities are imported.

The single most harmful external effect of the EU agricultural policy is the export subsidies, i.e. the dumping of its surplus production. These cheap exports are driving the world market down, and are very harmful to producers outside the EU, especially in developing countries that can't afford to support their farm sector, or that lack interest in doing so.

There are a number of factors that puts the CAP under pressure for a change:
- Markets – both consumers and retailers are increasingly not satisfied with the results of the cheap food policy (that both have supported earlier)
- The increased awareness of the huge costs for maintaining the agricultural systems - both direct costs and even more indirect costs for environmental damage and health.
- Trade issues: The WTO Agreement on Agriculture – putting pressure on the EU to dismantle its high level of support in general and its export subsidies in particular.
- The expansion of the EU – The EU plans to expand into Eastern Europe
- The growing understanding that European agriculture has little future if only oriented to quantity and not to quality

Development of organic sector in the EU
To understand the development of the organic sector in the EU, we need to look into a number of driving forces:
- The organic movement itself
- Consumer demand
- Market actors
- Political support

Market development
Outside Europe one may believe that Germany or the UK are leading the development in organics in Europe, Germany because it is the biggest market in absolute terms, or UK because it has had a rapid growth and imports huge quantities. For a Canadian exporter these two markets may be the most interesting targets. However the highest per capita market shares have been reached in:
- Denmark
- Switzerland
- Austria
- Sweden

An analysis of the market development in European countries identifies 6 success factors:
- Strong consumer demand
- High degree of support from food firms

- Sales through “conventional” supermarkets
- Moderate (<50%) price premiums
- One organic label
- Professional promotion

In the countries with the highest organic market shares (>2%) all or most of these factors were present during the 1990-ies

Multiple retailers are playing a big role and they have a been a major positive force for driving the organic market in the 1990-ies. Their big role can also be damaging as they:

- Impose high costs on suppliers to comply with all their requirements – especially hard for small suppliers
- By their size and centralization they naturally favor big suppliers
- By out competing independent shops they reduce market for local foods
- Tend to be tough on prices…

Political support

In May 2001, 10 ministers of agriculture, the European Farmers organization, the European consumer cooperative Union and IFOAM signed a joint declaration – the Copenhagen declaration that calls for a Europe wide action plan for organic farming. This was later supported by the Council of the European Union and the work has now commenced. By this, organic farming is finally placed in the center of political attention. It has been a long march to reach this, but I believe it is still somewhat too early to claim a final victory.

It is important to understand that the political support in most cases is a result of a long-term development. Government support can be expressed in many different ways, such as:

- Subsidies to farmers
- Organic regulation
- Support to extension and research
- Market development schemes
- General policy support

The popularity comes with a price. Increased political support also means increased governmental influence and take-over, directly by setting standards and indirectly by setting rules for subsidies. Another side effect is that organic is getting big. Organic farms are in many countries considerably bigger than conventional and organic business practices are increasingly hard to differentiate from conventional.

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Organic farmer since 1977. Initiator of several organisations for organic agriculture in Sweden, including KRAV - the certification programme where he was the director for the first eight years. Served as the first President of the IFOAM Accreditation Programme Board (now the IOAS) 1992-1997. IFOAM World Board member 1998 and IFOAM President as of year 2000.

Organic Agriculture and Food Security
An IFOAM Background paper

Executive Summary

While affluent regions and social classes struggle with surplus production and surplus consumption, close to one fifth of the world population live in constant under-nourishment. Subsistence production of basic foods is restricted in many regions by lack of access to capital, land and water. At the same time, growing areas are used for commercial production of specialty crops or animal feeds for export to affluent regions. The major constraints to food security are found in social, economic and political conditions rather than in production methods themselves. Therefore will the main solutions to food security problems be found in social, economic and political improvement? Nevertheless, demand for food will increase in the future so there are reasons to address production issues and the relevance of organic agriculture.

The main strategy for increasing both food production and access to food is through intensification of the production by farmers in developing countries. Conventional production may give short-term gains in production, but is in most cases not long term sustainable, nor does it guarantee safe food.

Conventional production methods are in particular inadequate for disadvantaged farming communities and thus not a suitable solution for many of those who face food shortage. Organic production has the potential to produce sufficient food of a high quality. In addition organic agriculture is particularly well suited for those rural communities that now are most exposed to food shortages. Organic agriculture contributes to food security by a combination of many features, most notably by:

Increasing yields in low-input areas
Conserving bio-diversity and nature resources in the farm and in the surroundings
Increasing income and/or reduce costs
Producing safe and diverse food
Being long term sustainable

Organic agriculture should be an integral part of any agricultural policy aiming for food security.

Definitions and current situation

Organic agriculture - Organic agriculture is well defined in a number of documents, most notably by the International Federation of Organic Agriculture Movements, IFOAM:

> Organic agriculture includes all agricultural systems that promote the environmentally, socially and economically sound production of food and fibres. These systems take local soil fertility as a key to successful production. By respecting the natural capacity of plants, animals and the landscape, it aims to optimize quality in all aspects of agriculture and the environment. Organic agriculture dramatically reduces external inputs by refraining from the use of chemosynthetic fertilizers, pesticides, and pharmaceuticals. Instead it allows the powerful laws of nature to increase both agricultural yields and disease resistance. Organic agriculture adheres to globally accepted principles, which are implemented within local social-economic, climatic and cultural settings. As a logical consequence, IFOAM stresses and supports the development of self-supporting systems on local and regional levels." (IFOAM 2000)

The Principle Aims of Organic Production and Processing

Organic Production and Processing is based on a number of principles and ideas. They are all-important and are not necessarily listed here in order of importance.

- To produce food of high quality in sufficient quantity.

- To interact in a constructive and life-enhancing way with natural systems and cycles.
- To consider the wider social and ecological impact of the organic production and processing system.
- To encourage and enhance biological cycles within the farming system, involving microorganisms, soil flora and fauna, plants and animals.
- To develop a valuable and sustainable aquatic ecosystem.
- To maintain and increase long term fertility of soils.
- To maintain the genetic diversity of the production system and its surroundings, including the protection of plant and wildlife habitats.
- To promote the healthy use and proper care of water, water resources and all life therein.
- To use, as far as possible, renewable resources in locally organized production systems.
- To create a harmonious balance between crop production and animal husbandry.
- To give all livestock conditions of life with due consideration for the basic aspects of their innate behavior.
- To minimize all forms of pollution.
- To process organic products using renewable resources.
- To produce fully biodegradable organic products.
- To produce textiles which are long lasting and of good quality.
- To allow everyone involved in organic production and processing a quality of life which meets their basic needs and allows an adequate return and satisfaction from their work, including a safe working environment.
- To progress toward an entire production, processing and distribution chain which is both socially just and ecologically responsible.

(IFOAM 2000)

Organic agriculture may also be called ecological or biological agriculture or similar expressions in other languages than English.

Organic agriculture is the only agricultural production method that is based on international standards, i.e. the IFOAM Basic Standards that have existed for 25 years. During the 1990-ies the CODEX Alimentarius (joint FAO/WHO body) also developed international organic guidelines. There are no major differences between these sets of norms.

Organic Agriculture - Current situation

Broadly speaking there are two different kinds of organic farms in the world:

- Certified organic farms producing for a premium price market
- Non certified organic farms producing for the own household and local markets.

Most of the certified farms are in developed countries and most other farms are in developing countries. If the production is for own consumption or for local sales there is no real need for certification or any other procedure to register the farm as organic. Many of the non-certified farms practice farming that essentially is organic, but may not always fulfil all the details in the standards. The systems are often referred to as agro-ecological. There is quite some statistics regarding the extent of certified farms, while there is little data available for the extent of the non-certified farms. It is a fair assumption that the extent of non-certified organic production is as large as the certified.

In total there are more than 20 million hectares certified organic land today. The countries having the largest areas of organic farmland are Australia, Argentina, Italy, Canada and USA. Some countries have reached a substantial proportion (close to or more than 10%) of organic land such

as Sweden, Austria, Switzerland, Finland and Italy. The value of the organic market is approximately US$ 20 billion. Market shares for certified organic products are between 0.5-4% in industrial countries with the highest market shares in Denmark, Austria, Switzerland, Germany and Sweden. (Willer and Yussefi 2000, Grolink 2001, ITC 2001).

Food security
Definition "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." World Food Summit 1996

Food Security - current situation Over the past 40 years, per capita world food production has grown by 25%, and food prices in real terms have fallen by 40%. Between the early 1960s and mid-1990s, average cereal yields grew from 1.2 t/ha to 2.52 t/ha in developing countries whilst total cereal production has grown from 420 to 1176 million tonnes per year (Pretty and Hine 2000).

In the year 2000, there were 790 million people hungry. Despite progress on average per capita consumption of food (up 17% in the past 30 years to 2760 kcal), people in 33 countries still consume under 2200 kcal per day (Pretty and Hine 2000).

At the same time 1.2 billion people are eating too much (Worldwatch Institute 2000).

"There is enough for everybody's need but not enough for everybody's greed" Mahatma Gandhi

Reasons for lack of food
"Nearly 80 percent of all malnourished children in the developing world in the early 1990s lived in countries that boasted food surpluses."

State of the World 2000
Where are the solutions to food security to be found? There is no lack of food on a global level, still people are starving. Also within many countries there is no lack of food production and still people are starving or are under-nourished. It is apparent that sufficient food supply and production does not mean sufficient food for all. What is more important is who produces the food, which has access to the resources, the technology and knowledge to produce it, and who has the purchasing power to acquire it.

"Starvation is the characteristics of some people not having enough food to eat. It is not the characteristic of there not being enough food to eat" Amartya Sen. Starvation and malnutrition has mainly social, political and economic grounds. The major causes to lack of food security are found in the social-political-economic arena. Most prominent are:

- More than half of the world's food is produced by women, and in rural areas in developing countries as much as 80 percent. Yet women have little access to land, credit, training and education. In five African countries Kenya, Malawi, Sierra Leone, Zambia and Zimbabwe women receive less than 10 percent of the credit awarded to smallholder farmers and just 1 percent of agricultural credit overall. (FAO 1998)
- Poverty, inequity and discrimination (class, ethnic, age, gender etc.) - lack of money to buy food or lack of access to resources to produce food, such as access to land, access to inputs and water or access to credits.
- War or civil unrest

- Unsatisfactory economic result of food production. The lack of a functioning food markets gives farmers no incentive for producing more.
- Other factors are lack of labour, or lack of healthy labour, bad governance, lack of distribution capacity, bad infrastructure and government policies discouraging food production.

The total agricultural subsidies in the OECD countries rose to approximately US $ 250 billion (Jordbruksverket 2000). In the same time in most developing countries direct and indirect taxation of agriculture usually brings about a net transfer of resources out of the agricultural sector (FAO 2000).

Global trade relations and rules, international and national policies, structural adjustments and trade concentration affect food security in a number of ways. The imbalanced terms of competition between producers in industrial countries and developing countries has put a major strain on the production in developing countries. Most direct effects are caused by the dumping of export surpluses which leads to lowered prices in developing countries thereby lowering production. It is often more profitable in developing countries to produce specialty crops for an export market with high purchasing power than for a domestic market with low purchasing power and low prices on staple food crops.

Food security issues are very complex and causes and effect are not easy to clarify. What is good for one group is not necessarily good for another group. Increased prices on food crops will quite certainly lead to an increase in production of food. However, higher food prices may be unbearable for urban poor. In the same time better economic conditions in agriculture would have kept many of the people now dwelling in urban slums in the rural areas. Production issues also play a role. While it is clear that the main causes of starvation and malnutrition shall not be sought in the area of production, there are a number of production related factors to consider. Most prominent are:

- Unsustainable production methods - erosion of soil, depletion of fertility and groundwater, poisoning of land and water, salination and water-logging
- Eroded on farm bio-diversity (seeds, breeds etc.) and degraded surrounding environment
- Non efficient use of production resources (non or under-utilized natural resources). This is often the case when land is distributed in large units, or when markets are not encouraging farmers to produce sufficiently
- Natural disasters

Future challenge

Food demand will both grow and shift in the coming decades for three reasons:

- Increasing numbers of people lead to that the absolute demand for food will increase. Despite steadily falling fertility rates and family sizes, the world population is expected to grow to 8.3 billion by 2025. By this time, 84% of people will be in those countries currently making up the ‘developing’ world.
- Increasing incomes mean people will have more purchasing power to buy more food. The quantity of grain used for animal feed would be sufficient to supply 2,5 billion persons. Gr”felfinger Thesen, Naturland 1996.
- Increasing urbanization means people will be more likely to adopt new diets, particularly consuming more meat, eggs and dairy products – demand is expected to double by 2020 in developing countries, and increase by 25% in industrialized countries, resulting in a total and per capita increase in demand for cereals (Pretty and Hine 2000)1.

It is clear that today the main reason for malnutrition is not found in the lack of food. In the same time, the demand of food is growing. In addition, there are increasing expectations that agriculture also shall be a producer of energy (e.g. bio-gas, oils or alcohol as fuel), industrial raw materials, fibres and services (tourism, landscape, carbon sequestration etc.). Sooner or later will the production capacity become a real limiting factor. In that perspective we need to ask the question where shall the food be produced, how shall the food be produced and who shall produce it.
This paper looks closely at the question if organic agriculture can produce sufficient food.

Scenarios and choices for increase of production
Considering the increased demand of food in the future there are three main options for increase of production:
Area expansion Increase of productivity in industrialized countries and export of surpluses Increase productivity in developing countries Obviously the options are not mutually exclusive. However, there is a need to understand which option could form the main strategy.

Area expansion
One option for increasing production could be to expand the area used for agriculture, by converting new lands to agriculture. Substantial agricultural areas are lost due to construction, desertification, salinisation, waterlogging and erosion. Figures from OECD countries (OECD 2001) and many developing countries show a strong declining trend in agriculture areas and not the opposite. An area expansion may only balance this loss. In addition, with some exceptions, the most suitable land is already taken into production (Pimentel 2000, FAO 2000). An agricultural expansion is likely to push already marginalized people as the "pioneers" to cultivate these new less fertile lands (e.g. rain forests), only confirming their poverty and marginalization further.

This strategy would also result in that agriculture is occupying even more land and that the human beings' domination of global ecosystems is further expanded. It will result in even greater bio-diversity losses than we already experienced. Apart from the ethical question if we have the right to utilize even more resources at the expenses of other species, the result is also that ecosystem services from forests, grasslands and other areas of important bio-diversity are lost, and in such way threaten our future survival. Therefore is the option of area expansion not a globally acceptable approach, even though it can have relevance in some areas. More important is to maintain fertility on existing land and restore fertility on degraded lands, an area where organic agriculture is specifically relevant.

Increase of productivity in high potential countries and export of surpluses The second option for increased production is to increase per hectare production in agricultural exporting countries (mostly industrialized), so that food can be transferred or sold to those who need it. This is not a viable solution for several reasons:

- The people who are short in food have no money and are not able to buy food in any case. Food aid is not likely to increase. In reality it has decreased last decades. The pressure on the environment and bio-diversity and the external cost of conventional farming in developed countries is already far too high and there is a need for a radical change in the production system of the industrialized countries which will result rather in somewhat lower production than the opposite.
- Agricultural soils are degraded-half or more of the natural nutrients and organic matter from much of Canada's once rich prairie soils have been lost in a century of mechanized export agriculture - and we are forced to substitute non-renewable artificial fertilizers for the once renewable real thing. (Rees and Wackernagel 1996)

- Our food production system needs to re-cycle nutrients in order to become sustainable. Large scale transport of food from one part of the world to another is undermining efforts to close the nutrient cycles. Soils are mined in some parts of the world and in other parts of the world the concentration of nutrients are creating environmental problems. There is little realism that the 'surplus' workforce in developing countries, not needed to produce food as it is imported from abroad, will find suitable occupations in other sectors. The social implications of even further marginalising the poorest will be unacceptable from a humanitarian perspective and also non sustainable from a social/political perspective.
- The energy consumption that an even larger-scale global food trading system will result in will not be sustainable. We need to lower global energy consumption - not increase it. In particular it shouldn't be increased in the countries that already today are consuming most of our energy resources.
- The large scale distribution system is too vulnerable to disturbances from price fluctuation on energy; war; civil strife etc. In addition, distribution to the rural poor is costly and sometimes risky.
- To some extent the current global trade in agriculture products is a result of a distorted trading system. The 'surplus' production in some countries is to a large extent imaginary. The exports of surpluses from the European Union are balanced with comparable imports of feed stuff (Einarsson 2000).

Surely there will always be a need and a role for international trade in agricultural products, but this trade should rather be in value added products or high value commodities than in staple food, something that again is undermined by unfair trade rules (tariff escalation etc.). Increase of productivity in developing countries The third option for increased production is to increase total farm productivity in the developing countries that are the ones most going to need the food. In some developing countries there are high potential agriculture areas. In many of these areas, an export oriented production with high levels of external inputs have been established. This production has mostly not benefited the poor, and is often carried out by large companies or plantations. In addition, the sustainability of this production is put into question. As will be shown below, conventional agriculture is not a feasible option for increased productivity in developing countries.

The central issues are, therefore, the extent to which farmers can improve food production with cheap, low-cost, locally-available technologies and inputs, and whether they can do this without causing further environmental damage. There is a growing consensus that this strategy is the most feasible, especially if it is targeting the small holder sector. Small farms are generally more productive (per area unit) than large farms (Rosset 1999). By increased productivity by small farms, not only will there be more food produced by those who need it most, but also can small holders and rural communities be lifted up from poverty. Organic agriculture fits very well into this strategy as will be shown below.

It must be realized that farmers will only increase production if there is a market for their products. Food is produced by farmers not to demonstrate how much can be grown, but to make economic use of it - to eat, to sell, to exchange. We cannot directly infer how much could have been produced merely by looking at what was actually produced. Food will not be produced beyond the effective demand for it (Sen 1994). Therefore must this strategy be combined with other poverty alleviation measures to ensure a proper demand for food in developing countries. Also, national and international policies and the terms of trade need to be changed to stimulate the development of local markets.

Conventional agriculture is not the right choice for increasing productivity in developing countries. Conventional agriculture has failed to deliver food security "In India 30% of the arable land is irrigated and under intensive production with Green revolution high input agriculture. However these lands are showing a decreasing trend in productivity. 70% of the arable land is dry land with low soil fertility where small and marginal farmers practice traditional agriculture, High external input has very little to offer in improving productivity of these marginal soils. Under the pressure of high costs of production, purchased inputs and increasing debts, many impoverished farmers have committed suicide in two southern states of India." (Mahale 2001)

The introduction of chemical synthetic fertilizers and pesticides has boosted production output per hectare in most of cases, i.e. the Green Revolution has resulted in a higher production. However, the increase in production that has been witnessed has slowed down and in some cases there are indications that the production is going down. The main reasons for this are:

- Decreasing soil fertility
- Damage on the bio-diversity and the environment.
- Degradation or destruction of water resources.
- The build up of pest populations and resistance

Moreover the success of industrial agriculture and the Green Revolution in recent decades has often masked significant externalities, affecting natural resources and human health, as well as agriculture itself. Environmental and health problems associated with agriculture have been increasingly well-documented, but it is only recently that the scale of the costs has come to be appreciated. E.g. the external costs of agriculture in the UK have been estimated to £1,1-3,9 Billion (Pretty et al 2000). As external costs of farming are not internalized in the prices, tax payers - or more likely, future generations - will pay the bill that is getting bigger for every day.

