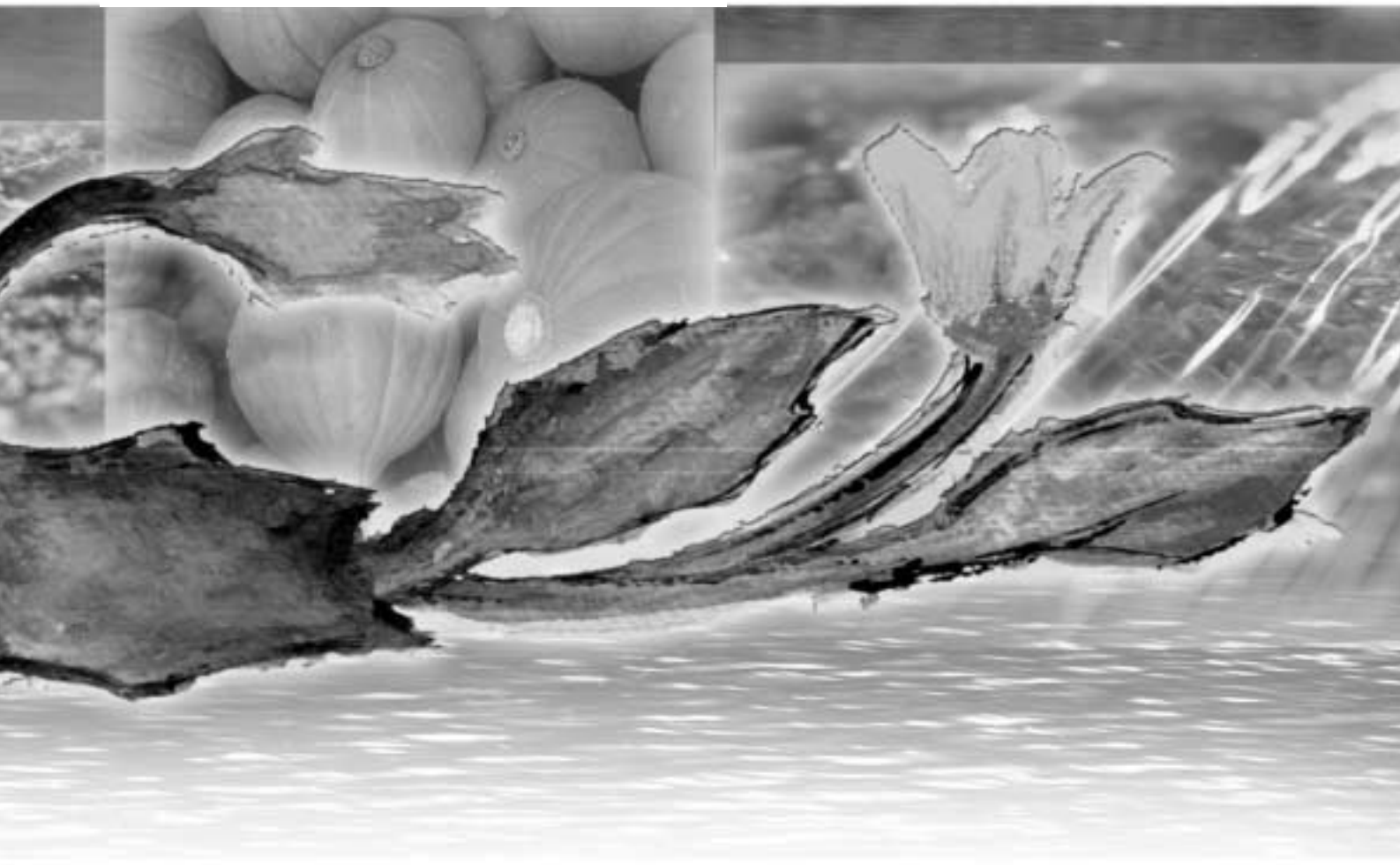
TOWARDS A COMMUNITY SUPPORTED AGRICULTURE



A guide to this booklet

In this booklet, we have tried to cover a wide range of issues relating to globalisation and sustainable agriculture, however it is impossible to deal with all issues well in such a short publication. We hope that a cover to cover reading will provide the reader with a broad understanding of why we need to change the way we produce and distribute food, as well as the nuts and bolts of the Community Supported Agriculture vision.