The system error

The root cause of the problems in conventional farming is that the introduction of chemical fertilizers and pesticides has stimulated a production system that tries to be independent on natural regulating processes and local resources and that is heavily dependent on non-renewable resources. It has stimulated mono-cropping and regional specialization in the food system. This leads to more pests and increased problems with nutrient management, as natural cycles are broken. To fix the problems even more pesticides and more chemical fertilizers have to be used - a vicious circle is established. Long term effect on fertility of soils and soil erosion More difficult to assess than other factors, but perhaps most important, is the long term effect on the fertility of the soils. As we are dealing with a large variation of soils as well as production systems it is difficult to make general statements, but there are clear indications that fertility is dropping, and that farmers try to compensate that with increasing doses of fertilizers. This is aggravating the problem, as one of the reasons for decline in fertility is the lack of proper management of the soil organic matter. When synthetic fertilizers are replacing more natural ways of nutrient management, such as crop rotation, recycling of organic matter, and the integration of animals and crop production it results in a biological erosion of soil organic matter. When organic matter is lost the soil becomes more vulnerable for physical erosion by wind or water, the water retention capacity is diminished and nutrient uptake harmed. Tillage and cultivation practices add to soil erosion problems. Reduced food safety and negative health effects. The health costs for pesticide use in Nueva Ecija, Philippines, were estimated to US$ 20 - US$ 200 per hectare, depending on the number of applications. When compared to production without any pesticide use, the net benefit per hectare was lower the more pesticides were used. (Rola and Pingali 1993) The use of pesticides in agriculture is a major health hazard in developing countries, in particular for the farmers and farm workers.

According to the WHO, 20 000 deaths are unintentionally caused by pesticides (220 000 deaths when including use of pesticides for suicides etc.), most of them in developing countries. 3 million people suffer from severe acute poisoning matched by a greater number of unreported cases (WHO 1990). More recent data from various countries indicate that these figures hardly are exaggerated, rather the opposite. The long term effects of lower levels of a broad range of different pesticides in our food are not fully known, but it is a fair assumption that there may be considerable risks. In addition, the use of chemical fertilizers are often leading to higher content of non desirable substances in food, such as higher nitrate content coupled to the use of nitrogen fertilizers or cadmium as a result of contaminated phosphates. Decreased nutritional values and deterioration of diets The substitution trend of domestic coarse grains by non traditional grains has serious short and long-term implications on food security in Africa. The substitution is occurring most rapidly in countries where rice and wheat production are either costly, infeasible or both and these countries have low per capita incomes and severe foreign exchange constraints. (Salih 1995)

The increase in production incurred by increased used of fertilizers coupled with new varieties specially developed for a more intensive system has lead to dilution of essential micro-elements, reduction of protein quality, reduced shelf life etc. A change in diet caused by the comparative advantage of Green Revolutions crops and varieties over traditional crops and varieties also contributes to a reduced nutrient density of food. In addition, the monocultures that are a result of the new technologies are leading to a less diverse diet, causing malnutrition. Depletion of bio-diversity and environmental degradation The bio-diversity is affected on three levels:

- in the crops or breeds themselves (genetic diversity)
- in the diversity of the farm production
- in the surrounding areas.

Farmers of traditional and low input systems have favoured diversity on the farm. The introduction of mono-cropping, and modern varieties and breeds have resulted in that during the twentieth century, some 75 percent of the genetic diversity of agricultural crops has been lost (Pretty 1995).

In a study of cotton production in the USA it was concluded that the estimated environmental subsidy of ecosystem services to cotton farming is USD 2.54-2.69 per kilogram cotton produced. Of this, ecosystem services worth USD 0.62-0.67 per kilogram cotton produced are depleted. (HÂrd af Segerstad 1999)
The effects of the combination of pesticides and mono-cultures on on-farm bio-diversity are quite obvious. The effects of pesticides and chemical fertilizers are also spreading to non-farm areas. This takes place both directly through drift and leaching, but also as a result of less feed and habitat in the farm environment. As the 2000 IUCN Red List of threatened species highlights, habitat loss is the main threat to bio-diversity, with agricultural activities affecting 70 per cent of all threatened bird species and 49 per cent of all plant species.

One of the most obvious direct negative effects of conventional agriculture is pollution of water with nitrates, phosphates and pesticides. 60 percent of all nitrogen fertilizers applied are not taken up by the plants but are lost, mainly to ground or surface water (OECD 2000). Nitrate levels in drinking water are rising. Pesticides are now found in groundwater in most places in the world. Apart from the poisoning of aquatic organisms, this contamination incurs high costs for water purification, crop damages and health care related costs.

'New' solutions?
The bio-tech industry is now promoting genetic engineering with identical arguments as the earlier Green Revolution. As with all new technologies it is difficult to prove that they are harmless or harmful until after they have been used for a longer term. But in this case that may be too late!
There are many reasons to resist the introduction of GMO crops, as there are no convincing benefits with the technology (except for the companies producing them) and a large number of already identified risks and disadvantages such as:

- Agricultural risks - erosion and pollution of genetic base, creation of super weeds, development of resistance
- Environmental risks - affecting non-target organisms - cross over of genes
- Undermining alternative methods - e.g. the introduction of Bt crops is a threat for the moderate use of Bt by organic farmers, as the Bt crops are likely to induce resistance
- Health risks - allergy potential and undesirable compounds in food
- Dependency on seed companies - reducing the power of farmers over their seeds
- High costs

GMO crops are particularly inappropriate for the poor countries and the poor farmers In addition to the general concerns above, genetic engineering is even less appropriate for developing countries. The development of GMO crops requires massive investments in research. Thereby it drains resources from much needed research in the development of low cost alternatives. Poor countries don't have the capacity to maintain the impact assessment, testing and monitoring capacity that GMO crops necessarily will entail. Because of the high costs, GMO crops will be more expensive. Poor farmers can't afford to buy new seeds every year. Their production depend on saving their own seeds with occasional exchange or renewal, not on yearly purchase of expensive patented seeds. The hurdles for increasing productivity of poor farmers are mostly not related to what GMO crops are supposed to solve.

"You cannot solve the problem with the same kind of thinking that created the problem" Albert Einstein

Organic agriculture and food security in developing countries A growing number of farmers, NGOs, politicians and development experts have realized that instead of the capital- and chemical input-intensive approach, we should favour an agriculture that emphasizes bio-diversity, recycling of nutrients, synergy among crops, animals, soils, and other biological components, as well as regeneration and conservation of resources. Organic agriculture is doing exactly this. The solutions delivered by organic agriculture should not be seen as isolated technologies but the result of the implementation of a whole farming and food system. One of the main features of organic agriculture is how well it integrates a number of important issues. Even if there are other solutions to each individual problem, there is no other solution that to such a large extent is addressing most of the problems facing rural communities at the moment.

The question about how and if organic agriculture can provide accurate food security is complex. The main relevance of organic agriculture is that:

- Organic agriculture can increase the productivity, especially in those situations where farmers are most prone to food shortages
- Organic agriculture can produce safe food and supports a diverse diet
- Organic agriculture can increase income and/or return on labour

- Organic agriculture makes farmers and people more aware of the need for sustainable production and consumption, of the importance of clean and safe food and of the protection of environment
- Organic agriculture recognize the value of traditional and indigenous knowledge and integrates this in the production
- Organic agriculture is long term sustainable

Organic Agriculture can increase farm productivity and provide a diverse and safe diet Will the production increase or decrease when farms are converted to organic agriculture? It is not possible to make simple statements about the production levels and potentials. In many cases there will be a drop in production after the conversion is started. This will be most marked in situation where the previous system has heavily depended on agrochemicals. An overview of how a conversion to organic agriculture will affect yields indicates the following:
In the kind of conventional agriculture practiced in most rich countries conversion to organic agriculture normally leads to lower yield, often in the range of 5-20 %. In Green Revolution agriculture (irrigated lands) conversion to organic agriculture may lead to equal yield. in "traditional" agriculture in rain-fed areas organic farming normally leads to increased yield.

The increase of productivity experienced in conversion to organic production arise from one or more of the following mechanisms (see more under Case studies):
- Improved diversity in the agricultural system through crop rotation, intercropping and polycultures
- The use of green manure crops either separately or intercropped
- Improved on farm re-cycling of nutrients by utilization of crop residues as mulch or through composting and non burning
- Better use of organic materials in the surrounding eco-systems or recycling by-products from the food industry
- Better use of natural capital, especially water (by mulching, water harvesting, and through the increase in soil organic matter)
- Integration of livestock and crops, leading to improved nutrient management
- More attention to soil and nature conservation

As a result of an increased diversity in production organic agriculture will normally lead to a more varied diet for farm families and farm workers. The major critique raised against organic farming from conventional agronomists is that it is not long term sustainable when it comes to nutrient management, i.e. that chemical fertilizers are needed to replace the nutrients that are taken away from the soil. In theory this argument may have some merit, but in practice, the long term results of organic farms is contradicting this. There are no evidences that soils are depleted from nutrients on farms that have been organically managed for decades (up to 70 years), on contrary they normally show an increase in soil organic matter, available nutrients and fertility.

Limitations
The introduction of organic agriculture alone can not solve all production problems. E.g., in most cases offers organic agriculture the most practical way to restore agricultural lands that have been degraded by conventional practices. However, in the case of severely degraded soils and surrounding nature, implementation of organic agriculture alone will not be a guarantee for increased productivity. In those cases there is a need to combine the introduction of organic agriculture with landscape reconstruction and targeted bio-diversity protection. Organic agriculture is an innovation that integrates traditional and indigenous farming knowledge

The impact of organic agriculture is possibly greatest on the mindset of people. It connects to traditional and indigenous farming knowledge while introducing selected modern technologies to manage and enhance diversity, incorporate biological principles and resources into farming systems, and intensify agricultural production. Instead of being an obstacle to progress, traditions may become an integral part of progress. By adopting organic agriculture farmers are challenged to take on new knowledge and perspectives and to innovate. This leads to an increased engagement in farming, which can trigger further improvements. Through the emphasis on local resources and self reliance, conversion to organic agriculture contributes to the empowerment of farmers and local communities.
Organic Agriculture is a means to increase income
There are at least four mechanisms, whereby organic farming can improve income, profitability and return on labour.

- By reduction or avoidance of purchased inputs
- By diversification and optimizing the productivity
- By maintenance or improvements of on-farm and off-farm bio-diversity
- By sales on a premium market

Reduction of inputs and costs for inputs In a comparison between 16 organic and 7 conventional farms in Southern Brazil the economic result of organic cultivation of grapes was recorded to be better while the results for maize, beans and onions were recorded to be the same in organic production as in conventional. No premium price was achieved for organic products (Helmfrid 1996).

For small holders in developing countries the cost for inputs is a major expense and in many cases unfavourable credits are the way to finance them.

Organic agriculture is based on local resources and recycling of nutrients. Therefore will most organic farmers use considerably less inputs than conventional farmers in similar situations. To a certain extent these reduced costs are replaced with increased labour (e.g. manual or mechanical weeding instead of herbicides). It is very rare that the costs for increased labour are higher than the costs for inputs. Therefore is organic farming often more profitable, especially in countries with low opportunity costs of labour.

Diversification
The diversification that is often linked to a conversion to organic agriculture can in itself lead to increased income (or reduced expenses). Typical examples are:

- Intensification of a single component of farm system (with little change to the rest of the farm) - such as home garden intensification, introduction of fish ponds or a dairy cow. Addition of a new productive element to a farm system, such as duck or fish in rice or trees on boundaries, which provides a boost to total farm food production, but which do not necessarily affect cereal productivity.
- Production of additional products derived from green manure crops, shade trees or other components typically associated to organic farming
- Maintenance or improvements of on-farm and off-farm bio-diversity. By protecting or improving on-farm bio-diversity and the surrounding nature, organic farmers are able to utilize and/or market "wild" or non-cultivated crops, insects, animals etc, such as medical herbs and insects, mushrooms, fruits etc. Those products may also provide an income opportunity for landless rural poor. In addition they can contribute to the diet.
- Sales on a premium market In addition to its merits for production of food for the farming communities themselves, organic agriculture also has a substantial potential to offer increased income in the production of premium priced crops for a demand driven organic market. In

many cases, farmers are not farming to their potential as there is simply no market for their products. This forces farmers into a vicious circle, where farm activities are kept just on the level for self consumption. However being basically without income and with a production just for self sufficiency is a very risky position for a rural household. Sudden illness, adverse whether etc. can throw the family into starvation. Therefore can the possibilities to sell organic products for a premium price be very relevant.

There are a number of successful projects for exports of organic production, where farmers' income has increased with 20-30% or more as a result of export of organic coffee, cotton, sesame etc. Naturally shall export production not compete with the production of food for the local markets, but there is not always a contradiction between export marketing and local food production. Many of these crops are also grown in a rotation with food crops (cotton with corn, millet, beans etc.) or by a system of intercropping with food crops (coffee with bananas, other fruits etc). In this way such projects can improve both income and safeguard local consumption (See more under the case studies from India and Mexico).

IFOAM is encouraging the development of local and regional markets, both in developed and developing countries. Domestic marketing of organic food in developing countries is currently expanding rapidly in countries such as Costa Rica, Brazil, the Philippines and Thailand (Grolink 2001).

Organic agriculture - sustainability put into practice
As been shown above, organic agriculture is clearly a more sustainable production method than conventional farming. Currently there are three different approaches for the development of organic agriculture in developing countries

- A development approach for resource poor communities, mainly oriented to self-sufficiency and community development
- An income generation approach giving farmers access to a premium market
- A nature conservation approach where organic agriculture is seen as a tool for bio-diversity protection, nature conservation and natural resource management.

Simply put, these three approaches emphasize the three aspects of sustainability

- Social sustainability
- Economic sustainability
- Environmental sustainability

Organic agriculture is not only about self-sufficiency or only about nature conservation or only about premium markets. Even though the entry point may be different, there is not necessarily any fundamental contradiction between these different approaches. IFOAM's opinion is that they can and should be joined in practice. By properly integrating all aspects of sustainability can organic agriculture, even better than today, be truly sustainable.

Case studies: the potential of Organic Agriculture to increase productivity, increase income or food security in developing countries Below are some examples of successful organic approaches. In some of the case studies the production may not be fully to organic standards, even though they take an organic approach. For production for local markets or self consumption, organic agriculture is not defined through standards, but rather by the system approach:

- Madagascar: System of rice intensification (SRI)

The System of Rice Intensification (SRI) has been promoted since 1990 by the Association Tefy Saina, and has been evaluated by the Cornell International Institute for Food, Agriculture and

Development. The system has improved rice yields from some 2 t/ha to 5, 10 or even 15 t/ha on farmers' fields. This has been achieved without having to use purchased inputs of pesticides or fertilizers. It is estimated that some 20,000 farmers have now adopted the full SRI in Madagascar. Cornell has helped research institutions in China, Indonesia, Philippines, Cambodia, Nepal, Cote d'Ivoire, Sri Lanka, Cuba, Sierra Leone and Bangladesh locally to test SRI. In all cases, rice yields increased several fold. In China, for example, yields of 9-10.5 t/ha were achieved in the first year (compared with a national average of 6t/ha).
Uphoff, 2000a, b in Pretty and Hine 2001

- Peru: Vitalizing indigenous knowledge

NGOs in Peru have studied pre-Columbian technologies in search of solutions to contemporary problems of high-altitude farming. A fascinating example is the revival of an ingenious system of raised fields surrounded by ditches filled with water that evolved in the Peruvian Andes about 3,000 years ago. These waru-warus were able to produce bumper crops despite floods, droughts, and the killing frosts common at altitudes of nearly 4,000 meters. The combination of raised beds and canals moderates soil temperature, thereby extending the growing season and leading to higher productivity on the waru-warus than on chemically fertilized normal pampa soils. In the district of Huatta, the waru-warus have produced annual potato yields of 8-14 metric tons per hectare, contrasting favourably with the average regional potato yields of 1- 4 metric tons per hectare.
Miguel A. Altieri, Peter Rosset, and Lori Ann Thrupp, IFPRI 2020 brief 55, October 1999

- Honduras: intercropping of green manure

The systems of intercropped green manure in Honduras have proven themselves capable of fitting into numerous traditional maize and sorghum based farming systems. They have in most cases controlled most or all weed pests naturally, used no land that had an opportunity cost, occasioned no out of pocket expenses greater than a one-time purchase of a handful of seed, increased soil fertility significantly and increased organic matter content.
Bunch, The Potential of intercropped green manures in Third World villager agriculture, 1990

- Senegal: Improving quality of soils

In Sahelian countries, the major constraints to food production are related to soils, most of which are sandy and low in organic matter. Where they are heavier and better in quality, they are subject to intensive use and so exposed to erosion by water and wind. Since 1987, the Rodale Institute Regenerative Agriculture Research Center has worked closely with farmers associations and government researchers to improve the quality of soils in Senegal by using agroecological methods. The RARC works with about 2000 farmers in 59 groups to improve the soil quality, integrate stall-fed livestock into crop systems, add legumes and green manures, improve the use of manures and rock phosphate, incorporate water harvesting systems, and develop effective composting systems. The result has been a 75-195% improvement in millet yields - from 330 to 600-1000 kg/ha, and in groundnut yields from 340 to 600-900 kg/ha. Yields are also less variable year on year, with consequent improvements in household food security. As Amadou Diop has put it: "crop yields are ultimately uncoupled from annual rainfall amounts. Droughts, while having a negative effect on yields, do not result in total crop failure".
Diop 2000 in Pretty and Hine 2001

- Colombia: ComitÈ de InvestigaciÛn AgrÌcola Local (CIAL)

In Colombia, the CIAL programme has worked with 4000 farmers in about 50 communities. The aim is to improve agroecosystem productivity and health, extend the capacity of poor communities to solve agricultural problems, and take advantage of new economic opportunities.

The greatest benefits appear to be for the poorest households. A wide range of different technologies have been developed, including rearing of guinea pigs, reintroduction of wheat cultivation, live barriers, IPM in potatoes, organically-produced sugar patties, agroforestry, use of green manures, mulches, and the establishment of small food enterprises. There are many important challenges, not least in finding ways to ensure that communities are able to mature and develop, rather than fall away after initial successes.
Braun, 2000 in Pretty and Hine 2001

- Cuba: national policy for sustainable agriculture

Up to 1990, Cuba's agricultural and food sector was heavily dependent on external support from the soviet bloc. It imported 100% of wheat, 90% of beans, 57% of all calories consumed, 94% of fertilizer, 82% of pesticides and 97% of animal feed. But in 1990, trade with the soviet bloc collapsed, leading to severe shortages in all imported goods. The government response was to declare an "Alternative Model" as the official policy - an agriculture that focuses on resource-conserving technologies that substitute local knowledge, skills and resources for the imported inputs. Two important strands to sustainable agriculture in Cuba have emerged: intensive organic gardens in urban areas of three types - self-provisioning gardens in schools and workplaces (autoconsumos), raised container-bed gardens (organoponicos), and intensive community gardens (huertos intensivos); sustainable agriculture on both large and small farms in rural areas. Both have made a significant contribution to total food production. In 1994, for example, organoponicos, autoconsumos and huertos intensivos were producing some 4200 tonnes of food per year. For the organoponicos, an estimated 26,000 people are involved in direct food production.
Rosset, 1997, 1998; Murphy, 1999Ý, in Pretty and Hine 2001

Certified organic production

- India: The Maikaal organic cotton project

In the Maikaal organic cotton project in Madhya Pradesh, India more than 1000 households are participating in an organic cotton project that started 1992. Among the results can be noted that; Average yields for cotton are 20% higher on the organic farms than in the conventional farms in the area; The yields of wheat, soy and chilli grown in the rotation with cotton are equal or up to 20% higher than on conventional farms. Yields in sugar cane are up 30%; The production costs in the organic system is only 30-40% of the costs for conventional production, even labour costs have been reduced; The crops need one or two rounds of irrigation less than in conventional farms; Soils have become softer and crumbly and pest do not pose any major problem. Tadeus Caldas, Ecology & Farming March 2000

- Mexico: ISMAM fair-trade coffee

ISMAM was formed by smallholder coffee growers to meet problems of low productivity, poor marketing conditions and extreme poverty of farm families. By adopting organic techniques and improving quality, the coop was able to overcome soil degradation and low yields and move into a privileged specialty market that rewarded their extra efforts towards an ecologically sound production. Through sound, participatory management of the organization and hard work, ISMAM was able to capitalize their enterprise, overcome initial government disinterest and repression to become a major agro-industry with their own processing facilities and direct export markets in the US, Europe and Japan.

They have begun to produce blends and soluble coffee for the national market and to diversify their agro-production for greater food security. Besides expanding their business, part of ISMAM's profits are returned to regional committees of the coop for investment in social works. In 1995 ISMAM received the National Agro-Export prize from the hands of Mexico's President.

They now enjoy a privileged position with respect to credit and government support and have diversified their business into a number of areas including eco-tourism.
Ronald Nigh in Pretty and Hine 2001

Development of strategies for pests

- Kenya: Vutu-sukumu (Push-pull) pest management in smallholder systems

The work of ICIPE is explicitly focused on designing low-cost integrated pest management technology. It works closely with farmers to test and adapt technologies. One activity is investigating novel habitat management approaches to suppress cereal stem borer and Striga populations in maize and sorghum. This project is developing novel "push-pull" strategies to repel stem borers from the cereal crop and attract them to intercrop or barrier forage grasses. It has found extra-ordinary multi-functionality in a range of fodder grasses and legumes in cereal systems. The strategy involves trapping pests on highly susceptible trap plants (pull) and driving them away from the crop using a repellent intercrop (push):
Pickett, 1999; Khan et al, 2000 in Pretty and Hine 2001

- China: control of rice blast

In Yunnan, China farmers had serious problems with rice blast in the production of their traditional rice. Farmers almost doubled their rice yields when they interplanted their traditional rice with a blast resistant variety in blocks instead of growing just one variety. The yield increased because rice blast was unable to spread through the barriers of a resistant variety.
Nature 2000, vol. 406

Agriculture policy measures that promotes organic agriculture and food security With increasing evidence and awareness of the advantages of organic farming, why hasn't it spread more rapidly and how can it be multiplied and adopted more widely? Major changes must be made in policies, institutions, research and development to make sure that organic agriculture alternatives are adopted, made broadly accessible, and multiplied so that their full benefit for sustainable food security can be realized. In addition, participatory, farmer-friendly methods of technology development must be incorporated. The challenge is to increase investment and research in organic agriculture and scale up projects that have already proven successful, thereby generating a meaningful impact on the income, food security, and environmental well-being of the world's population, especially millions of poor farmers that in any case will not be able to access the industrial agricultural technology.

Required policy measures Below are listed food and agricultural policy measures that are directly related to farm production. Again, it must be emphasized that as the main reasons for food insecurity are found in the social and economic areas most of the solutions will also be found there. Even if all the policy measures below were implemented will food security not be guaranteed in a society that is based on inequity and discrimination or where international trade rules directly or indirectly counterwork efforts to develop the local food sector.

General

Identify and recognize already existing organic production systems Define a clear policy for sustainable agriculture development. Incorporate organic agriculture as a central part in the overall policy. Support to farmers converting to organic agriculture, or to the introduction of certain technologies

Economic measures

Reform national economic indicators of the agricultural sector to reflect depletion and degradation of natural resources Implement the Polluter Pay Principle: Internalize "external"

costs for environmental and health damages in the price of products Eliminate subsidies that encourage natural resource degradation or depletion

Food and markets

Eliminate agricultural support programs that create commodity surpluses and lower global commodity prices Abolish distorting incentives, such as governmental pesticide or synthetic fertilizer promotion programs or special incentives for exports Prioritize safe food crops and investment in food sector Develop local and regional food markets Promote sustainable consumption patterns and local food Promote value addition

Research, Extension service, farming education and information exchange

Prioritize research into organic agriculture, livestock and food crops Link research, extension and farmers closely Reform extension service and agriculture education and retrain staff both in contents and methodology Support farm based research, Farmer-to Farmer exchange and other participatory methods

Empowering people

Include clear commitment to government - NGO partnership and democratic process and a clear commitment to and inclusion of women, small farmers, indigenous people and other possibly disadvantaged groups Support producers organizations, women and community organizations to play a leading role in the development

Access to resources

Secure farmers' land tenure Make credits accessible for organic projects and production Reject privatization of genetic resources and keep seeds in the public domain Protect Farmers' Rights to develop seeds and save seeds

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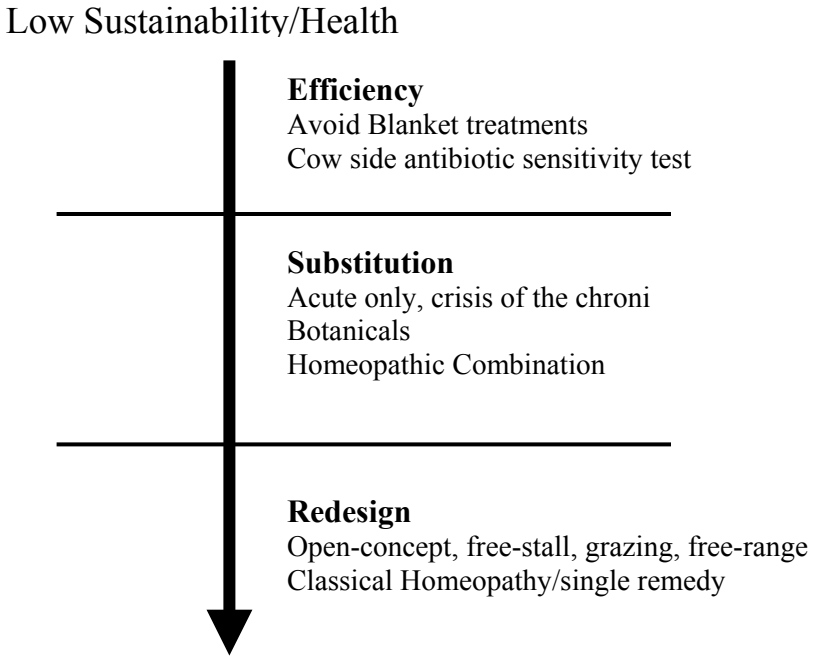
1 By shifting the global diets to vegetarian or vegan food, substantially more people could be fed on the same area of land.

Friday Seminars

Use Of Homeopathy In Organic Livestock Production

By Dr. Fernando Moncayo

Organic farming prohibits or heavily restricts the use of most standard drugs. Homeopathic medicines become an attractive alternative because their use does not induce residues in animal products. However, the application of homeopathy in the farm requires a re-designing of concepts of health and management. Consider the following model, adapted from Mac Rae (1996).



After: **MacRae et al, 1990**. Policies, programs, and regulations to support the transition to sustainable agriculture in Canada. A.J. Alter. Agric.5:76-92

The application of homeopathy and other treatment strategies in organic herds seems to remain at the level of substitution where we look for alternative drugs that are permitted by the Organic Standards to replace hormones and antibiotics. This approach can be effective to treat acute diseases but in the long term does not advance the health of the herd and becomes non sustainable. To reach a high level of sustainability in health it is required to addressed the susceptibility to disease.

Consider the following example: At a dairy farm several cows presented chronic mastitis manifested as persistently high SCC and periodic mild clinical signs e.g. swelling of udder, milk clots. A higher than usual incidence of mastitis had occurred in 1999 which was attributed to a change in the milking system and/or contamination from stagnant water where sulfur reduction produced a low oxygen tension had produced a reddish scam. Several cows were treated during the summer 99 with antibiotic but the response had been marginal.

Initially, four cows that failed to respond to antibiotic were treated with homeopathic medicine with no success. Homeopathic remedies that have been recommended for mastitis treatment were used e.g. *Belladonna, Bryonia, Lachesis*.

However, homeopathic theory states that the treatment of chronic disease requires the use of medicines prescribed according to the individualizing characteristics of the disease and personality of the individual. Further, when various individuals in a population are afflicted by a common disease, one remedy that covers the characteristics of the disease (*genus epidemicus)* as it appears in the population must be used.

Carbo Vegetabilis was chosen as the remedy of the population. This is a remedy prepared from charcoal. *Carbo Vegetabilis* was believed to suit the population because:

1. it is reported to be useful for treating mastitis in humans
2. it applies to chronically ill individuals who consume rich food difficult to digest. This may be analog to the feeding of concentrated grain to ruminants whose natural diet is grass.
3. it applies to diseases that are insidious and develop slowly.
4. the base of the medication is charcoal which is manufactured by slow burning at low oxygen tension.

Remedies of the individual were selected studying the characteristics of each animal according to classical homeopathy.

- Dolly: Startles with sudden movements; docile, can be approached and touched; slim body with fine long bones.
  Rx *Phosphorus*
- Polka dots: tame, mild and calm character when she is outside, startles to sudden movements when she is in the barn.
  Rx *Pulsatilla*
- Lily: shows dislike at being touched; she is the leader of the herd.
  Rx: *Aurum Metallicum*.
- Charity: generally tame in the barn but cannot be approached when she is outside; dislikes to be touched.
  Rx: *Antimonium Crudum*

Treatment

Cows were treated with the following remedies in sequence
1:*Carbo Vegetabilis* 30c two doses (1 dose:5-10 pellets) 12 hours apart repeated every three days for two weeks.
2:*Carbo Vegetabilis* 200C two doses 12 hours apart once per week for two weeks
3: Remedy of the individual: two doses twelve hours apart.

The medication was in the form of coated pellets. The dose was dissolved in 30 ml of water and sprinkled over the feed.

Dolly, Polka dots and Lily presented a gradual decline in the SCC after the start of the homeopathic treatment. The SCC reached acceptable levels within two months. Dolly presented a sharp decline in the SCC but it soared again to pretreatment levels after 3 months. Then, it was treated with antibiotics resulting in a sharp decline in the SCC. Charity did not appear to respond to treatment and it was culled (Table 9, Figure 2).

Three of the four cows receiving the treatment exhibited the desired effect. It is interesting that one of the cows that responded temporarily to treatment responded rapidly to antibiotic treatment when antibiotic alone had failed.

It is obvious from this example that this level of prescription can only be done by a veterinarian trained in classical homeopathy. However, homeopathy can be effectively applied in the farm by the farmer at the level of substitution particularly for acute disease. There are a great number of homeopathic medicines that a farmer can learn to use to treat common acute ailments in their animals. However, greater knowledge about what one wants to treat is required than when using conventional drugs. When treating acute mastitis with antibiotics, one needs to choose between a hand full of antibiotics; however, when treating with homeopathy, one has virtually hundreds of remedies that may apply to the case. The choice depends on the intimate knowledge of the animal and the very unique characteristics of the disease as it is presented in the animal. As professor Patriquin from Dalhousie University said: organic agriculture requires lower inputs but a higher amount of information. To effectively use a minute amount of a remedy, as in it is done in homeopathy, one requires a great deal of information.

Basic principles of homeopathy

Homeopathic medicines are extremely diluted solutions of various medicinal substances. Homeopathic medicines are usually presented in the form of tiny sugar pellets that have been coated with the liquid solution. They have names that are the Latin name of the base medicinal substance (e.g. Nux Vomica) followed by a number that indicates the level of dilution (e.g. 12, 30, 200 etc). The dilution of the medicine is so extreme that not a single molecule of the original medicinal substance is left in the solution. However, in the process of preparation of the medicine, the liquid retains a memory of the medicine. This is analogous to recording a piece of music in an electromagnetic tape which retains the sound with all of its characteristics but does not contain the instruments (guitars, drums etc) that produced the sound.

Likewise, in the homeopathic medicine the medicinal power of the medicine is there but there is nothing left of the molecules of the medicine. In this way, we can extract all of the beneficial effects of a medicine without its side effects. Just like electromagnetic recordings, homeopathic medicines are sensitive to electromagnetic fields like those produced by electric devises (e.g. refrigerator, electric outlets) and to continuous direct sun light. Homeopathic medicines are also sensitive to strong scented substances (e.g. perfumes, house hold cleaners). Therefore, homeopathic medicines are best kept in a dark cupboard away from electric devices and scented products.

Homeopathic medicines induce processes of self-healing in the organism. All living creatures have the ability to heal themselves, to repair their tissues and organ and restore most of their lost of impaired functions. For instance, a cat may recover from a mild indigestion without any kind of treatment; a minor skin cut will close itself within 3-4 days. However, some maladies may require some form of intervention to encourage healing. In standard medicine the treatment strategy is directed to control factors foreign to the body that may interfere with healing. For instance, a cut may require and antibiotic to control bacteria that may invade the subcutaneous tissue and form an abscess; a very young calf may require antibiotics to control secondary bacterial infection of the respiratory airways that may progress into pneumonia. The therapeutic strategy in homeopathy is to processes innate to the animal that induce healing. For instance, a homeopathic medicines such as Calendula and Symphitum will encourage cell multiplication and speed up the closing of a wound; in a cat with a respiratory infection in a calf that may quickly progress to pneumonia Aconitum 1M may arrest the progress of the disease; likewise, Echinacea 12 will boost the immune system specially on upper respiratory ways.

Homeopathic medicines have very specific applications and are prescribed according to very specific symptoms. In other words, there is not such a thing as a homeopathic remedy for cough but several remedies that may help a cough. It all depends on the characteristics of the cough and of the animal that has it. No two coughs are the same. For instance, a dry hacking cough may respond to Drosera, but a cough that seems thick and "gurgling" may be better treated with Antimonium tartaricum. One may prefer to use a remedy over other because of minor changes in behavior of the animal. For instance, for an indigestion in an animal that is restless you may want to use Arsenicum Album; but if the animal is rather listless and reluctant to move Bryonia would be the best remedy.

Anybody being serious about using homeopathy in the farm needs to have a kit containing at least the remedies listed bellow and study these remedies well. Briefly, the main application guides are given.

Aconitum 1MK: very early stages of disease, very high fever, animal feels hot and dry; specially if it has been a cold windy day
Arnica 30: consequences of trauma (e.g. calving); reluctance to movement.
Antimonium tartaricum 30: difficult coughing, fluid in the airways, weakness
Arsenicum Album 12: food poisoning; restlessness, thirst for frequent small drinks
Arsenicum Album 30
Apis Melifica 30: puffy swelling, cold swelling, pale, swelling eyes
Belladona 30: hot, red, very painful, acute
Belladona 1M
Bryonia 30. Does not want to move; better with pressure, dryness of mucous membranes
Calcarea Sulfurica 6: Induces the drainage of an open abscess
Calendula MT: herbal antiseptic. cuts and abrasions.
China 30: diarrhea in infants with weight loss, bloating, sweating on muzzle.
Calendula 30
Carvo-vegetabilis 12: cyanosis, gasping for air, resuscitation
Caulophylum 30: restlessness and not progression of parturition
Echinacea 12: upper respiratory infections
Hepar Sulfuris Calcarea 12: induces the breaking of an abscess
Hepar Sulfuris Calcarea 200: halts the formation of an abscess
Hypericum 12: nerve pathology, puncture wounds (combined with ledum)
Lachesis 30: abscess with cyanosis, purple colour
Lachesis 200
Ledum 12: soft tissue trauma, puncture wounds in combination with hypericum
Nux Vomica 30: indigestion from rich foods (excess grain, silage)
Rhus Tox 30: restless, better with movement
Sulfur 30: yellow diarrhea, redness and inflammation of anus. Responded to other remedies but still does not get completely better.
Pulsatilla 30: mildness
Phosphorus 30: fever with increased appetite
Veratrum Album 12: severe diarrhea with increase vocalization.

Fernando Moncayo is a veterinarian and a practitioner. My business is health using homeopathy and acupuncture. I have worked with most domesticated species but in livestock my experience is mainly in dairy. Email: fernando.rose@ns.sympatico.ca

Organic Marketing, Product Development and Market Research

By Helene St. Jacques & Larry Godfrey

The 3-hour seminar presented by two seasoned professionals, Hélène St. Jacques, President, Informa Market Research Co. Ltd. and Laurence Godfrey, Laurence G. Godfrey Food Industry Consultants.

The key points in this presentation are:

- The Canadian market for organic food - size and dynamics
- Creating products for and targeting niche markets
- Elements of a successful product launch
- Methods of stimulating product trial
- Getting the packaging right - right from the start
- Pricing to stimulate repeat purchase and instill confidence in quality
- Selecting the most appropriate retail environment
- Learning market secrets from distributors and retailers

The presentation includes a comprehensive introduction to marketing and promotional concepts illustrated using real-life examples of successes and failures garnered from mass market and niche product categories. Critical market and communication research tools are explained. Also, participants have opportunities to apply key learning points in case studies and to share this learning and insights with other seminar attendees. Also, simple and illustrative quizzes are employed to test participant's assumptions about consumers, juxtaposed against market realities.

Hélène St. Jacques, is the President of Informa Market Research Co. Ltd. with over twenty-five years of experience working with clients in Canada, United States and Australia. Ms. St.Jacques has degrees from University of Waterloo (B.A.) and University of Toronto (M.Ed.) and is a devoted volunteer in community development. Since 1979 Informa Market Research Co. Ltd. has been providing information-gathering expertise to a diverse client portfolio - including social marketing (healthcare, nutrition, social justice and environmental issues) and mass marketing (food and agriculture). Informa has a comprehensive overview of societal behavior and attitudes.

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Mister Natural
Laurence Godfrey is Mister Natural.
As President of **Laurence G. Godfrey Food Industry Consultants**, Laurence provides sales, marketing and promotional support to emerging manufacturers in the Natural and Organic foods trade. A strong proponent of the "whole foods" movement, he has recently taken to the stage as **Mister Natural**, with a live cooking show, which extols the virtues of **quick and easy recipes using wholesome ingredients with a "good-for-you" flare**.

Laurence Godfrey, President: 20 years Senior National Sales and Marketing experience within the food industry, including such major packaged goods firms as ***Unilever, Nestle, Haagen-Dazs, Dairyworld Foods and Ovaltine Products Incorporated***. The **Creative Editor of five brand-name cookbooks**, Mr. Godfrey brings the flare of a true food-lover to each and every sales, promotional, and marketing project.

A veteran of the food industry, Laurence has held senior sales and marketing positions with some of the industry's largest corporations, but there is more to the man who is known as **The Sultan of Food Consultants**.

"I have a passion for cooking, and I love to share what I know with anyone who wants to hear", explains Laurence, who aside from having studied the art of Italian cuisine also lists a stint as lead singer in some very well known Canadian rock bands on his resume.

Seminar on Organic Vegetable Production on 12 Acres

by Elizabeth Henderson

Peacework Organic Farm - How We Manage Our Farm
Partners Elizabeth Henderson, Greg Palmer and Ammie Chickering produce vegetables, fruit, herbs and flowers on 15 acres of well drained, silty loam soils which we rent from Rebecca and Doug Kraai's Crowfield Farm.

Overall Farm Goals: We are striving to create a dynamic equilibrium among our environmental, social and economic goals. These goals are:
* to produce safe, nutritious, hand-crafted, fresh food for area families.
* to reduce to the minimum the miles our food travels to reach the tables where it is eaten.
* to minimize or eliminate the soil erosion that usually comes with crop production.
* to maximize biodiversity above and below ground.
* to recycle nutrients, and reduce our dependence on non-renewable resources like diesel fuel and other off-farm inputs.
* to create an attractive and orderly farmstead that is a complement to the beauty of Crowfield Farm.
* to create a work atmosphere that is calm, cheerful, and welcoming; that allows us to enjoy the rhythm of the seasons, and to be attentive to the natural beauty around us.
* to create an environment that is safe, fun and educational for children, including our own.
* to involve the community in our farm, and our farm in the community: to improve local food security, social justice, and cooperation among farmers and between farmers and consumers.
* to continue to learn and to share with others the knowledge and skills we acquire.
* to make a modest living for our two families: we are blue collar farmers; we enjoy physical labor and have no desire to become managers or exploiters of other people's work.

The Soil: we believe that healthy soil grows healthy crops and healthy people who eat those crops.

Bed system: To care for the soil and reduce erosion, we have formed permanent beds. Leaving the existing sod in place, we chisel plow 5 foot wide beds with 30 inches of sod in between, spread old manure or compost, spade the beds 3 times at 2 week intervals, then plant a cover crop. With the sod strips, one third of the fields is covered at all times. The strips increase biodiversity: the native grasses and wild flowers providing habitat for many beneficial insects. Beneath the surface, the sod strips are home to mycorrhizae and other soil dwelling fungi,

bacteria and arthropods. Tillage disrupts their lives, but the sod strips provide refuge, allowing them to recolonize the tilled areas rapidly. A diverse and thriving population of soil microorganisms is essential if plants are to obtain the minerals and moisture they need for healthy growth. The main drawback of this system is the amount of mowing we have to do, but sometimes the cuttings serve as mulch for crops.