We are also aware that many readers may only be interested in specifics of Community Supported Agriculture and may already have a strong understanding of the broader issues. In this case, we suggest reading section 1 and then skipping directly to sections 5 and 6.

Credits

Towards a Community Supported Agriculture has been written and researched by the Just Food Project of Friends of the Earth Brisbane.

The Just Food Project members are: Tara Hawkins, Derec Davies, Phil Hawkins, Kristen Lyons, Stephen Walton, John Hepburn, Vaun Thompson and Marion Battig.

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Photos by Suzi Moore (BFA)

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Friends of the Earth Brisbane

294 Montague Road, West End.

PO Box 5702, West End, Qld 4101

Phone: (07) 3846 5793

Fax: (07) 3846 4791

Email: foebrisbane@uq.net.au

Web: brisbane.foe.org.au

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WildThing Farm

1. Introduction

Food, along with water, is one of the fundamental requirements of life. Without it, we can live but a few days. However, people often have very little understanding of where their food comes from, how it is produced, what is in it, and who controls it. And why should people care? So long as the supermarket shelves are fully stocked, why should people be concerned about their food?

The short answer is that our current systems of producing and distributing food are failing catastrophically in three key areas: health, justice, and environmental sustainability.

Food problems in your local community...

- Industrial food production techniques, with their high levels of pesticide use and increasing use of genetically engineered organisms, are subjecting farmers and consumers alike to significant, and often unknown health risks. 'Food scares' occur with increasing regularity, leading many to wonder whether the meal before them is safe to eat. Labelling laws are not adequate to allow people to make informed choices about their food purchases - to know the health impacts of their grocery baskets. People simply do not, and cannot, know what they are buying.

- Net farm incomes in Australia have been decreasing consistently throughout the last few decades, and at least one third of Australian primary producers have experienced sustained negative incomes since the 1980s. Ten regions in Australia identified with the lowest household incomes are in outer urban and rural areas, and in 1997 around 80% of broadacre agriculture was unprofitable. Farmers are facing an increacing burden of debt as they are forced into a cycle of increasing inputs (pesticides, fertilisers and seeds) to increase productivity in order to 'compete in the global economy'. Farmers are investing and risking more for less and less return. Alongside economic disadvantage, rural and regional Australians also lack access to education, health and employment opportunities compared to their urban counterparts.

- Australia is facing massive environmental problems due to unsustainable agricultural practices. A report released in April 2000 estimated that rural environmental degradation in Australia costs in excess of $2 billion annually (Madden et al. 2000). This figure could rise to over $6 billion annually by 2020. It is estimated that $2.1 billion is lost each year from declining yields and subsequent profitability reductions associated with land degradation (Boully 2000). The extent of salinity alone could increase from 2.5 million to 15.5 million hectares unless action is taken.

The big picture - global food insecurity...

Of the 4 billion people living in developing countries, almost a third have no clean drinking water. A fifth of all children receive an insufficient intake of calories or protein. And two billion people - a third of the human race - are suffering from anaemia. Thirty million people a year die of hunger and 800 million suffer from chronic malnutrition (UNDP 1998).

The UN calculates that the whole of the world population's basic needs for food, drinking water, education and medical care could be covered by a levy of less than 4 % on the accumulated wealth of the 225 largest fortunes. To satisfy all the worlds sanitation and food requirements would cost only $13 billion, hardly as much as the people of the United States and the European Union spend each year on perfume (Ramonet 1998).