Tillage: We reduce the negative effects of tillage by using a spader instead of the usual combination of plowing and disking. Though slower, the spader requires fewer passes and does not invert the top layer of the soil. Used to its full depth, the spader does an excellent job of burying cover crops. A light pass with the spader creates a rough seed bed. We sometimes use disks when we prepare ground for sweet corn, which we grow in double rows instead of beds.

Crop Rotations, cover crops and mulch: We rotate all annual crops carefully so that we never grow a crop from the same family in the same bed two years in a row. For the Christmas Tree Field, where we cannot irrigate, our rotation is early spinach, lettuce, Asian greens, carrots, scallions or garlic, followed by a cover crop of buckwheat during the summer, and oats or hay mulch over the winter. For our other fields, we have a complex sequence of crops: sod - corn - rye - potatoes - peas - rye/vetch - broccoli underseeded with oats- winter squash - oats - onions, leeks and carrots - rye/vetch - tomatoes, peppers and eggplant underseeded with oats - lettuce, spinach or other root crops - clover/grass sod. We use a cover crop of soybeans and sorghum sudan to bring new fields that are low in organic matter into production.

Compost: We produce some of the compost we use ourselves, constructing static piles of alternating layers of manure, hay and crop residues. The piles heat up to 140 to 150 degrees Fahrenheit and then cool to the ambient temperature. For our potting soil, we use compost that we allow to mature for an entire year, combined with some vermicompost (wormcastings). We also purchase some composted chicken manure from Kreher Farms. We have also tried Bion soil, made from cow manure. Our goal is to add compost to each bed at least every other year.

Irrigation: When natural rainfall is insufficient to keep our crops watered, we use trickle irrigation. This form of irrigation reduces the volume of water needed by using perforated plastic tubing or "tape" to soak the soil at the base of each plant. On a dry summer, we may use as much as eight miles of trickle tape which we reel out along each row, and then roll back up to store for the winter. For the fields near the barn, we use an electric pump to draw water from the spring, the same drinking quality water that we use to wash our crops. To irrigate the Fairville Field, we use a gas-fueled pump to draw water from a shallow well we have had constructed because the creek which runs along the field goes dry in bad years. We do not use water from the larger Ganargua Creek because its waters are polluted with atrazine and ammonium.

Weed Control: For direct-seeded crops, we use the stale seed bed method: we till a bed, allow it to grow weeds for 10 days, and then shallowly till it again. Then we plant our seeds. For crops that germinate slowly, we wait until the day before the seedlings emerge and flame weed the beds with a propane torch. As soon as we can see the emerging crop, we cultivate between the rows with a basket weeder, which eliminates most hoeing and reduces the area of hand weeding to the 4 inch strip around the crop. The basketweeder is belly mounted on an Allis Chalmers G. We also have a more aggressive cultivator with sweeps which we mount on the G. When crops grow larger, we cultivate with the s-tines of a Perfecta field cultivator which we can adjust easily for one row or two row configurations. We can extend the s-tines with duck feet shaped cultivators to kill weeds more aggressively. To reduce weeding and retain soil moisture, we mulch garlic with hay before it emerges. After we harvest, we spade the mulch into the beds to increase

organic matter. For heat-loving crops like tomatoes and melons, we mulch with IRT (infrared transmissible) plastic that helps raise soil temperature while inhibiting weed germination,

Pest and Disease Control: We try to practice farming that is plant positive, rather than pest negative. Our system design, maximizing soil health, rotations and biodiversity, is our first line of defense against pests and diseases. Our grass strips, tree lines and buffer strips along streams provide habitat for our allies: beneficial insects, frogs, toads, snakes, birds and soil microorganisms. By shunning the use of toxic chemicals, herbicides, pesticides and fertilizers, we live in harmony with the natural population of creatures. As much as possible, we choose crop varieties, which are resistant to common diseases. For persistent pests, like flea beetles and Japanese beetles, we cover some crops with floating row covers. Sometimes we vacuum up flea beetles. To control cabbage loopers (the green worms on broccoli and cauliflower), we spray with bacillus thuringiensis, a microbial endotoxin that is not toxic to mammals, bees or fish. We use a formulation that is not genetically engineered. We hand pick Colorado potato beetles. We experimented this year with Surround, fine clay, which we sprayed on cucurbits to reduce cucumber beetles. We were pleased with the results. To reduce early and late blight on tomatoes and peppers, we try to increase the vigor of the plants by spraying with our own witch's brew of compost tea, fish emulsion, equisetum and nettle teas.

Wildlife and wild places: We rejoice in the abundance of uncultivated lands around our fields, the woods, streams and wetlands that are conserved on Crowfield Farm. The Kraais have cooperated with the Fish and Wildlife Department to reconstruct several wetlands that attract ducks, herons, huge flocks of geese, and other birds. Deer, foxes, woodchucks, raccoons, rabbits and other creatures dwell in these wild places. Occasionally, they snack on our crops. We discourage deer from munching our beet greens and lettuces by hanging bags of human hair mixed with dog hair along the rows. We have had some success keeping raccoons out of the sweet corn by ringing the corn with pumpkin plants. We have been known to use mouse traps, water traps and smoke bombs on rodents, which invade our greenhouse and packing shed. We welcome woodchuck hunters.

Seed: We buy only untreated or organically produced seed from small, regional seed companies which have signed "The Safe Seed Pledge" that they "do not knowingly buy or sell genetically engineered seeds or plants." Over half of the varieties, which we use, are open-pollinated, and we grow many heirloom varieties. However, we continue to use some hybrids, which have been classically bred to have disease resistance, which we consider essential to non-chemical production methods. As soon as we find an open-pollinated broccoli, which has large, well-domed heads, we will adopt it. We save some seed from our own crops - beans, tomatoes, squash, pumpkins - and appreciate the help of our farm members with this practice. We strongly support regional efforts to regain control of our seed supply from the multinational corporations, which currently dominate world seed production and trade!

Plant production: We use a Biodynamic astronomical calendar to guide the timing for planting our crops. We start all of our transplants in our greenhouse where we produce upwards of 50,000 lettuce, broccoli, Asian greens, leek, onion, pepper, eggplant, cucumber, tomato, melon, herb, and flower plants a year. In the greenhouse, we do not use any chlorine: to clean flats, we solarize them with a good day's baking in the hot sun. We make our own potting soil mix using 50% compost, which suppresses the pathogens that can kill tiny seedlings. Instead of sterilizing everything in sight, we maximize biological activity. We heat our greenhouse beds from underneath by circulating hot air from above the beds on sunny days, or from a propane heater on cold nights. Window vents and roof vents allow air to circulate freely, reducing the risk of harmful fungi and molds. Before transplanting into the field, we move flats of plants to an

unheated cold frame to harden them up. We also use plastic hoop houses to extend our season and to ensure that peppers and eggplants mature in our short summers.

Tools and equipment: We use many hand tools - spades, forks, rakes, trowels, hoes, etc. But we also appreciate the power that petroleum-fueled equipment, tractors and mowers, give us to farm on a larger scale than we could manage with hand tools alone. We own two tractors, an Allis Chalmers G and a 1974 John Deere, and we are fortunate to be able to rent the part-time use of several larger Ford diesel tractors from the Kraais. We look forward to converting to biofuels when these become available. For each piece of equipment, we observe a thorough maintenance schedule. We are diligent about greasing and about putting tools back in their designated homes. This saves a lot of time and aggravation.

Post-Harvest Handling: We carefully cull our crops as we harvest them to ensure that only the highest quality produce goes to our primary markets. But we don't like to waste anything: our farm crew eats the culls (we call them 'factory rejects') or we donate them to other hungry people. We wash our produce in water from the spring mentioned in the irrigation section above. The watershed for this spring is on land owned by the Kraais, so we know that no one is applying chemicals on any of this ground that could seep into this water. Every year, we take a sample of this water to a lab for testing to be sure it is safe and drinking water quality. We pack produce in recycled waxed boxes or plastic bags, and store it in our walk-in cooler in preparation for shipment. We move almost all of our produce to market within a day or, at most, two from harvest. The exceptions are garlic and onions, which we cure for a period of several weeks, and potatoes and winter squash, which we store after fall harvest in a rat-proof cage in the red barn.

Marketing: Our marketshed is the 50 mile radius around our farm. We sell over 90 percent our production as 'shares of the harvest' to the local members of our farm and the members of the Genesee Valley Organic Community Supported Agriculture (GVOCSA) Project in Rochester, New York. We provide enough vegetables, herbs and flowers for over 200 shares a week for 26 weeks. The excess produce, beyond what is needed for the shares, we sell to local stores and to neighbors. Sometimes we have a booth at the Farmers Market at the Wayne County Extension in Newark. We donate left over shares and cull vegetables to St. Joseph's House of Hospitality, Bread Not Bombs, and the Southeast Ecumenical Ministry.

Training and Tours: Each season, we offer two internships to people who want to learn the craft of organic vegetable production. In addition, they experience what is involved in running a highly participatory CSA, and receive an introduction to holistic farm management. We welcome groups of all ages that want to tour the farm. We ask a small fee to cover our time. Please call the farm - 315-331-9029 - to schedule visits. During the winter, we attend workshops and conferences for our own professional development. We participate in a range of projects to increase the research in organic agriculture and farming systems. We welcome inquiries from researchers who would like to cooperate with us.

A. Decision process - Holistic Resource Management: creating a 3 part goal - personal, environmental and economic

B. History of Peacework Organic Farm and our CSA:

1. Overall farm goals
2. development of our partnership
3. shift in marketing strategy
4. intern program: mini-CRAFT, on-farm mentoring project
5. plan for succession

C. Production methods:

1. soil management:
   a. bed system
   b. spader
   c. composting
   d. rotations, cover crops and green manures, mulching
2. weed management
   a. search for the ideal mower
   b. Allis Chalmers G and basket weeders
   c. stale seedbed
   d. flame weeding
   e. field cultivator
   f. hand tools: stirrup hoe, hand weeder, colinear hoe
3. irrigation
   a. water sources
   b. trickle tape
   c. pumps
4. pest and disease control: plant positive instead of pest negative
   a. sod strips, hedge rows, polyculture
   b. wildlife
   c. row covers
   d. sprays: Bt, Surround, compost teas
5. Planting
   a. seed and resistant varieties
   b. greenhouse design
   c. compost-based potting soil
   d. schedule of successions:
      1. seeders
      2. one time crops
      3. multiple plantings

D. Our Community Supported Agriculture Projects: GVOCSA and POFCSA

a. organizational structure: history of development of core groups
b. budget, share size and price
c. member participation
d. harvesting and post harvest handling
e. distribution

2000 Crop List for Peacework Organic Farm

Artichokes
Jerusalem
Arugula
Beans
Provider - green
Benchmark - green
Roma - romano
Royal burgundy - purple
Buttercrisp - yellow
Dragon Langerie - striped
Beets
Chiogga - striped
Early Wonder
Detroit Dark Red
Bull's Blood
Broccoli
Arcadia
Packman
Benihana
Premium Crop
San Miguel
Thompson
Green Valiant
Quarantina raab
Brussels sprouts -
Oliver
Burdock -Takinogowa

Cabbage
Early Jersey - green
Super - red
Des vertus - savoy
Summer top - Chinese
Carrots
Navajo
Nevis
Bolero
Nelson
Cauliflower
Snow Crown
Orange Bouquet
Celery - Ventura
Collards - Champion
Corn
Spring Treat
Bodacious
Tuxedo
Platinum
Kalidia - Indian
Cucumbers
Marketmore
Suhyo Long
Telegraph
Holland
Daikon - Shinden Risoh
Gourds
Indonesian Bottle
Long Handle Dipper
Eggplant
Black Bell
Rosa Bianca
Dusky
Pingtung Long
Garlic
Rose Valley
Musik
Russian
Herbs
Basil -Genovese,
Purple Ruffles, Spicy
Dill
Cilantro
Garlic Chives
Mint
Oregano
Thyme
Parsley
Fennel
Sage
Savory
Kale
Lacinato/Cavolo
Konserva
Red Russian
Kohlrabi - Early White
Leeks
King Richard
Siegfried
Lettuce
Black Seeded Simpson
Winter Density
Parris Island Cos
Royal Oakleaf
Buttercrunch
Crakoviensis
Forellenschluss
Romaine
Ermosa
Red Sails
Sierra
Waldmann's Green
Grazer Krauthaupti
Merveille de Verano
Brune d'Hiver
Lollo Rossa
Rouge Grenobloise
Reine de Mai
Red Salad Bowl
Gloire du Dauphine
Melons
Pulsar cantaloupe
Burpee Hybrid
Athena
Golden Gopher
Mustard Greens - Southern
Curled
Onions
New York
Bennie's Red
Ailsa Craig - white
Stuttgarter
Oriental Greens
Pak choi
Tatsoi
Maruba Santoh
Mizuna
Senposai
Parsnips - Harris
Peas
Little Marvel
Green Arrow
Coral
Rhubarb
Snow Peas
Mammoth Melting
Oregon Giant
Peppers
Yankee Bell - green
Lipstick - red
Spanish Spice
Italia
Anaheim
Bolivian Rainbow
Early Jalapeno
North Star
Potatoes
Chieftain - red
Norland
Carola - yellow
Yellow Finn
Elba - white
Eva
Genesee
Caribe - purple
Pumpkins
New England Pie
Young's Beauty
Howland
Rouge vif d'etampes
Radishes
Easter Egg
Purple Plum
Rutabagas - Laurentian
Spinach
Longstanding
Bloomsdale
Tyee
Olympia
Swiss Chard
Fordhook
Bright Lights
Summer Squash
Zuccini: Eight Ball
Cocozelle
Spineless Beauty
Sunburst Patty Pan
Crookneck
Tomatillo - Toma verde
Tomatoes
Amish Paste - sauce
Jubilee - orange

Yellow Pear
Glacier- early
Brandywine - pink
Big Beef
Golden Boy
Sun Gold Cherry
Sweet Chelsea
Pineapple
Juliet
St. Pierre
First Lady II
Turnips
Purple Top White Globe
White Egg
Watermelon
Sugar Baby
Yellow Doll
Moon and Stars
Winter Squash
Burgess Buttercup
Waltham Butternut
Spaghetti
Festival
Early Acorn
Delicata
Baby Hubbard
Flowers
Marigolds
Petunias
Nasturtiums
Snapdragons
Columbines
Hollyhocks
Delphiniums
Sweet Williams
Echinacea
Cleomes
Zinnias
Cosmos
Flowering kale
Sunflowers
Gladiolas

Job Descriptions for the GVOCSA Core Group

1 Clerk: as in Quaker meeting, clerk keeps minutes at monthly Core meetings, reports on action items at end of meeting, checks up with people who have taken assignments.

1 Registrar: keeps membership list up to date. Prints out labels for mailings. Serves as one of phone numbers on brochure which people can call for information about CSA. Prepares list of members for big mailing.

8 Distribution Coordinators (4 for each pick-up day): each coordinator covers 4 to 5 distribution days from 5:30 pm to 8 pm during the 26 weeks of the season. Coordinator arrives early, opens garage, checks distribution list from farm against boxes in walk-in cooler, and highlights with colored marker names of members who have bulk, or who need to take boxes or keys back to farm. Oversees work of 5-6 member helpers who weigh out vegetables, such as carrots, potatoes and spinach, set up tables, arrange boxes of vegetables on tables, place signs on boxes indicating how much members are to take. When set-up complete, one member of distribution crew checks in members as they come for shares; another covers bulk orders, distributing orders from previous week, collecting money, and signing members up for next week bulk; another hands out flyers or recipe sheets for the week; another makes sure tables are well stocked with vegetables for shares. As boxes empty, distributors break them down for return to farm. At 8 pm, distribution crew folds up tables, stores remaining food in cooler for pickup by St. Joseph's House of Hospitality, and cleans up yard. Coordinator mails bulk order sheet and money to farm.

1 Distribution Tsar: ensures coordination among distribution coordinators. Makes up schedule of coordinators. Organizes annual meeting to review procedures, train new coordinators, and clean up distribution site; makes sure necessary supplies, such as plastic and paper bags, are available; makes sure cooler is working properly; checks member pick-up list for repeated no-shows and makes sure someone calls them. Oversees key supply. Makes sure left over food goes to soup kitchen or local families. Coordinates and smoothes relations with Church where pickup takes place.

Website Manager: manages GVOCSA website, adding and removing recipes and news, answering queries, adding links, archiving Notes from Farm.

2 Schedulers: at beginning of the season sign-up, oversee member sign ups for work dates at farm and on distribution. Prepare copy of schedules for mailing to members. Members are responsible

for finding replacements and trading work times; they are asked to inform the scheduler of changes made. Receive weekly attendance reports from farmers and distribution coordinators. Reschedule members who miss work slots.

2 Special Order Coordinators: arrange with other farms for additional products. Prepare sign up sheets so members can place orders, collect money and forward to farms. Arrange for pick up and distribution of products.

2 Treasurers: set up book keeping system. Collect deposits from members before season begins. Prepare member contracts. At sign up meetings, help members fill out contracts, collect payments and deposit in bank account. Put up reminders when payments are due, collect payments for both summer and winter shares, remind the tardy. Pay farmers. Pay bills for Core and distribution expenses. Keep track of FoodBook sales, and pay royalties. Arrange for scholarships for members who need them. Make monthly reports to Core on state of finances. Prepare end of season financial report.

1 Farmer: report to monthly Core meetings on what has been happening at the farm. Represent the farm at Core meetings.

2 Newsletter Editors: collect articles, recipes, jokes and announcements for bimonthly issues of newsletter. F ormat newsletter. Get newsletter copied. Mail newsletter out to members. Oversee big annual mailing of beginning of the season information to members.

2 Outreach coordinators: design outreach plan for recruiting new members. Oversee mailing of annual letter with 3 CSA brochures to each member. Write press releases for church, temple, enviro group, etc., newsletters. Make presentations on CSA at meetings, or arrange for farmers to do so. Line up media opportunities for farmers to publicize CSA. Make special efforts to recruit low-income members.

1 Winter Share Coordinator: signs members up for Winter Shares from Blue Heron Farm. Arrange for distribution site. Hold meeting with members who sign up. Recruit helpers for distribution from among members buying winter shares. Oversee food delivery to site, distribution, and clean up.

1 New Member Coordinator: at sign up meetings, identifies new members who need guidance of experienced member-buddies. Recruits experienced members and makes buddy pairs. Twice during season, checks in with experienced members to make sure pairs are functioning well. Gets report from pairs at end of season.

1 Social Coordinator: arranges for early in season picnic, makes and distributes flyer to members, brings beverages or arranges for them. Organizes a pick-up party each month on the two distribution days: arranges for a few people to bring snacks, provides name tags, and encourages members to linger and socialize. Organizes end of the season banquet: finds hall, arranges beverages, oversees set up and clean up.

1 Phone/Art Project Person: this is a special job for a long-time member who is disabled. She does not attend Core meetings very often. She calls members each week to remind them of distribution work. When CSA needs posters or signs, she designs them.

Ad hoc Children's Committee: helps farmers design play area for children. Collects toys for farm. Once a year at beginning of season, comes to farm to help set up children's play area, cleans up sand box, erects hay bail walls.

Elizabeth Henderson farms at Peacework Organic Farm in Wayne County, New York, and has been producing organically grown vegetables for the fresh market for 21 years. Since she moved back to New York 14 years ago, she has been on the Governing Council of NOFA-NY, and is the Co-Chair of the Board of the NY Sustainable Agriculture Working Group. She chairs the Agricultural and Farmland Protection Board in Wayne County. Her writings on organic agriculture appear in The Natural Farmer and the NOFA-NY Food, Farms and Folks, and she is one of the authors of The Real Dirt: Farmers Tell About Organic and Low-Input Practices in the Northeast.
Her latest book, Sharing the Harvest: A Guide to Community Supported Agriculture, was published in June, 1999. With her former farm partner, she wrote A Food Book for a Sustainable Harvest for the members of the Genesee Valley Organic Community Supported Agriculture Project (GVOCSA).
Her farm, Peacework Organic Farm, supplies vegetables to the GVOCSA, in its fourteenth year in 2002

"The Organic Soil Test"

By Joe Scrimger, Bio-Systems, Marlette, MI USA
Soil Testing on Organic Farms has held some controversy as it has on conventional farms in the past. Some Organic farms soil test and utilized information from the test, other farms take test because they are required for certification. In this seminar we want to accomplish an understanding of the soil test and how it can be a valuable tool on your farm. Soil test can help you build a soil system that will not only produce chemical free crops, but also nutritionally balanced crops that are more pest and disease resistant while being better feed for animals or food for people.

I come to this process after spending 25 years of looking for answers in relation to degenerative disease, specifically cancer and to some extent heart disease, and how it relates to the production practices used in our food systems.

This seminar is to be based around a series of 5 soil test that have been run on Organic fields that are in varying stages of transition and on different soil types. Animal, grain and vegetable based farms are included where manure and compost, along with mineral soil amendments have been used. The goal will not only be to learn about soil test, but by the end of the seminar to be able to relate to the process of how properly grown food will help reduce degenerative disease in our societies and to learn the value that this process holds for our farms and our communities.

I am expecting a series of questions from the farmers on their test followed by questions from the workshop participants. Because this is an advanced soil test seminar we probably won't get the question of "Why soil test?" But to make sure that we are all on the same page, we should be testing because we are looking for indicators that will help us map the way to economically build a healthy productive soil. I view the soil test process as not an exact science, but rather as a relative science that along with a proper recommendation sends you in a organized direction to build your soil in an economical manner that fits your farming operation.

In my personal history of running soil test there was a time in the late 70's that I would have stated that conventional "Cation Exchange Capacity " (C.E.C.) test did not consistently relate to

production results on the farms I had tested. Others currently use this reason for not testing. It wasn't until I started to factor in the beneficial soil biology, that makes the minerals available to the plant, that conventional testing could be explained in actual production terms. A "Bio-Test" procedure was adapted to factor and indication of beneficial soil biology by checking nitrates and the water solubility of the minerals and comparing them to the C.E.C. test.

Another question that needs to be asked is "Is an organic recommendation different from a conventional recommendation?" When you look at the goal of the two systems there are basic differences right from the start. The conventional recommendation is been based on volume production where the organic recommendation is based on quality production. A conventional recommendation is generally based on a fertilizer system where an organic recommendation is based on a soil system, which are clearly different approaches. Because the soil amendments used in organic systems tend to be organic matter or rock mineral, recommendations need to take into consideration not only that the balance is different, but also that the soil amendments release differently that conventional water soluble fertilizers.

With organic farming, especially in the transition phase, where you are building your soil system, it is important to have a soil nitrate test. This nitrate test should not only tell you whether there is left over nitrate in the soil from manure compost or legume use in the rotation, but also over a series of test it should indicate if the soil organic matter is releasing nitrogen. A properly working soil at 3 percent organic matter (O.M.) should release close to 100 pounds of nitrogen over the coarse of the year, before the manure, compost or legumes are factored in.

It is my estimate, based on 25 years of test of North American soils, that 70% of the agricultural soils do not have proper proportion of beneficial soil organisms (BSO). This seems to be because of soil compaction and decreasing organic matter levels. Most of agriculture does not have a properly functioning soil system, therefore it doesn't have the basis for a meaningful CEC test audit. This is indicated by the lack of most soil to produce nitrogen, along with a lack of calcium solubility indicated by the "Bio-test", which would indicate the lack of beneficial soil bacteria (BSB). Most soil phosphate is tied up in the soil because of a deficiency of beneficial soil fungal organisms. This is compounded by the process in which some compacted soils tend to act like low pH soils where the aluminum may be coming available, but not being considered as a reason for poor plant growth. Nutrient solubility is regulated by beneficial soil organisms and can be measured directly with a Soil Food Web test or indirectly with a "Bio-Test" by comparing the soluble nutrient to the reserve nutrient at a peak soil activity period, such as in May or June with field crops.

With Organic Farming there is a focus on building organic matter and using practices that will decrease soil compaction such as green manure, manure or compost use along with crop rotations and deep rooting legumes. Depending on the state of the soil at the start of the transition and the intensity of the soil building practices, the soil biology will start to improve in the first couple of years and can become active in 3-5 years. Proper balance may take 7-10 years to accomplish, after which it is very easy to maintain.

In the transition process the soil test is an important gauge of what needs to be done to build the soil and also to tell you when you have accomplished the building that was set out to do. Many farmers like to follow recipes for building soil, but if they don't change their recipe after the soil has accumulated adequate nitrogen release and potash levels they can begin to overfeed the soil and the plant. This can cause weed, pest, and disease pressure along with a decrease in feed value. The decrease in feed value is due to the excess nitrate and potassium that can end up in the plant tissue. A soil testing program that indicates soil minerals, along with biology, can help you

approach a balance where you can become more efficient at decreasing your need for soil amendments, while consistently yielding very nutritious production.

Soil balance does mean different things in different soil types or cropping systems. I find that it is most important to look at focusing on balancing when the soil is the farthest out of balance. As the soil approaches mineral and biological balance it will start to work more dynamically, in terms of living components, this works to keep it in balance.

In general we are working to get a nitrate level in the 50-60 pound area for grass type crops like corn or wheat, with a soil mineralization factor that will work to replenish the nitrate as the plant takes it up. This lets us feed 150 pounds of nitrogen to a crop without over feeding it at any one time. On legume crops 10-15 pounds of nitrate is adequate in the building phase. Nitrogen is a very important nutrient to have working in an organic soil system, but most likely we would have had to address the basics of pH and calcium levels to start to have some efficiency with nitrogen management and use.

- Calcium carries the most value in an organic system because it tends to relate to most other nutrient release. Sand soils won't take as much high calcium lime as clay soils to raise their calcium levels on a CEC basis. A good target is 75% calcium base saturation with problem soils running higher in the transition. Applying calcium in the transition phase on problem soils does encourage soil bacteria if you are applying other organic matter sources such as manure, green manures or compost with the calcium.
- Potash is the next nutrient that is looked at for balance. If potash is low and nitrogen is needed, manure, compost, or blended organic fertilizers can be utilized. On the other hand, if the potash is high and nitrogen is needed, a nitrogen source without potash should be used such as feather, blood, or bone meal. If you have a high holding capacity with a clay or high organic matter soil, 2-3% potash many be enough. If the soil is a low holding capacity sand, 3-4% potash may be needed. This figure may be 250-450 pounds, depending on the soil type and the stage of transition. In general it doesn't take as much potash to build or maintain adequate levels because potash is the easiest nutrient to get soluble in organic systems. Sulfate of potash (0-0-50-17.5) and sul-po-mag (0-0-22-18-22) both work very well where only potash and sulfur are needed. Greensand and granite meal will work to maintain levels but may be expensive and slow release in the building stage.
- Phosphate tends to be the hardest nutrient to balance organically, so we may focus on sulfur, magnesium and trace minerals before explaining phosphate.
- Sulfur tends to be very important where you are working with extra nitrogen. This is usually the case while building a soil system "organically". Additional sulfate sulfur from gypsum (calcium sulfate), sulfate of potash, or sul-po-mag all work well, pending what other nutrients are needed. The additional sulfur will help slow down the release of the nitrogen. By how it feeds the microbes that are processing the nitrogen, sulfur makes more complete protein in their bodies, which in turn will come back as slow release nitrogen. Ultimately, slow release nitrogen makes more sound protein in crops.
- Magnesium is a nutrient that carries some controversy even in the "Sustainable Ag" community. In the past conventional recommendation for lime usually said, "just use dolomite lime", even though it typically contains 20-25% magnesium and an equal amount of calcium. If soil test needs for calcium are 75% and magnesium 12-13% it is hard to balance the soil by adding dolomite lime. Magnesium may be needed on sand soils but is rarely needed on clay soils. A small amount of dolomite lime (500-1000#), will take care of most soils' magnesium needs, if balance is considered. If the magnesium level is too high, extra sulfur can be utilized over time to decrease the concentration. Other sources of magnesium,

such as sul-po-mag or magnesium sulfate, can also be very good sources and are more soluble than dolomite lime.

- Trace elements need to be looked at as part of the process that give your soil more minerals to pass on to the plant. Sometimes the trace elements won't make a yield difference, in the short term, but rather a quality difference that shows over time. This quality may be reflected in pest and disease resistance, more flavor in the crop or better vitality in the seed. The microbes in the soil also needs trace elements to make complete protein in their bodies, which in turn compliment the protein production in the plant and is passed on to the animal. Where trace elements are low, a kelp and chelated trace element solution can be used as a foliar and is an efficient short term approach for the plant, but the soil will need to be addressed. The sulfated form of trace minerals are organically approved if the need is documented by tests.

If your phosphate was low, below 100 pounds on a CEC or Bio-test, it will need to be address early in the transition phase because most organic phosphate amendments are slow release and will take time to be weathered in and digested by the soil. Soil bacterial and fungal organisms may not be at adequate levels in the transition, so to digest the mineral forms of phosphate a more soluble form such as bone meal or poultry compost may need to be utilized. Bone meal has been cost prohibitive in the past; because of the demand from the feed industry, but that is changing. Poultry compost that has been available in the past may not be as available in the future because of the GMO feed issue, unless it is coming from an organic or source identified farm. Poultry compost shouldn't be over used because of how it affects the nitrogen cycle. Colloidal phosphate, soft rock phosphate, and black rock phosphate are all typical mineral sources of phosphate that have been used traditional by Organic Farmers.

In the same way that nitrogen is a two part process of adding nitrogen sources to the soil and getting BSB to produce nitrogen, phosphate is a two part process of building the soil levels and getting the beneficial soil fungal organisms to digest it. If the soils have been depleted of organic matter or phosphate reserves this may take 5-10 years or longer. The bacteria process for nitrogen production can be built relatively quickly and needs to be done first and then managed while the soil fungal organism are feed higher carbon compost and mature crop residues versus just green cover crops, which primarily feed the bacteria. Because phosphate tends to be slow release, especially in colder northern climates, it may take 300-400 pounds of reserve phosphate to come up with adequate soluble phosphate to support fast growth. This is why successful organic farmers of the past use to apply a ton per acre of rock phosphate that may last them 10 years or more.

A common question is "can soil test nutrient levels effect weed pressure?" I find that not all weeds can be explained by a soil test, but some of the common weeds that effect the farm in the transition phase can.

In order to understand the relationship of soil to weeds we need to build on what has been said already in relation to BSO and how they effect nutrient release, while looking at the history of weed control. Quackgrass, lambsquarters and pigweeds are the most classic weeds to start you on the process of weeds as indicators in general. Quackgrass pressure will usually indicate a lack of soluble calcium and a lack of decay. Most of conventional agriculture has this problem and quackgrass was primarily why conventional agriculture came with attrazine and roundup herbicides. Using these herbicides actually negatively affects decay, which is a living process partially plant in origin. Consequently, herbicide use reduces the soluble calcium farther, which creates more quackgrass pressure. This is great if you are selling the herbicides but not so good if you are buying them. Because calcium is needed in most plants for basic proper cell structure you can see that this process isn't beneficial for many reasons. As many experienced organic

farmers have found, surface tillage, which enhances decay, done properly will reduce overall quackgrass pressure.

Lambsquarters and pigweed, on the other hand, tend to be indicators of good soil. The problem comes when they become hard to control, which usually indicates excess nutrients in the way of nitrogen and/or potash. Because the plants and weeds live off of the soluble nutrients and potash is easy to make soluble, it is usually where the imbalance lies, especially in the transition when you are trying to build the soil. As you achieve better phosphate solubility you actually don't need as much nitrogen or potash because of the soil dynamics that you are accumulating. Timely cultivation, cover cropping, and composting will all help control these broadleaf weeds in the transition to a balanced system.

If some of the farmers in the group are old enough to remember when a field could be plowed and planted and weeds were not always the first thing that grew, we may be getting back to a time when there was better soil structure. These soils had a smell to them that represented part of a soil test. This smell, which was a musty woodsy smell, could be sensed from the tractor seat and these soil raised better crops that they did weeds. This smell of the soil was one of the first soil test and it is still one of the best test today.

In general what we are doing is saying that "organic" can be more than just three years away from chemicals, if we use the tools that we currently have we can test minerals and biology in an affordable manner. If we utilize the knowledge that is available on how to remineralize our soils in the presents of the BSB, we will be achieving what the public needs - a system of food production that is environmentally sound and economically viable, that produces food, that can rebuild and sustain the wealth and health a nation. This can be done in a way that is actually more productive than the conventional agricultural model of the last 60 years and a soil test is just one of many tools we have available to us to accomplish this task.

Joe Scrimger grew up on a 25 cow, 250 acre dairy farm in Lapeer County, Michigan. He presently manages 198 acres organically, raising corn, hay, barley, navy beans, soybeans, spelt and beef on shares with neighbors, who are converting their acres to organic. He has farmed organically since 1975. In 1984, Joe received the "Young Farmer Award" from the North Branch Jaycees. Since 1980 he has owned and operated Bio-Systems, a soil testing and consulting business that serves the Great Lakes Area with biological technology and marketing services, along with Life Time Foods, a natural foods store. His current organizational activities include being a member of the Thumb Chapter of the Organic Growers of Michigan (OGM), Organic Trade Association (OTA), Organic Crop Improvement Association (OCIA), Michigan Agricultural Stewardship Organization (MASA), and a founding member of Michigan's Thumb Organics (MTO), a regional marketing organization.

Bankrupting The Farm

By David Orchard
(An edited version of this article was published in the National Post, March 27, 2001.)

Over a year ago on this page I predicted that without corrective action, we would see a worsening of the farm crisis. Since then over 22,000 more farmers have given up farming.

During the past decade, Canadian farmers' net income adjusted for inflation, has fallen more than 50%. In Saskatchewan the drop is 90%; net farm income last year was 10% of the 1989 figure. The countryside is being depopulated, railway tracks ripped up, grain elevators torn down and rural communities devastated.

The federal minister of Agriculture stated recently that any farmer with sales under $75,000 should "make a decision." This means that many more farmers, over half of those remaining in fact, are being told to leave the industry, a disaster which would turn rural Canada into a desolate zone of giant industrial farms.

Canada's agriculture policy can only be described as bankrupt. The Liberals have unilaterally dismantled the country's agriculture research and support systems, disarming farmers and placing them at a substantial disadvantage in world markets. To blunt the outcry, the government is handing out on a limited, ad hoc basis, cheques to farmers, which amount to a fraction of the amounts it has cut from farm programs. (The Liberals have cut the federal agricultural budget by almost by 50%, dumping the costs directly onto farm families. For example, the 1995 abolition of the historic Crow's Nest Pass agreement, once guaranteed to farmers "in perpetuity," has tripled freight costs, an annual increase of about $15,000 per average western grain farm.) At the same time, the government is stamping its feet at the agricultural policies of the Europeans and Americans demanding, without effect, that they "stop subsidizing."

Instead of whining about our competitors, Canada should simply restore its farm support with the pledge to our competitors and trade partners that our support will be phased out at such time as, and in lock step with, reciprocal reductions on their part. This action will put Canadian farmers back on a level playing field and at the same time give the Canadian government the negotiating strength to actually achieve results on the international stage.

The shopworn excuse that the Canadian treasury is incapable of competing with that of Europe and the U.S. is inaccurate. Historically Canada maintained a world class agriculture system, including its long term freight commitments, without ruining the country's finances.

On the health and food safety front, there is a growing worldwide consumer reaction to genetically modified (GM) food. Europe will no longer import GM grains for human consumption; other customers are balking. Yet Canada continues to pour hundreds of millions into promotion of genetically modified organisms (GMOs) to the detriment of all other agriculture policy.

With the introduction and promotion of Monsanto's "Round-up ready canola," about two thirds of prairie canola acreage is transgenetic. Cross pollination with conventional canola has contaminated the entire canola crop, resulting in the loss of the European market for all our canola and a subsequent drop in Canadian canola prices.
With virtually all its eggs in the GM basket, Canada has become the world's third largest producer of GM crops, a product fewer and fewer wish to purchase. This reckless promotion of

an unproven technology is hurting Canada's farmers. By contrast, Brazil, for example, has refused to allow the commercial release of GM seeds, is now advertising its food exports as GMO free and is beating us in world markets.

GM foods are not, as the government argues, cheaper, safer or more nutritious. 75% of GM seeds are designed for a single trait, pesticide tolerance, to enable larger sales of herbicides and pesticides by the companies producing the transgenetic seeds — and a growing legion of consumers are saying no thanks.

Ignoring the customer is a costly business, yet Canada's government is now planning to allow the introduction of GM wheat, which will extend the consumer resistance, and resulting market devastation, into our world famous wheat markets. Farm organizations across North America, including the Canadian Wheat Board, have asked that GM wheat not be released commercially until all our customers indicate they are prepared to purchase it, yet the government appears set to force it on the industry.

Due to a number of factors — sustainability, growing consumer health consciousness, BSE (mad cow disease) and increasing problems of industrial farming — the fastest growing agricultural sector in the western world (20-40% annually) is that of organic production and consumption.

Organic farming, which means production of food without poisonous chemicals, herbicides, pesticides, artificial fertilizers or genetic modification, has the advantage of being far less damaging to the environment, the soil and the consumer's health. (There has been no mad cow disease in animals raised organically.) Input costs to the organic farmer are lower and the production receives substantially higher returns. A recent comprehensive survey of organic farmers in Ontario revealed that less than 15% saw profit margins as a concern; their products are giving them an adequate return from the market. Yet, despite rapidly growing worldwide demand there is virtually no research or promotion being done in Canada in the field. There is not even a degree granting course in organic agriculture in the entire country.

It is quite clear that organic farming is the way of the future and Canada with its international reputation as a clean country is ideally positioned to exploit this opportunity in markets in the U.S., Europe and elsewhere. The demand for Canadian organic agricultural products currently far outstrips the supply, yet our government has completely missed the boat, its agriculture support and promotion linked exclusively to the outmoded chemical and biotech food industries which are rapidly declining in consumer confidence.

A quick, thorough reorientation and updating of agriculture policy based on consumer demand and long term sustainability is required. This means a moratorium on the release of new GMOs, backing away from GM canola, soybeans, corn, and potatoes, introducing transition programs to organic production, sponsoring research oriented to the problems of non-chemical agriculture and energetic promotion of Canada's chemical free and non-GM food products to waiting markets. These steps, combined with restoration of our basic agricultural support infrastructure, would go a long way to put Canada's agriculture sector back on its feet.

DAVID ORCHARD was runner-up in the last federal Progressive Conservative Party leadership race. He farms at Borden, Saskatchewan and is the author of a bestselling book, The Fight for Canada — Four Centuries of Resistance to American Expansionism.

Financial Strategies to Establish and Grow a Small Organic Processing Business

By Tom Manley, Homestead Organics

Here is a typical scenario: a farmer, professional, or graduate student wants to move up in the value chain, provide a value added product to organic consumers and earn a better margin. While he/she may be adept at producing food or crafts and may have an instinctive ability to sell it, it is a very different story to manage a profitable processing business. The stakes are simple: most small processing businesses never make it! Several external factors contribute to failure: poor marketing plan to start with, overly optimistic projections, competitive pressures. But this presentation will focus on the financial issues that are critical to a sustainable business: product and pricing, owner motivation, profitability, cost control, capital and financing, debt management, and taxes.

A business person must first clearly establish the motivation for being in business: provide a community service, earn a living, get rich, increase one's equity, help others, improve margins, be one's own boss, etc. The sustainable motivation is a balanced combination of all the above. An over-commitment to profit will bias the decisions in favour of high prices at the expense of customers. A bias in favour of a community service will drag prices down, encourage too many free services, and push the business into bankruptcy. A sustainable business must balance the financial interests of three groups: customers, employees and shareholders, and all relative to the competition. Any imbalance among these interest groups will eventually pull the business apart.

The first decisions for the new business are product, price, and target market. There are millions of potential customers out there. You do not need nor want all of them; learn to live with the idea that you only need a limited number of customers to succeed. Are there enough people who want your product at the price you must charge? Determine your exact target market, what value and product they want and what price they are prepared to pay. Then identify your market share relative to your competition. Establish a value proposition and a price for that market and STICK with it. Sporadic deviations from that value statement will only confuse your market and kill the business. You may make a strategic shift in the value proposition because of lessons learned, but normally, remain loyal to your value proposition and enough customers will remain loyal to you.