One of the cruellest ironies of the global economy is that massive food shortages occur in the context of a global oversupply of food - with vast quantities of food routinely destroyed due to 'market failures'. People go hungry either because they haven't enough land to grow their own food, or don't earn enough to purchase food, not because there is a shortage of food within any country. Most countries with the greatest incidence of poverty and hunger are net exporters of food. Growing more food can, in fact, exacerbate food insecurity for the world's poor depending on how, where, and by whom this food is produced.

Internationally, the World Health Organisation estimates that around 3 million people are affected by acute poisoning from agricultural chemicals each year, resulting in 220,000 deaths. Another 735,000 people are affected annually by chronic poisoning, and about 37,000 people die of cancer induced by agricultural chemicals (Barr and Cary 1992).

Competing visions ... protein pills or home grown veges?

As individuals and communities concerned about our health and about our future, we have some choices to make.

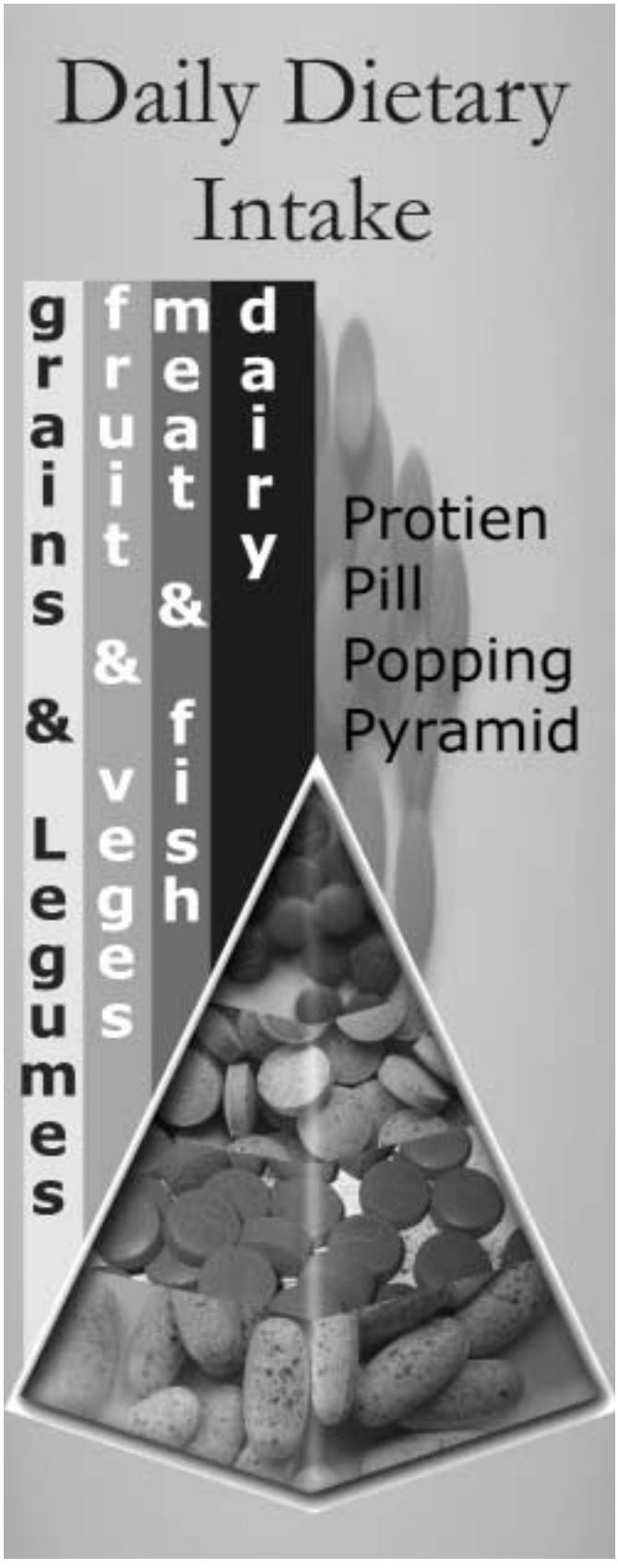
There are competing visions for food. At one extreme is a vision for a globally integrated food system, in which food is largely produced and controlled by private corporations, motivated by financial profit. Food is seen as a primarily 'functional' commodity - people require a certain nutritional intake, which should be provided in the most (economically) efficient way possible. "Consumers" shop in a 'global supermarket', that stocks Turkish dried apricots, Californian oranges, Chinese soymilk and tomatoes from Spain. The logical conclusion of the 'commodification' and 'rationalisation' of food is an even further extension of the 'fast food' culture - in which foods are genetically engineered to meet nutritional requirements and are then digested in the most convenient form possible.