Pricing is a major challenge for a small business. There are two ways to kill a business: price too high and you loose your customers; price too low and you loose your profits. Remember that price is always low or high in the eyes of customers relative to the competition. Competition is various: other suppliers, substitute products, making it themselves, or doing without. If you understand these competitive pressures and price accordingly, then you need never discount your price when a customer complains. Unnecessary discounting only damages your value proposition. Never underestimate your customer's capacity to pay and do not use your own price perception as a basis for pricing (you are not necessarily in your target market). Their complaint about price is firstly a negotiation tactic. Show respect, but do not give in; they will pay the price. Don't worry about loosing a few customers over price; many more will replace them if you have a distinctive product and a competitive price. You must also shed any expectation of customer loyalty. It does not exist. Instead, there is the notion of repeat business that is deserved one transaction at a time thanks to a good product, good service and good pricing.

Profit is a confusing concept. It is often frowned upon in social and family circles. But profit is only a synonym for take-home pay for the owner, net taxable revenues, return on investment,

equity improvement, re-invested capital. A business is not sustainable without sufficient profit. The owner quickly becomes discouraged and decides that he/she can invest his/her savings in a safe investment instrument and work for someone else for a reasonable salary. Long term motivation and growth require a healthy profit margin. Too often, I see an entrepreneur short on cash and tired of providing a cheap community service. If at the outset, your business idea depends on a low price and a low profit, then don't get into it.

Now that you have your product, price, and profit expectations under control, let's review some operating costs. Micro businesses are nimble, low overhead, flexible, eager to enter new markets and quick to inspire hope for long term success. But a business of one person is remarkably different from a business of 5 or 10 people. The owner of a single-person business ignores the real costs of doing business.

By far, the business owner is the least sustainable resource. You can replace an employee, but when the owner is burnt out, then the business closes. At the initial stages, he/she has an office in the basement, works 60 hours per week, does not count time and does not take a decent pay home, drives the family car for deliveries, uses the home phone and Internet connection, plans while working, changes plans on the spot, ensures quality while working, performs production and retail, does everything and delegates nothing, and knows everything that is going on.

When the business grows out of the house, then the real overhead costs show up. If the initial business plan did not include these items, then the pricing is unprofitable and the business does not have the cash flow to grow. The owner takes everything for granted, but as soon as he/she wants to hire or contract someone to delegate a task, then the real cost of that task hits you in the face. An easy example is retail. On day one, the owner makes a gadget and someone comes to the house to buy it; they chat and the customers pays and leaves – easy money. To delegate retail and distribution, you are looking at up to 50% of the retail price! Therefore, you must factor that into your price, even as an artisan.

Labour is the leading operating cost in any business. We typically calculate labour costs per unit of product as the hourly wage times the number of hours to manufacture a product. Wrong! Bill Gates, Chair of Microsoft, was quoted as saying that half of the labour force at Microsoft actually produces goods and services for customers while the other half coordinates and supports the first half. It is quite similar in a small business. To the hourly wage of an employee, you must add company payroll obligations (EI, WSIB, CPP), optional social benefits (15%), vacation (4%), paid sick leave, paid coffee breaks (6%), parking space, recruiting and selection costs, training, supervision, error costs, quality assurance, planning, motivation, bonuses, time off, absenteeism, low productivity costs, alcohol and substance abuse, floor space, furniture, computer, telephone, tools, toilette space, rest area space, etc… By the final count, an employee actually costs twice the declared salary. It is no wonder that employers prefer mechanization.

So you now master price, margin, and operating costs, so let's build! But you need capital. We will skip over the obvious capital items such as equipment and buildings. Let us focus on working capital. I am told that most business failures are the result of insufficient financing, in other words, insufficient working capital. Working capital is the loose change you need to operate day-to-day. It is not tied up in fixed assets, but in cash flow. You can calculate your working capital needs as the sum of one month's sales (accounts receivable), plus advances paid to suppliers and contractors, plus one month's of supplies and inventory, plus one month's facility costs (rent, mortgage, hydro, telephone, maintenance), plus one month's wages and other obligations.

Financing is available from multiple sources. You are the first source. So get a good education and a good job for 10 years; then save every penny and start your business with $100,000 cash. Then comes your family; but be careful, do not let money ruin good family relations. Friends, family, customers and supplies can provide capital as shareholders or by issuing a simple promissory note with a guarantee interest rate. The bank is the most difficult place. They need three things: security, liquid security, and lots of security. Your business plan and résumé only get you in the door to talk to the manager: no security – no loan. Your family is the best source of security. Also, try the Small Business Loans Act, a federal government loan guarantee program for small businesses. In the Agri-food industry, you could try Farm Credit Corporation, but they have similar security needs as the banks.

An excellent source of working capital when your business is two years old is… junk mail! Every financial institution gets my name from a mailing list and bombards me with junk mail offerings of low interest credit cards and small business loans. So I take them; but danger lurks! You must manage all credit, especially cards, with extreme caution and discipline.

To manage debt and financial performance, you must work the ratios. The banks will also watch your ratios. Try to match your accounts payables to your accounts receivables. Your total current assets (AR, inventory, cash) should be greater than current liabilities (AP, credit cards, this year's debt payments); otherwise, you are in a cash flow problem with not enough resources to cover your obligations. Finally, your equity in the business should be greater than long term debt. If the business fails, then the creditors take your current assets and the bank takes your equity.

If you want a grant, don't hold your breath. Most government funds now only give money to associations and business networks, rarely to individual businesses. You could stand a chance with CanAdapt if you have an excellent innovative idea that will create benefits for a network of people. A nice grant is available from the National Research Council. Their Industry Research Assistance Program offers grants of $15,000 to help small businesses perform commercial research and development. Don't bother with employment grants, unless you require an unqualified people and you have lots of time to supervise.

So you are financed and operating, well done! A customer did not pay? That is another operating cost to factor into your price. Accounts receivable will drain a business's cash and sanity if not controlled very tightly. In AR, there is no mercy, no place for friends. Consider the cost of AR in your initial business plan: cost of interest to cover one month's sales, credit verification costs, internal collection efforts, external collection costs, bad debts, lost sleep, and lost future sales to those customers. Budgeting 0.5% or more of gross revenues is reasonable. You can get AR protection. The Export Development Corporation offers accounts receivable insurance for a fee of about 1% of sales on credit.

I could go on… fiscal advantages of incorporation, minimizing income tax, long term exit strategy,…

Tom Manley, President, Homestead Organics
Tom Manley grew up on the family dairy farm in Eastern Ontario. Eager to see the world, he left for school and obtained a BSC in Computer Science at the Collège Militaire Royal in St-Jean, Québec. He served as the telecommunications officer at the Canadian Forces Base Montreal. Tom moved on to become the network engineer for the lottery system at Loto-Québec. He then joined Bell Canada and served as a network sales engineer for several years. In 1995, he moved to marketing and was the project leader for the development and launch of the Bell Sympatico Internet Service.

Around 1985, Tom's parents, Murray and Carrie Manley converted the family's conventional dairy farm to organic field crops and founded Homestead Organics. Over time, they serviced other organic farmers with grain processing and livestock feed. In 1997, Tom took over the grain and feed processing at Homestead Organics and moved it to the feed mill in Berwick. Recently, his brother Stephen has succeeded their parents on the family farm. Tom is also the chairperson of the Ottawa Chapter of Canadian Organic Growers.

Homestead Organics is Eastern Ontario's organic grain company and organic farm supply service. It services organic field crop farmers in Eastern Ontario and Western Québec by marketing their grains in Canada, the USA and overseas. It provides several grain services including elevating, drying, storage, cleaning, and packaging. It supplies food grade grains to soya processors and flour millers. The operation also grinds and mixes complete livestock grain rations for organic dairy, poultry and hog farmers in Ontario, Québec, and northern New England. The mill hosts an organic food store for your family's needs. Farmers can obtain organic or untreated non-GMO seed and organic soil amendments and fertilizers.

Crop Rotation

By Martin de Groot
"A wholistic approach to farming considers the CONNECTIONS between all components within a farm and between the farm and the world. A wholistic farming system maintains the ecologicial health of the land, water, air, people, plants and animals"
EFAO February 1992

Why does one need a crop rotation?
A good crop rotation is the most important management tool an organic farmer has to obtain:
1. optimum yield
2. best weed control
3. disease prevention
4. soil building
5. erosion control

Building blocks for designing a good crop rotation:
1. Feed requirements (livestock farm)
2. Fertility requirements for difficult crops (high N users like corn, wheat , spelt, versus low N users (oats, flax, soybeans)
3. Winter crops vs. summer crops (wheat , spelt, rye vs. oats, soya)
4. Annuals vs. perennials
5. Row crops vs. full seeded crops
6. Weed suppressing capabilities (allelopathic effects, aggressiveness)
7. Soil building crops (cover crops, green manure, forage)
8. Economic value as cash crop
9. Manure management, compost

Where to start in the rotation?
Cold turkey or a field by field approach? Pro's and Con's.
Designing a crop rotation: Livestock farm
Crop farm
Examples of different crop rotations.

Martin de Groot and his wife Ineke Booy immigrated from Holland in 1980 and went straight to the, at that time, conventional dairy farm in South Western Ontario. Initially the farm was worked conventionally and was switched to organic production in the late eighties.
Right now they farm 600 acres and run a 65 head dairy herd. Crops that are grown are: hay (alfalfa/timothy mix) oats, peas, corn, soybeans, potatoes, sweetcorn and carrots. In 1999 an on-farm dairy processing facility was built where Mapleton's Organic tm ice cream and frozen yogurt is being made, from where it is sold to health food and grocery stores all across Canada as well as in their own on-farm store.

Equine Power For Energy Efficient Organic Farming

By: Ken Laing
Organic farmers can be justifiably proud of the progress they have made in designing a more sustainable farming system. We have gotten rid of pesticides and chemical fertilizer yet we seemed to have plateau, because we are reluctant to tackle the question of how we can produce organic feed and fibre without using so much petroleum to power the tractors that run our farms.

At Orchard Hill Farm we have been experimenting with and utilizing draft horses for over 20 years. Horses have many advantages on an organic farm:

1. They eat oats, hay and pasture, which can all, be grown on your own farm, and these crops are important components of good crop rotation.
2. They give you back most of their feed in the form of easily composted manure to feed your crops. Have you ever found a use for used diesel exhaust?
3. They produce baby tractors to replace momma tractors and extras to sell.
4. When you buy a horse you are supporting another farmer. When you buy a tractor you are supporting a transnational corporation.
5. It is not easy to buy a horse on credit, so you avoid interest payments. When the UN keeps track of starving bankers instead of starving farmers we will know we have our priorities right.
6. Horses are largely self repairing. Have you ever tried to give your tractor 6 weeks off to get over a broken connecting rod?
7. Horses are modular power units. One horse can scuffle the garden, but when you have a heavier job you can hook 2, 3, 4 or more together.
8. Horses have full time 4 wheel drive as standard equipment and they can exert, for very short times, 10x's their usual pulling power to get very big rolling loads moving or to get you unstuck.
9. Horse machinery is often simple and easy to repair.
10. Horses can often get on the land a few days earlier and with less compaction and tractors
11. You need to give horses rests in the field, so the farmer get to think and dream and make notes and enjoy his farm and the nature around him.
12. Horses are pleasant to work with. They are quiet, intelligent, sensitive and alive.
13. Working with a rare breed can insure the survival of that breed which has already served man for centuries and produce more income that a common breed.

How many?
A general rule of thumb is that each horse can work 25 acre. That is assuming a mixed farm with pasture, hay and a variety of crops that spreads the workload. A 35-acre intensive vegetable operation might require 4 horses or more. It is often wise to have spare horses to lighten the load of heavy jobs and to replace a sick or sore horse or a foaling mare.

Breed or size of horse
Any breed of pony or horse can be trained to work. Draft breeds have been heavily selected for being quiet and easily handled, but there are always exceptions. Choice of breed is largely a matter of personal preference. The size of the draft animal will often be governed by the amount of work and the draft required. A small 2 acre CSA could be worked with a team of ponies, but a 100 acre farm with a lot of heavy work would be more easily worked with 1500-2000 lb. Draft horses.

Where to purchase horses?
The best approach is to buy privately from someone you know to be trustworthy. That way you can go to their farm and drive the horses and quickly determine if they are suitable and that you can handle them safely. There are many horses sold at auctions, but it is often difficult to determine what their training or experience really is.

Feed required for draft horses
Hay for winter feed – 250 bales/year/horse
Grain (Oats – variable depends on amount of work approximately 1 tonne/yr./horse
Salt (T-M-Se Trace Mineralized Salt with Selenium) – 80-160 gr/day/horse

Pasture is an excellent source of forage, vitamins, minerals and exercise during the grazing season. Electric fencing with poly twine or better yet poly tape (1/2 inch) is relatively cheap fencing that is easily modified or moved and it does not injure horses like steel wire fences if they should run through it.

Housing for horses
Housing for horses can be as simple as a lean to shed open on one side to a paddock for exercise. A cold/dry environment is far healthier than a warm/dam one. Sanding stalls work well for working horses. They take much less space than box stalls (a 9' x 5' standing stall occupies 45 square feet, a 12" x 12" box stall 144 square feet). Horses are easily harnessed and unharnessed since they are already tied. Standing stalls are easily cleaned and use less bedding.

Equipment Choices
- old horse equipment – inexpensive – but repairs are a problem
- small tractor equipment
- new horse equipment – now being manufactured in limited quantities

What can I expect to accomplish with horses?
With a team of 2 – 1500 lb. Horses you should expect in one day to:

plow	1 1/2 – 2 acres	cultivate (single row)	7 acres
plow	8-10 acres	mow	7 acres
drill	8-10 acres	rake	14 acres
plant	8-10 acres	haul (on wagon)	1 ¼ tons (20-25 Miles)

Ken Laing grew up on a mixed farm near St. Mary's, Ontario. In 1979 he graduated from the University of Guelph with a degree in Horticulture. That same year he and his wife, Martha, started farming near St. Thomas. He acquired his first team of draft horses in 1980 and started the process of working them into the structure and fabric of a modern organic farm. Gradually the number of horses to around a dozen to accomplish more of the work on the farm. Over the years Ken, his horses and his family along with the help of apprentices and WWOOFers have successfully grown a variety of crops including strawberries, raspberries, field corn, soybeans spelt, oats, hay, wheat, rye, CSA vegetables, and Christmas Trees.

Orchard Hill Farm offers apprenticeships and 3 day draft horse workshops for people interested in learning to work with horses. Ken and Martha Laing, 45415 Fruit Ridge Line, RR #5, St. Thomas, ON N5P 3S9, 519-775-2670. E-mail: kmlaing@darwood.ca

Organic Trader Discussion Forum
How to Develop the Market

Moderator Katerine DiMatteo, Organic Trade Association
Panelists: Lynn Clarkson
Neil Strayer

Neil Strayer is an organic farmer from Belle Plaine, Saskatchewan, who was simply looking to find a home for his own production. He founded Growers International in 1984. He had been farming organically for three years prior to that. Through extensive groundwork over 17 years, the company has built an impressive grower base of over 250 farm supplier/partners in Western Canada and is actively trading in 7 countries in Europe as well as Japan. Mr. Strayer's success in developing markets and giving organic growers better opportunities in selling their productions has earned him the respect and credibility among farmers and the trade and has contributed significantly to the growth or organic farming in Western Canada. In the fall of 1999, grower's Intenational entered a joint venture with N.M. Paterson and Sons Ltd. to create Growers International Organic Sales Incorporated (GIOSI), to become Canada's leading trading enterprise in organic field crops.
Email reyarts@sk.sympatica.ca

Organic Soybean Handler And Trading Panel

By Ted Shelegy and Alex Mills

Some of My Greatest Soil, Crop and Marketing Challenges

1. Boosting soil organic matter levels without availability of compost
2. Maintaining balanced soil fertility
3. Finding crops for which there is a market demand to make a better crop rotation.
4. To produce a high quality grain or oilseed crop that meets food grade or milling standards in a time of very variable weather conditions.
5. Selling to buyers who will pay promptly.
6. The lack of a spirit of co-operation within some parts of the organic movement. We (i.e. producers, processors, marketers, consumers, etc.) should be working together and developing markets for crops which will allow the organic producers to follow proper and sustainable organic practices. In some years, weather may affect the quality of the crop. By working together, alternative markets could be developed for crops and for off grade crops. This would help the farmer to maintain a stable income stream and stay in business. This would be of benefit to everyone.

Ted Shelegy was born and raised on the home farm near Scotland, Ontario where his parents operated a dairy farm from 1935 until 1974. Since then more corn began to be grown until 1986 because of low corn prices. Ted began to look to other alternatives for crop production. At about this time, Ted began attending organic seminars that were being offered by Bernard Hack, which led to the transition to organic agriculture starting in the early 1990's.

Ted operated a 250 A farm, 200 A of which are workable. The land is now all certified organic. The crops grown are organic soybeans, spelt and rye. The grain crops are frost seeded to double cut red clover in the early spring. All crop residues are incorporated back into the soil. This has had a positive effect on soil organic matter levels.

Organic Greenhouses -- Solving Your Problems

by David Cohlmeyer of Cookstown Greens

Winter greenhouse growing is a great way to generate income during the other half of the year. Demand at this time of year is highest -- people eat more because they require more calories, spend more time cooking at home, and there is little competition from other market gardeners. Also growing is easy -- there are few weeds, few pests, few waterings, and few concerns about the weather.
Summer greenhouse growing is a great way to extend the main growing season. By being the first with tomatoes, cucumbers, peppers, etc. you can get customers in the habit of buying from you -- and paying a premium price throughout the season. Growing is more predictable -- there are no cold nights, no strong winds, no heavy downpours, few fungus inducing dews, and fewer pests.

But to receive these benefits you need very careful management -- financial cash-flows, accurate cost accounting, choice of greenhouse structure and equipment, seeding and transplanting dates, crop rotations and varietal selections, soil and foliar feeding, watering and cultivation, air flow and humidity management, disease and pest prevention, more care with food safety, and effective employee relations. Most importantly, before even starting, you need to know and thoroughly understand your market(s) . This includes knowing the quality your customers want, the choices they want available, how often they need them, and the prices your customers are actually willing to pay. You also need to understand the impact of imports (your main competition). The risks are too high to make many mistakes!

Greenhouse growing does not need to be expensive or risky to get into. A high-tech bent-glass computer-controlled ($50,000) edifice is not mandatory. An inexpensive ($2,000) unheated "tunnel" can be a great way to get started. But most growers find a medium-priced ($12,000) double-plastic hoop-house with irrigation, heat, ventilation/cooling and supplementary lighting to be quite satisfactory for many years of profitable growing.

Consider these when setting up a greenhouse structure:
double-plastic hoop-houses are the most cost effective design
    plan on $2-3.00 per sq.ft. plus $.30 per sq.ft every 3 years for plastic
    build the greenhouse as long as practical (100-300 feet)
overhead space heaters ($1200 each) (for reliability 2 per house) are effective
    $.30 or 2.00 / sq.ft. / year heating with (min.) temperature 3^{o}C or 15^{o} C
a small positive-ventilation fan serves to control humidity and do some cooling
    keep humidity between 80-90% and temperatures (max.) 35^{o}C
"natural ventilation" (roll-up sides) is least expensive summer cooling
in winter keep the air circulating with several horizontal air flow (HAF) fans
drip irrigation minimizes humidity and reduces expensive hand-watering
grow-lights improve plant vigor and reduce pest problems

Consider these points when operating an Organic Greenhouse:
feed the soil only in the spring with 1-2 inches compost per year

water generously during hot weather; sparingly during cool weather
shallow-cultivate to minimize weeds and form a dust mulch
to lower humidity and permit air free access into the soil
encourage diverse soil-life by disturbing the soil as little as possible
seeding dates depend on operating temperatures and marketing plans
generally February-March is best for most summer crops
July-August provides enough root development for winter crops
rotate crops by plant family to minimize disease and depletion
choose varieties adapted for greenhouse conditions:
tolerant of high heat in summer; low light in winter
check for pest build-ups thoroughly every week
seasons can be greatly extended -- both early and late
cosmetic quality is high in a greenhouse; use this in marketing
(but flavor may not be as rich as quality outdoor crops)

David Cohlmeyer owns and operates Cookstown Greens with 10 full-time year-round employees who grow on 16 acres outside and in 18,000 sq.ft. of greenhouses. The greenhouses are very important because they contribute to nearly half his sales, more than half the profit, and with their contribution to both summer and winter sales greenhouses help maintain cash-flow. David is here to answer your questions about operating a medium-scale organic vegetable greenhouse.

Native Food Wisdom

By Ken Parker

SWEET GRASS GARDENS prides itself on being North America's First Native owned and operated Native plant nursery. Located on Six Nations of the Grand River Indian Reserve, we are diligently working to restore, preserve and maintain the pre-European plant species indigenous to North America. Aboriginal people of North America have valued these plants for many generations and others are discovering and experiencing their landscape, culinary, medicinal and spiritual uses.

Our Mission:
To preserve the history of North America and its First Nation people by encouraging the rediscovery and respect for our traditional Mother Earth.

Possibly Canada's most prominent Native plant nursery; SWEET GRASS GARDENS has captured the media's attention. Television & Radio appearances include - *The Gardener's Journal-HGTV, The Mark Cullen Show, Canadian Gardening Television, Town & Country Ontario, City TV Toronto, More to Life- TVO, Home & Garden* and *Province Wide.* Feature articles and publications have included - *The Toronto Star, The Globe and Mail, Canadian Gardening Magazine, The Buffalo News, The Hamilton Spectator, The Ottawa Citizen, Pappus-RBG, Seeds of Diversity Canada and The Brantford Expositor.*
SWEET GRASS GARDENS is dedicated to servicing our clientele with the highest quality products in a timely and cost-effective manner. Our continued success can be attributed to practical knowledge and field experience.
Key Services Offered:
Consulting - project management, native plant advisory services
Education - slide and multimedia presentations
Education - native plant workshops Retail - native plant nursery stock

Landscape - installation of plant materials
Landscape - concept design plans (in consultation with Landscape Architect)
Retail - custom native seed mixes for small and large scale projects
Retail - garden tours of wetland, prairie, bog and clay plantings

Landscape Design Methodology

Contrary to the landscape trade, the design methodology of SWEET GRASS GARDENS is simple - let the site dictate the plant material - ecological gardening. Native plants and Aboriginal plants (species that are significant to the culture of Native North Americans) are used almost exclusively in past landscape projects.
Ecological gardens - A JOINT VENTURE WITH NATURE

Lends itself to improving and rebuilding the environment

Native plants do not require adaptation to climate or soils

Have the ability to better withstand diseases and pests which may attack the garden

Elimination of chemicals provides an environmentally sound approach to gardening

Landscaping with native flora offer the following benefits:

Low maintenance & drought tolerant landscaping

Aesthetically appealing

Attracts wildlife and songbirds

Restores our lost Native plant habitat

Economical

ABORIGINAL PLANT USAGE: Plant species that are significant to the culture of Native North Americans**.**
Medicine & drugs
Food
Fiber & Dyes
Other – (ceremonial, charms, fragrance, fuel, hunting & fishing, traditional teachings and story telling)

Native Plants in the Modern Landscape
Working with native plant material allows diversity in the landscape. Any or all of the following gardens can be incorporated into the landscape in either a formal or informal setting.

Rock Gardens
Rock gardens are best suited to poor soils with low moisture. Practicing the principles of xeriscaping (water conservation) lends itself to an extremely low maintenance landscape. One type of rock garden can feature plant species native to the western Sagebrush steppe and alpine zones along the Rocky Mountain crest.

Prairie Meadow Gardens
Attention to detail and patience will transform an open area into a beautiful, natural looking, low maintenance landscape. A tall grass prairie installation would be significant to the restoration of Canada's native grasslands; of which, only 1-% remains.

Aboriginal Gardens
Plant species, which are significant to the culture of Native North Americans for either; medicine, food, fiber, dyes, ceremonies or traditional teachings would be incorporated into the aboriginal garden.

Wildlife Gardens
Essentially, this type of garden creates habitat for wildlife. Using native plant species, the garden will provide cover, nesting grounds and a natural food source necessary for sustenance of area wildlife.

Butterfly Gardens
Butterfly gardens require plant species that will necessitate all life stages of the butterfly. Native plants will be selected for each of the following purposes: species on which to lay eggs, food plants for the larvae and nectar sources for the adult butterfly.

Natural Wetland/Wet meadows/Pond Gardens
Wetland gardens are useful for enhancing the look of functional storm water ponds. They are instrumental in natural wastewater management systems by providing water purification. A third use for wetland gardens is to provide cover and a food source for local water animals, fowl and amphibians.

Public Consultation & Education
"It is our goal to restore the wisdom from our Elders as to the many uses of each plant and their relationship to the environment. The revival of this knowledge is as important as the cultivation of the plants."

Education provides the opportunity to ensure the well being of existing or restored natural areas.

Ken Parker

A former United States Marine and high school music teacher, Ken Parker, founder and co-owner of SWEET GRASS GARDENS of Six Nations of the Grand River, literally has 'roots' in the indigenous plant market. The Seneca Native has taken it upon himself to preserve a part of Native North American culture.
Ken has proactively participated in various environmental and landscape projects throughout the province over the past eight years. Ken's primary responsibilities include sales, marketing and research.
The challenge of gardening in tough limestone-based clay marked the beginning of horticulture classes at a Local College and University. The lack of experienced gardeners and growers specific to pre-European plant species marked the beginning of the nursery.

Through SWEET GRASS GARDENS, Ken has developed and hosted a number of slide presentations, lectures and workshops on "Growing Native Plants from a Native Perspective" (including photography). Audiences have ranged from gardeners to elementary schools and school boards, horticulture chapters, environmental groups, and post secondary institutions. During peak gardening periods, Ken can be found giving tours by the busload at his unique nursery.

CSA's, Organic Food Boxes, Distribution in the City and Other Issues

By Lauren Baker, Program Coordinator, FoodShare Toronto

How can we ensure that everyone has access to healthy, affordable food? How has the City of Toronto put food issues on the municipal agenda? How can we build a deeper understanding between farmers and urban consumers?

This presentation will examine the recommendations of Toronto's Food and Hunger Action Committee as it strives to address these questions.

Putting food first means supporting change at individual, community and policy levels. CSA's, farmer's markets, food box programs, home delivery services are all strategies that help create a sustainable food system.

Putting Food First at the Individual Level:

1. Eat eight to ten servings of fruits and vegetables a day.
2. Buy locally grown food whenever possible.
3. Sit down more often to home cooked meals with your family and friends.
4. Seek fair trade imported foods.
5. Reduce environmental impacts of your food — from transportation to pesticides.

Putting Food First at the Community Level:

1. Support direct field to table programs — farmers' markets, food box programs, community supported agriculture, institutional procurement, ethnic stores and restaurants.
2. Increase the amount of food grown in cities as well as rural areas -- from gardens in rural communities to urban agriculture and roof top gardens in Cities.
3. Encourage commensality through school-based student nutrition programs, and innovative cooking programs for children, seniors, the homeless, working families.
4. Move food programs from charity to justice to ensure that respect guides all programs -- respect for the food; respect for participants; respect for volunteers and service providers.
5. Create Fair Trade Food Buying Campaigns.

Putting Food First at the Policy Level:

1. Encourage Municipal Food Action — Food Charters, Food Policy Councils, farmers' markets, in-kind and grant support for local food programs.
2. Lobby for adequate income, nutritional supplements, universal food stamps, so everyone has adequate access to food.
3. Advocate for expanded Farm Bills that encourage Federal and State farm policies that support (subsidize) small family farmers in their multi-functionality as they transition to organic along the lines of the European models.
4. Ensure long term food self sufficiency by protecting farm land and making food growing possible in cities and rural areas.

5. Convince Governments to put healthy food first in creating food policies -- from cancer and heart disease prevention, to campaigns that encourage healthy eating and discourage unhealthy food.

Toronto's Food Charter

In 1976, Canada signed the United Nations Covenant on Social, Economic and Cultural Rights, which includes "the fundamental right of everyone to be free from hunger." The City of Toronto supports our national commitment to food security, and the following beliefs:

Every Toronto resident should have access to an adequate supply of nutritious, affordable and culturally-appropriate food.

Food security contributes to the health and well-being of residents while reducing their need for medical care.

Food is central to Toronto's economy, and the commitment to food security can strengthen the food sector's growth and development.

Food brings people together in celebrations of community and diversity and is an important part of the city's culture.

Therefore, to promote food security, Toronto City Council will:

- champion the right of all residents to adequate amounts of safe, nutritious,
- culturally-acceptable food without the need to resort to emergency food providers
- advocate for income, employment, housing, and transportation policies that support secure and dignified access to the food people need
- support events highlighting the city's diverse and multicultural food traditions
- promote food safety programs and services
- sponsor nutrition programs and services that promote healthy growth and help
- prevent diet-related diseases
- ensure convenient access to an affordable range of healthy foods in city facilities
- adopt food purchasing practices that serve as a model of health, social and
- environmental responsibility
- partner with community, cooperative, business and government organizations
- to increase the availability of healthy foods
- encourage community gardens that increase food self-reliance, improve fitness,
- contribute to a cleaner environment, and enhance community development
- protect local agricultural lands and support urban agriculture
- encourage the recycling of organic materials that nurture soil fertility
- foster a civic culture that inspires all Toronto residents and all city
- departments to support food programs that provide cultural, social, economic
- and health benefits
- work with community agencies, residents' groups, businesses and other levels of government to achieve these goals.

Organic Certification for Traders & Marketers: Gearing up for Global Markets

By Joe Smillie

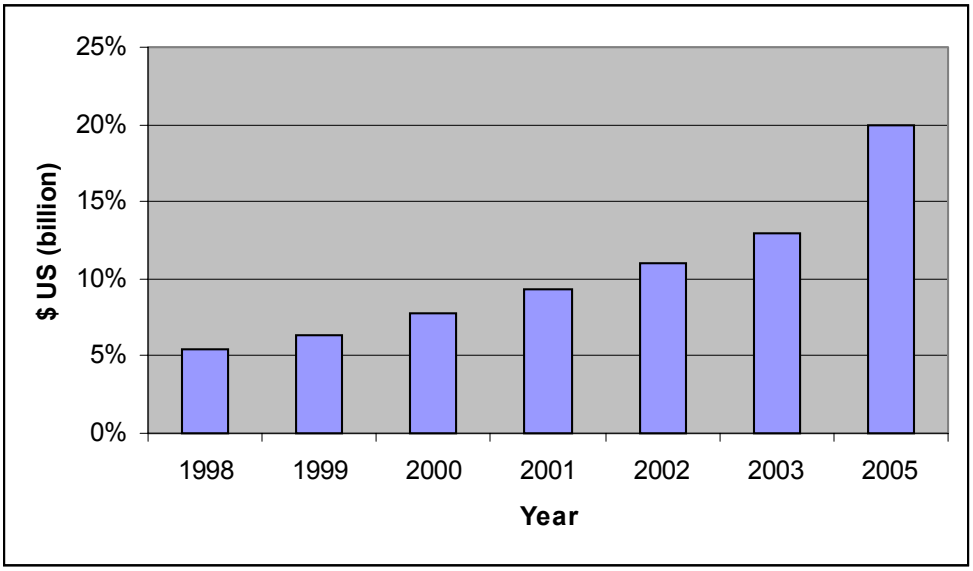
This workshop will outline the growing international organic market place by focussing on the regulations both public and private governing market access.

Regulations covered include:

- US National Organic program (NOP); The Organic Food Production Act
- Ministry of Agriculture Food, and Fisheries of Japan (MAFF)
  Japan Agricultural Standards (JAS)
- The EU system; EEC 2092/91 including amendments
- The Canadian voluntary standard
  Organic Agriculture National Standard of Canada Can/CGSB-32.310-99
- Codex Alimentarius
- IFOAM Basic Standards
- The OTA American Organic Standards (AOS)

Accreditation's covered include:
USDA, SCC, IFOAM, CAQ, MAFF

The Growing Organic Marketplace



Organic sales in the Untied States reached $5.4 billion in 1998, $6.4 billion in 1999 and $7.6 billion in 2000. With a continuing 20 percent growth rate, organic sales are projected to reach $9.35 billion by the end of 2001, slightly more than $11 billion in 2002, slightly more than $13 billion in 2003 and nearly 20 billion by 2005.

Sales during the 1990's grew by 20-24% per year.
Organic produce still remains the leading category.
(The National Marketing Institute, in partnership with the Organic Trade Association, Organic Consumer Trends 2001)

The Road to Organic Regulations:

- 1990 – Organic Foods Production Act passed by Congress
- 1997-98 – USDA released proposed organic regulations. Proposed rule allowed the use of irradiation, GMO's and sewage sludge in organic production. USDA solicited public comment and received a record 283,000 responses.
- March 7 2000 – USDA released a second draft of the proposed regulations. Irradiation, GMO's and sewage sludge are excluded.
- December 21, 2000 – Final rule for organic released
- April 21st 2001 – final Rule 18 month implementation period in effect
- April 21st 2002 – first round of USDA accreditation's given to certification agencies
- October 21st, 2002 – full implementation and enforcement of NOP for use of USDA seal

Equivalency of Imported Products

In order to gain import access to the U.S., foreign certifiers can:

- Seek accreditation directly through the USDA National Organic Program.
- Receive accreditation when USDA has determined, upon the request of a foreign government, that the foreign certifying agent's government authority is able to assess and credit certifying agents to NOP requirements.
- Receive recognition as meeting requirements equivalent to the requirements of the NOP under an equivalency agreement negotiated between the U.S. and the foreign government.

USDA and MAFF are currently engaged in equivalency discussions.

Joe Smillie is Senior Vice-President of Quality Assurance International, a San Diego, California, based organic certification agency. Smillie manages the company's governmental and regulatory affairs, relationships with other certification agencies, public relations, marketing and foreign branch offices.

- Founding member and Pas-President of the Organic Trade Association (OTA). OTA is the unified voice of the organic industry, harmonizing standards and promoting and protecting organics since 1984. Smillie is currently Chair of the OTA International Relations Committee.
- Founding member of the Independent Organic Inspectors Association (I.O.I.A.) and a founding member of the International Inspectors Group (I.I.G.)
- Consultant to ecological agriculture since 1977
- Co-author of several books including "The Soul of Soil – A Guide to Ecological Soil Management", "The Orchard Almanac – A Spraysaver Guide", "Guidelines for the Organic Foods Industry" and "Rodales's Chemical-Free Yard and Garden".

Bio-Dynamic Preparations and Their Future

By Johann Kleinsasser

The biodynamic preparations come from indications that Rudolf Steiner gave in a series of lectures in 1924. He said that the Earth is an aging organism, and can no longer pull in the cosmic forces like before. The Biodynamic preparations don't replace the good organic farming practices, like composting, soil building, green manuring or good stewardship of the farm. We use them to enhance and complement these practices. The biodynamic preparations supply forces, which enhance the effectiveness of the manuring that is normally used. They enable the farm organism to retain of its own accord the proper nitrogen and other substances that it needs in order to bring vitality to the soil. The biodynamic preparations are medicinal herbs, selected for

their special properties and healing effects in the kingdom of nature. The herbs and manure are prepared in a special way, wrapped in animal sheaves and exposed to the cosmos over winter in the earth.

The question now arises about the safety of the animal sheaves, in light of the problems in agriculture: i.e.: BSE etc. We can no longer be complacent and think that it can't or wouldn't happen on Organic or Biodynamic farms because in Europe it did show up on these farms. The problems were traced back to feed and livestock that where imported, so how can we avoid these problems? I feel that part of the answer lies in indications Rudolf Steiner gave in the agriculture lectures. Where he said, that a farm comes closes to its own essence when it can be conceived of as a kind of independent individuality, a self-contained entity. In reality, every farm ought to inspire to this state of being a self-contained individuality. This state may not be achieved completely, but it needs to be approached. This means that within our farms, we should attempt to have everything we need for agricultural production, including, of course, the appropriate amount of livestock, From the perspective of an ideal farm, any fertilizers and so forth that are brought in from the outside, would indeed have to be regarded as remedies for a sickened farm only. A healthy farm would be one that could produce everything it needs from within itself. This is an ideal we need to be striving for, if we want to protect ourselves from production decease's and keep our farms healthy and striving.

Johannes Kleinsasser grew up in western Canada on a 6000acre conventional farm. In the fall of 1979, I moved to Ontario. Since 1981, I managed a 15acre Market Garden. In 1996-2001, I took over as farm manager of Community Farm, at Bright, Ontario. It is a 600acre farm, with 350acres workable. Since 1991 I have been working with the biodynamic principles. We grew a wide range of vegetables, which where sold at our farm store and retail. We also save over 80% of our own vegetable seeds. We also grew Spelt, Rye, Wheat, Barley, Oats, Soybeans, various other Beans, Corn, Buckwheat, Flax and Forage. The fertility needs were supplied by the biodynamic preparations, compost, green manure and crop rotation. On the farm we had cows, pigs, sheep and chickens. In the past year my wife and I have concentrated on growing vegetables on a raised bed method.

I am a director on the board of the Biodynamic Society of Ontario and I am also on the western regional committee of the EFAO. I am also on a committee in the region of Waterloo working on a Buy Local Campaign, where our goal is to educate consumers to buy food that is grown locally when ever possible.
Jkleinsasser@hotmail.com phone: (519 684-6846

International Sustainable Agriculture

By Georie Pitong and Leopoldo Guilaran
Organic agriculture is gaining increasing prominence in non-industrialized countries. REAP-Canada (www.reap.ca) and Fallsbrook Centre (www.fallsbrookcentre.ca) regularly place interns in the Philippines and Mexico. Other programs such as Willing Workers on Organic Farms and internships with the International Development Research Council (IDRC) also exist. This workshop will explore opportunities for youth to work in organic agriculture overseas and the linkage between organic farming in Canada and abroad. Several former interns will speak about their experiences including Trevor Helwig, a former intern with REAP-Canada in the Philippines and Kristina Taboulchanas, a recent graduate of the IDRC internship program. Audience participation is encouraged.

The Agroecological Village Approach to Rural Poverty Alleviation
Small farmers throughout the world are struggling to transcend the obstacles on their path to development and self-reliance, yet it remains difficult for Canadians to understand the social, political and economic factors challenging them or the deteriorating environmental conditions in rural areas. Roger Samson, REAP's Director of International Programs, and two visiting speakers from the Philippines will describe the agroecological village concept by way of oral presentations, colour slides and discussion.

Cornerstones of the approach include farmer to farmer trainings, on-farm propagation of seeds, organic and diversified production. Market development is emphasised for import displacement. Ecological measures that serve the dual purpose of reducing greenhouse gas emissions and reducing poverty are being implemented. Improved energy self reliance is achieved at the household level by using cookers designed to burn agricultural wastes such as rice hulls. The approach integrates community organizing, improved energy self-reliance and food security as a strategy for empowerment.

Since 1998 REAP Canada has been working in partnership with PDG (Paghida-et sa Kauswagan Development Group) and MASIPAG (Farmer-scientist Partnership for development), two Filipino NGO's on CIDA supported programming. Both agencies have worked for more than 14 years to assist marginalized farmers. Their programming ranges from advocacy work on land reform to achieving food security through sustainable agriculture. REAP's programs initially focused on demonstration/trial farms for organic vegetable production and supporting farmer training programs. More recently the REAP agenda has included a rice hull cooker project and a program to promote ecological sugarcane production and DIFS (diversified integrated farming systems).

Ms. Pitong has worked for over 15 years in the Western Visayas region of the Philippines with farmers on agrarian land reform and sustainable agriculture issues. She was a founding member of PDG (Peace and Development Group), an NGO in Southern Negros during the stormy political climate of the 1980's. She left PDG in 1994 to become director of MASIPAG (an acronym for 'farmer-scientist partnership for development'), but maintains a close relationship with her former organization. Ms. Pitong facilitates research on organic rice production and breeding throughout the Visayas region of the Philippines.