In this publication, Friends of the Earth are pointing towards a different vision - slow food rather than fast food, grown in the local area, rather than transported from the other side of the planet. A vision in which food forms an integral part in the fabric of a community, as a kind of 'social glue', connecting people to each other and to the earth. We're talking about a community supported agriculture, in which people know where their food comes from, what's in it, and who has grown it.

It's a vision that people all over the world are exploring and creating as we speak…saying NO to Genetic Engineering, environmental degradation and the corporate control of food…saying a resounding YES to sustainable, locally produced, organic food.

The following chapters explore the reasons why we think this vision is so important, and hopefully provide some clear information, tools and ideas.

We'd like to invite you to be part of this vision - to rejoice in slow food - in your own community, with your own friends and family, and to be part of creating a just and sustainable future.



2. An overview of the global industrial food system

Over the past several hundred years, thousands of diverse, locally adapted agricultural systems around the world have been replaced by a single, globalised food system.

In the past, agriculture and farming have connected people with the natural origins of food. Food producers have relied on solar energy, rain and nutrient cycles of the soil for the growing of food, and the consumption of food, in turn, has been shaped by local, climatic and seasonal variations. However, dramatic changes over the last few decades have reduced the significance of these environmental processes in shaping food production systems. Consumers of food, too, have become distanced from the sites of food production. In its place, agriculture has adopted a number of industrial processes - including highly automated machinery, pesticides, hybrid seeds and, more recently, Genetically Engineered Organisms - and has come to reflect many of the characteristics of other industrial systems.

The industrialisation of agriculture initially arose from attempts to reduce reliance on natural systems and the fluctuations and variations inherent in nature. While this 'separation from nature' continues, more recent developments in the industrialisation of agriculture are also leading to the increased control of food production and distribution by a decreasing number of agribusiness corporations. These changes represent another chapter in the industrialisation of agriculture, and raise a diverse range of social, environmental and ethical concerns about the future of food systems.

The industrialisation of agriculture...

The industrialisation of agriculture followed the industrial revolution. Throughout the world, people were drawn away from rural areas as new agricultural technologies reduced the number of jobs available in local food systems. From the earliest mechanised farm equipment, to today's massive combine harvesters, these technologies have invariably been designed to reduce labour costs, rather than improving the wellbeing of farming communities. Like the craftworkers displaced by the new industrial factories in the cities, farmers were systematically replaced by machines. In the 18th Century, some 40 percent of people in England were on the land; by 1900 this number had fallen to 8 percent, and today it is only 2.5 percent (Helena Norberg-Hodge 2000).

The 'green revolution', which took place from the 1950's onwards, was the second industrial revolution in agriculture and revolved primarily around the development of technologies such as pesticides, herbicides, fertilisers and hybrid seeds. Farmers, who traditionally saved seed from one year to the next, and who used farm-produced manure and locally adapted planting techniques, instead began relying on increasing quantities of off-farm inputs. These changes had a variety of consequences, ranging from an overall deterioration of agricultural soils and the poisoning of the environment with pesticides, to the intensification of the cycle of debt as farmers struggled to increase production to pay for increasing costs of capital and inputs.