For *Leopoldo Guilaran* ('Nong Poldo'), grassroots breeding is an essential tool in empowering the rural populace. Seeds are power, he believes. Whoever controls the seeds controls the lives of those sowing them. Nong Poldo was raised on a farm in Tapi village, Kabankalan City of southern Philippines' Negros Occidental. He still owns a 2.6 hectare farm where he grows rice, corn, various vegetables, fruit trees and root crops and considers his farm as a great outdoor laboratory. He is currently the chairperson of the Board of Trustees of Masipag Farmer Scientist Partnership.

Analog Forestry and Organic Certification

By Jean Arnold, Falls Brook Centre

I. BACKGROUND
Analog Forestry is a system of silviculture that seeks to establish a tree dominated ecosystem analogous in architectural structure and ecological function to the original climax or sub-climax vegetation community. It seeks to empower rural communities both socially and economically through the use of species that provide marketable products.

Considering the state of the world's forests, it is not surprising that the focus of forestry issues today is no longer just on the needs of producing more timber, but is now focused on several issues such as biodiversity, sustainability, traditional uses, medicine, carbon sequestering, soil conservation, watershed management, and research into the ecological function of tree species. Forestry processes addressing the widest range of these issues are needed in order to prevent further loss or deterioration of natural forests and indigenous culture. Analog Forestry was recognized by the International Meeting of Scientists on Biological Diversity in Mexico City (1994) as the most promising technology for addressing these requirements.

History
The first Analog Forest was developed in l976 (discussed in the national newspapers) and plant data and seed collection began in l977. It was subsequently developed as a program of the NeoSynthesis Research Centre (NSRC). In the early 1980s, NSRC began work to change forestry practices in the region, motivated by the evident ecological deterioration of the forests due to the governmental policy of monoculture reforestation with Pinus and Eucalyptus plantations. Through experimentation on a plot of degraded tea land, they developed a productive forest ecosystem that was analogous to the natural forest--the first Analog Forest. The design was based on traditional forest gardens; patches of cultivated land dominated by trees and perennial shrubs. These designs were applied to a forest structure mimicking the architecture and ecology of the natural forest.

II. CHALLENGE

To address the problem of worldwide deforestation which has particular casualties in nations whose people depend of the forest's natural resources. Part of the challenge is learning to persuade peasant farmers to reforest their land in such a manner that promotes economic viability and ensures maximum biodiversity.

In Canada some farmers and other rural organizations are applying Analog Forestry design features to our temperate ecosystem. By growing perennial crops, mushrooms, berries and using more native species in reforestation activities, analog forestry is applicable to Northern climates. Falls Brook Centre, a community based organization in New Brunswick has a range of annual to perennial to forest-grown crops certified by OCIA-NB.

III. EFFECT ON PEOPLE

When communities can no longer depend on the forest for survival (due to deforestation), there are local social, environmental, and economic consequences. Young people drift to the cities in search of work, leaving behind their families and traditional knowledge, the economy increasingly shifts towards urban areas, leaving the rural areas impoverished, and further environmental degradation occurs through lack of interest in the remaining natural areas.

When farmers begin to implement learn Analog Forestry techniques, they begin to have an economic option to remain in the rural community. They can stay with their families, participate in the local economy, and increase the health of the local ecosystem through conscientious management practices, and increased species and structural biodiversity.

What is in an Analog Forest?

In designing an Analog Forest, it must be kept in mind that a stable forest ecosystem is a tree-dominated one. Therefore, one of the goals of Analog Forestry is to speed up the progress of a forest through its seral stages, which are its physiological age states. By doing so, the forest can reach a climax state faster, a state it would then be maintained in.

Keeping with this idea, a mix of indigenous (locally occurring) and exotic species would be chosen. Indigenous species should be looked at first, with regards to restoring and maintaining the natural constitution of the forest. The prospect of long term economic sustainability must be considered as well, so, if necessary, the introduction of exotic species is acceptable. It is necessary to find a mix of indigenous and exotic species which are productive together.

In order to determine what can be placed in an Analog Forest, an ecological assessment of a model forest patch must be completed first. First, identify all the plants and animals in the area, then identify important ecological factors. Ecological factors to consider include: the effect of the species on the acidity of the soil, the ability of the species to fix nitrogen, soil-type and seral stage of the forest patch, as well as important plant-animal relationships such as: food relationships, shelter requirements, and chemical requirements. It is paramount for the life of the forest that such relationships are understood before any changes are made in designing an Analog Forest. Analog Forestry requires a great deal of planning before any changes can be implemented.

Ecological Screen

Analog Forestry deals with both native and anthropogenic systems. There are two major considerations when deciding to introduce an exotic species; how successful it would be in its new community, and how well the other community members would favour its presence. These ecological considerations are assessed through an ecological screen. Such a screen considers various factors which determine whether a prospective community member would be productive in its new community or if it would be detrimental to other species. The assessment of the various growth, developmental, feeding, and reproductive characteristics of a species through an ecological screen gives a general indication of how well a species would do in a particular community. After the ecological screen is completed, the ability of the species to carry or be a vector for a pathogen is assessed. If the species passes these tests, then a certificate of approval from the relevant government authorities is obtained. At this point, the species should undergo trials in an arboretum in its new home before a final determination of its potential can be achieved.

Analog Forest Gardens and Forest Garden Products

Based on the principles of Analog Forestry, Analog Forest Gardens are a tree dominated environment, where crops are grown analogous in structure and ecological relations to the original forest. Mimicking the original forest's habitat, Analog Forest Gardens provide space for species who could not otherwise exist alongside annual crops.

Organic Certification of Forest Garden Products provides an important economic incentive for using Analog Forestry. This certification system was set up by the Neo Synthesis Research Centre in Sri Lanka, to support farmers who are making the transition from traditional agricultural practices to Analog Forestry and a more diverse vegetation structure.

Certification is granted to those practicing sustainable agriculture, biodiversity conservation, and to those supporting environmental stability. Farmers must practice organic farming to be granted certification - no pesticides or artificial fertilizers are used. This helps the forest mature into a system of high biodiversity. Products certified include fruit, spices, syrups nuts and teas.

This workshop will give an overview and a practical framework for how to incorporate Analog Forestry into the farm design process.

An Analog Forestry Manual will be available for $5.00 at the session

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Sunday Workshops

Stewardship Session: Faith Spirit and the land

A farmer lead session including prayer and personal accounts

Organic Videos

Several videos will be shown with growers invited to share their ideas.

Organic Livestock Marketing and Promotion
~ Getting Started and Going It Alone ~

by Gayl Creutzberg

The goal for this presentation is that you leave with a mind overflowing with new ideas - ideas that will assist you in capturing new clientele, keeping them and WOWing them!

Unlike conventional agriculture, there are no marketing boards out there for the sale of organic product. As an organic producer, you're on your own!

This introductory workshop will supply you with some of the basics to marketing, while I share some of my own experiences, and point you in the right direction to find out more. Come to this workshop prepared to share your own experience.

We will discuss:
1) Selling the farm experience
2) Being informed and involved in your industry before starting into it.
3) The importance of exceptional customer service /people skills
4) Your business image and first impressions
5) Branding
6) Being up on the trends
7) The importance of partnering and relationship building
8) Promote, promote
9) Value added
10) Setting the highest standards
11) Deliver, deliver
12) Biggest challenge: public education and awareness.

Gayl Creutzberg is realising her dream as a sheep producer in Bruce County, Ontario. She markets from field to fork, building relationships with customers, fellow producers and those that assist with her business. Gayl also provides consultation to small business start-ups. She can be reached through her website at www.saugeeencountrylamb.com or by calling 519-363-lamb.

Organic Foods and Better Nutrition

By Dr. Tom Barnard

This afternoon workshop and discussion will review the evidence for organic methods of crop production as a means of producing more nutritious , and less contaminated food for ourselves and our communities . Can we show the skeptics in the community that organic production can indeed feed the world? Can we produce evidence for nutritional differences in foods grown in this way , comparing them to conventionally produced crops? Can we show that humans , especially our most vulnerable community members, are better served and protected living in families , communities and ultimately countries that are committed to sustainable methods of production? Can we convince our friends and neighbors to commit themselves to a lifestyle that remains dedicated to thinking forward "7 generations," as in the Iroquois tradition, to help preserve a vibrant and healthy future for our grandchildren, and can we honestly show that our choice in food and the way we grow it will have an impact on that future?

Join us, on Sunday afternoon, to help preserve the future of farming in Canada and around the world. Come with your questions, your answers, and your passion to a vigorous challenge to the status quo.
And see why the Canadian Association of Physicians for the environment, the Ontario Medical Association, the College of Family Physicians of Canada, have all joined in the call for a greener future. As Mark Twain said, "If you don't change directions, you will wind up where you are headed." Help us define that direction , and the future it will bring at the Forum at the Guelph Organics conference.

Dr. Tom Barnard, M.D., CCFP(EM), FAAFP- CAQ(GERIATRICS), IS A PHYSICIAN PRACTICING IN ESSEX COUNTY ONTARIO. Trained at an Ivy League University and Medical School, Dr. Barnard has come to represent a new and emerging breed of physicians who would rather see their patients and families and loved ones avoid becoming ill than become statistics in the often unsuccessful attempts by Western medical Science to produce expensive and often invasive technological cures. Focusing on prevention, Dr. Barnard will take part in a free wheeling discussion regarding the central role of sustainable agriculture and organic production methods in the ecological integrity of our communities as well in their future survival.

Dr. Barnard is a practicing physician with over 25 years experience in preventative , holistic approaches to medical care. As a family physician and a consultant in Geriatrics, Dr. Barnard has developed the paradigm of good health promotion as the four limbs of "
Good Food, Good Exercise, Be Calm, Be Kind." A member of the Board of the Canadian Association of Physicians for the Environment, and a peer presenter in environmental health for the College of Family Physicians, Dr. Barnard works tirelessly for the preservation of health and the ecological integrity of the community, with a weekly radio show , "See Yourself Well, the Holistic Approach, " as well as health tips on the evening news . A staunch advocate for organic methods of production, Dr. Barnard can be seen to promote sustainable ecology as the foundation for the continued health and indeed the future survival of our families and our loved ones.

Organic Spelt Production

By Jon Cloud

Cloud Mountain Inc. (CMI) is a well-established company that has been involved in the organic agricultural industry for over 32 years. CMI is not merely a merchant of organic products, but has spearheaded the development of the organic industry in Canada, US, Eastern Europe, Argentina and China.

Jon moved to Ontario from Vermont, where he and his father had managed a farm that had never seen chemicals. It was here that he developed a deep understanding of agronomy, specifically in crop rotations, and maintaining natural fertility.

Jon moved to Toronto in 1980 and built an organic tofu company. In order to ensure a supply of organic soybeans, Jon started training farmers to grow organically.

After 3 decades of field experience encompassing hundreds of farms, numerous bioregions, fourteen states and provinces, and four continents, CMI has emerged as the leader in organic field crop production techniques. The family of Cloud Mountain Companies provides a global organic perspective with Cloud Mountain Argentina, Cloud Mountain Ukraine, Cloud Mountain Moldova and a partner in China. Its single greatest strength is the technical support it provides to the organic farmers. Understanding the assets and liabilities that each crop brings to the soil is a crucial component to educating farmers in organic production techniques. A full range of services is provided (soil test results, crop rotations and recommendations on fertilizers) when farmers contract with CMI. CMI has the capability to offer quality organic or Non GMO grains and beans (**adzuki beans, barley, buckwheat, flax, lentils, oats, green or yellow peas, red kidney beans, navy beans, rye, soybeans, spelt, sunflowers and wheat**) that leaves our customers deeply impressed.

Agroecology, landscapes and biodiversity: incorporating stewardship principles into organic farms.

By Henry Kock

Organic and Ecological Agriculture will be measured less and less by what it does not include (the no fertilizer/pesticide diatribe) and more by what it does include. This Agroecology workshop spans the gap from genetic diversity to cultural health -- pretty much the opposite direction of technological agriculture and the Green Revolution.

As an introductory workshop, it is designed to focus the natural tendency, by organic and ecological farmers, to make connections. This is the basis for the evolution of understanding that leads towards Agroecosystem thinking -- the kind of thinking that includes not just the community of life and processes on the farm but the health of the farming community as well. It is the ultimate expression of scientific investigation -- a far deeper science than bending the soil and seed by those driven by reductionist theory and mechanistic economics.

There is little doubt that the discussion will touch on the need to shift some of the vast subsidy that goes towards propping up and salvaging agribusiness to an investment in the transition, practice, research and documentation of ecological agriculture. We should also try to determine the roll of certification in recognizing the larger landscape. But the focus is on vegetation.

Stewardship manuals call for the likes of riparian corridors and buffer strips and are excellent starting points -- just hinting at the many other opportunities. The changes that have taken place in understanding woodlot health or soil health are just beginning to become apparent in the weedy ditch or hedge row. Significance is measured by what we don't know.

As a very practical exercise, we will tear apart the thinking on windbreaks in order to reconstruct the landscape web and demonstrate how to use vegetation systems to understand many of the other functions such as permanent refugia for predatory insects and spiders. Linear forestry as I will call it -- be it a fence line tree row, ditch grasses or stream corridor -- has a significant roll in enriching soil life. Those of you who recall Dr. Ingham's presentation on the soil food web at the 2001 conference will begin to grasp the significance of this.

There is a huge difference between a wind filter, (which permits a slower and cooler summer wind to move across a crop to reduce disease invasion) and a wind barrier, (which does not change wind velocity or temperature but can be used to redirect winter winds around or over buildings). In order to moderate climate, we need to intelligently place a greater number of trees in rural landscapes. There are important considerations such as climate adapted seed source and an effort to match the species to the site that ensure tree longevity.

There are equally important considerations needed to learn how to reduce our tidy tendencies. The shrub ticket, the wet sedge meadow, the woodland reconstruction in your front yard the "weedy" meadow garden are crucial to farm landscape health. The value of a dead tree can be found in changing your appraisal from "firewood" to "predator hotel" Single species tree rows have been the norm for so long that we fail to see what nature offers -- a quick look into the adjacent forest reveals a diversity of species and age that ensures self-renewal.

I will draw on evidence from long standing projects like Arbofilia in Costa Rica, the Washington Creek study in Ontario and Seeds of Survival in Ethiopia to illustrate the stunning rate of change in water quality, farm success and community health. The groundswell of interest in the transformation of the way that food is produced and distributed and consumed is truly exciting. Local food security ("Real Food" to quote Rod McRae at the 2001 Public Forum) will have its foundation in Agroecosystem thinking and the shared understanding, research and monitoring that will shed light on the fact that the improved crop is just one part of the yield.

Henry Kock, Interpretive Horticulturist
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Fourth generation horticulturist, raised and apprenticed in the tree industry in Sarnia, Ontario.

B.Sc.Agr., University of Guelph, 1979. Major subjects studied: Chemistry, Plant Physiology, Horticulture, Botany, Soil-plant-water relationships, Plant Taxonomy and Philosophy.

Horticulturist at the **University of Guelph Arboretum**, 1982 to present.

Co-founder of the Guelph Organic Agriculture conference, now in its 21st year.
Member of the Ecological Farmers Association of Ontario.
Recipient of a Canadian Forest Stewardship Award in 1999

Philosophy
"We are not going to solve today's problems with
the same kind of thinking that got us into them."
Albert Einstein

Developing a National Organic Strategy

By Randy Whittaker and Rod MacRae
Over the years there has been a desire expressed by conference participants to better coordinate and implement organic sector activities at a national level. Each year people returned home , further enriched by the learning and networking experience of the conference, yet the challenge of establishing greater synergies within the community remained.

Now the world of organics is changing rapidly, brought on by a populace increasingly wary of the negative impacts of conventional agribusiness. Though organic agriculture has many hopeful and positive contributions to make to sustainable economies, it is primarily fear driving the public towards organic food alternatives at this time. Now, worldwide, the organic products sector is swept up in this increasing wave of demand for its wares, but Canada lags in its preparedness for this rising demand curve.

The emergence of the organic sector has been primarily a result of grassroots initiatives. A multitude of organizations and individuals have provided vision and leadership on the farm and in their communities. Now the time has come to elevate this vision to a national level, parlaying the strength of the many stakeholders into national - level activities and policies that will serve both the sector at large, and the consumer of organic products.

This seminar/discussion will explore the many facets of the Canadian organic landscape. We'll look at market trends and emerging issues that need to be addressed through policy or programs. The centrepiece of the afternoon will be a National Strategy discussion paper for the Canadian organic food and farming sector, drafted by Rod MacRae. The feedback received from participants will be the basis for rewriting the National Strategy.

Randy Whitteker- '79 BSc.(Agr.) - University of Guelph After 8 years in agribusiness in the field of feed and seed Randy entered into natural and organic food distribution at Ontario Natural Food Co-op in 1988. As General Manager for the ONFC Randy has stayed closely connected to the organic sector. In 1997, he chaired the Organic Caucus of the Canadian Health Food Association and is now on the Executive Committee of the CHFA, in the role of Treasurer.

Rod MacRae - '90 Ph.D. (Agr.) - McGill University. Rod coordinated the Toronto Food Policy Council for 9 years and now consults on food policy for many organizations, including the World Wildlife Fund Canada, the Ryerson Centre for Studies in Food Security, and the Canadian Institute for Environmental Law and Policy. Since 1986, he's worked with the organic sector on policy and program development. He is co-author of *Real Food for a Change* (1999) and co-editor of *For Hunger - Proof Cities* (1999) and has written more than 90 popular and academic articles and reports on how to change the food and agriculture system so it promotes health and environmental sustainability
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BioDynamics

By Hugh Lovel

Introduction to Quantum Agriculture--21st Century Farming:

DeBroglie discovered the inseparability of particles from their wave patterns. While particles are something we can locate and count, waves are more like transcendental mathematical abstracts.

DeBroglie thought by shooting particles at a screen with a pin hole in it he would get a scatter pattern like a shotgun. However, what he got was a bull's eye with rings around it, demonstrating the inseparability of particles and waves. When he did this with a screen having two holes in it he then thought he would get two bull's eyes with two sets of rings. However, what he got was one bull's eye between the two holes with an oval set of rings, demonstrating that, if anything the organizational patterns of the wave nature was more fundamental than the particle nature.

At the atomic and sub atomic level the organizational fields that make things manifest appear to be relatively simple. Bohr calculated these for hydrogen, showing how hydrogen's electrons jumped in quantum leaps from one level of resonance to another, thus explaining the spectral emission and absorption patterns of hydrogen. Several elements beyond hydrogen have been calculated since. Such was the beginnings of quantum mechanics. Since these are the basic building blocks of the universe everything of necessity must conform to the rules of quantum mechanics, though as we get to the planetary level and the level of stars it is less clear how. Nevertheless we know there is a simple mathematical rule called Bode's Law that roughly predicts where the planets of the solar system will be found--and there they are.

At the level of our everyday lives the organizational patterns that support our existence appear to be extremely complex--beyond calculation. Nonetheless we can work with them. Homeopathy, dowsing, radionics, color therapy, sound therapy and agricultural field broadcasting are some of the ways we can do this. With homeopathy it is common to use remedies that do not contain any of the physical substance whose pattern is put to use. With dowsing and radionics we find we can use a representation of something or someone--a map or a picture for example--and it will work at a distance to yield information or create an effect with that something or someone. With color and sound therapy we clearly are using waves to effect changes in the world and beings around us. With agricultural field broadcasting this is less clear because most of us do not see the patterns being broadcast.

I have slides and overheads to show how agricultural remedies can be made according to Rudolf Steiner's recommendations, how agricultural field broadcasting works and some of the effects that can be achieved. In the 21st century fertility promises to be cheaper while herbicides and insecticides could become obsolete. Advanced discussion is invited.

Hugh Lovel is a scientist, farmer, renaissance man, author of A Biodynamic Farm, founder of Union Agricultural Institute and a mechanical innovator who has carried forward T. Galen Hieronymus' agricultural work. He received his education in biology, chemistry and physics at Southeastern Louisiana University, and market gardens on 16 acres near Blairsville, Georgia. He can be contacted at Union Agricultural Institute, 8475 Dockery Road, Blairsville, Georgia 30512. Ph: 706 745 6056, e-mail: uai@alltel.net