While a fully industrialised farmer may be able to bring more to market with less labour than before, that amount is no longer enough. Ever-rising capital and input costs mean that farmers need to increase production just to break even, requiring even more investment in equipment and other inputs, leading to increased costs and increased production requirements…and the treadmill of industrialisation.

The new technologies also led to other changes on the farm, which Helena Norberg-Hodge describes…

> *To take full advantage of their equipment, farmers were impelled to plant larger and larger expanses of machine-friendly monocultures, and to homogenise their farmland by cutting down trees, ripping up hedgerows, bulldozing rock outcroppings, and ignoring the specific characteristics of each field. In other words, farms were shaped to fit the technology* (Helena Norberg-Hodge 2000).

The end result of this process is the 'laser levelled' paddocks of the Darling Downs and other Australian agricultural regions, where the natural environment has effectively been 're-engineered' to suit irrigation and harvesting technologies.

Gobble-isation

Today, only a relative handful of farmers in the industrialised world have survived the 'technological treadmill'. There has been a dramatic reduction in the number of farmers, and a corresponding increase in the size of farms. In the US, some 6.8 million farms were in operation in 1935; by 1997 that number had been reduced to just 1.9 million (US Department

of Agriculture 1997). In Australia, between 1989-90 and 1997-98, the number of farms producing food products fell by around 7% to 107 000 (ABS 2000). There has also been a long term decline in farm employment. In the decade to 1996, employment in agriculture, forestry and fishing in inland and remote regions each fell by 15%. In coastal regions if fell by around 3% (ABS 2000).

In the industrial model, large, highly capitalised farms are better able to withstand 'market fluctuations' and other risks of farming. When small farms fail, their land and markets are quickly 'gobbled up' by larger farms. These large industrial operations are not thriving because they are more productive, but because they are systematically supported by Government policies and subsidies, and the interests of food processing firms and supermarket retail chains.

Increasingly, agribusiness corporations are becoming 'vertically integrated', with the same companies owning farms, supplying farm equipment, fossil fuels, pesticides, seeds, fertilisers, marketing and distribution services.

Corporate control of food...

Processes of globalisation have centralised the power of agribusiness and a small number of large companies have come to dominate many aspects of the food industry. As an example, in 1998 the leading food companies, including Philip Morris, Cargill, Unilever and Nestle, each shared an annual turnover of around US$50 billion (Caraher 2001).

These companies stretch their operations beyond food, and also retail a number of non-food items, including cigarettes, seeds and real estate. As a further example of such concentration, the top 10 seed firms now control over 30% of the $24.4 billion commercial seed market (Anon 2001).

Centralisation has occurred alongside the marginalisation of smaller companies and retail chains. Over the last decade in the United Kingdom, for example, increasing monopoly control of food distribution by retail chains has resulted in the closure of over 10 000 food co-operatives and local shops. The distribution of food via centralised retail chains has also increased the distance people travel for food, and exacerbated reliance on private motor vehicles (Caraher 2001). Such changes produce a range of negative social and environmental problems, including an increase in fossil fuel emissions associated with the purchase of food, and the fragmentation and alienation of food eaters from each other.

The nature of global regulation has encouraged the centralisation of agribusiness operations throughout food systems. National de-regulation and international free trade agreements enable transnational companies to shop globally for the cheapest agricultural labour, raw inputs and machinery. People living and working in 'southern' (third world) countries have been especially impacted by these arrangements. Low or non-existent environmental regulations and occupational health standards has meant companies can enforce irresponsible farming methods and maintain unsafe factory work conditions.

One Global Agribusiness

To see just how far globalisation has proceeded in the agricultural sphere, consider the Cargill Corporation. A partial sampling of the company's operations include:

- Processing plants of oranges in Brazil, Pakistan and the US;
- Facilities in Chile to make fruit juice products for markets in the US, Europe and Japan;
- Copra crushing facilities in the Philippines;
- Hazelnut roasting plants in Turkey;
- Corn and wheat milling plants in North America, Europe and Latin America;
- Flour mills and malting plants in the US, India, Argentina, Belgium, Canada, China, France, Germany, the Netherlands and Spain;
- Cereal mills in the US and UK;
- Processing plants for soybeans, sunflower seeds, rapeseed, peanuts, flaxseed, corn, palm and cottonseed in the US, Latin America, Europe and Asia;
- Cotton gins in Tanzania, Zimbabwe and Malawi;
- Cocoa processing plants in the Netherlands, Ivory Coast and Brazil;
- Cattle feedlots and beef and pork processing plants in the US;
- Meat-packing plants supplying fresh and frozen boxed beef to grocery stores and wholesalers in the US, Canada, Australia and Honduras;
- Production and processing facilities for poultry and eggs in the US, UK, France, Honduras and Thailand;
- Plants that produce rock salt and processed salt in the US, Australia and the Caribbean; and
- Phosphate mines and fertiliser factories for distribution in North and South America, Europe and the Pacific Rim.

Cargill is also directly involved in bringing agricultural systems into the global/industrial orbit, through its agricultural consulting work for multilateral development banks, aid agencies and governments. Cargill's agricultural consultants have so far worked in 116 countries.

Taken from (Helena Norberg-Hodge 2000).

The same is also true throughout other parts of the world. In Australia food processing companies have established contract relations with some farmers. These contractual agreements enable trans-national companies to relocate operations as soon as profits decline, which can occur due to declining yields or nutrient loss. While providing good returns to companies, these arrangements may provide little return to farmers, surrounding communities and their environments. Even where farmers do receive a good income for their crops, they are left with the environmental and social costs that arise from the fragmentation, concentration, standardisation and specialisation of production that is characteristic of contract farming (Krebs 1992).

Rural communities on the treadmill...

Farmers and rural communities in Australia - and elsewhere - have carried many of the social costs resulting from globalisation and the increasing dominance of agribusiness within food systems. For example, farm families have experienced declining incomes through the last few decades, and this is undeniably linked to processes of global restructuring. As a consequence, in Australia at least one third of primary producers have experienced sustained negative incomes since the 1980s (Gray and Lawrence 2001). Attempts to alleviate these financial pressures have led many members of farm families to seek off-farm work. Women in farm families contribute to the maintenance of farming enterprises in this way by seeking off-farm work more regularly than men. In Australia in recent years, 81% of off-farm work has been undertaken by women (Elix and Lambert 2000). And as an outcome, women are caught in a 'triple burden' between on-farm work, off-farm work, as well as domestic responsibilities.

Alongside these economic pressures, the rates of stress related illnesses have also increased among members of farm families and rural populations. Reports from Australian rural communities show that rates of hypertension, heart attacks and asthma, as well as substance abuse have increased among farmers in recent years (Cheers 1998). Reports of domestic violence and suicide, particularly among young people, have also increased throughout rural communities. Alongside these stress-related health problems, many producers and residents in rural areas have also experienced adverse health affects from exposure to agri-chemicals, including cancers, blood disorders, liver, immune and central nervous system damage (Short 1994).

In 'Southern' countries, these problems are even more pronounced. There is a growing phenomenon of 'suicide farmers' in South East Asia - who are taking the quick escape from the treadmill of extreme debt to agribusiness corporations.

Product diversity exceeds biodiversity...

The social pressures created by globalisation are in turn putting pressure on the natural environment. For example, contract farming relationships between producers, food processors and retailers, often force farmers to grow a limited range of crop varieties. This has resulted in the loss of huge numbers of indigenous and traditional varieties of plants and animals. In its place, industrial agriculture has supported the expansion of monoculture farming systems.

The degree to which agricultural diversity has been lost is staggering. Of the 10,000 wheat varieties in use in China in 1949, only 1,000 remained by the 1970's. In the US, 95 percent of all the cabbage, 91 percent of the field maize, 94 percent of the pea, and 81 percent of the tomato varieties have been lost. Overall, approximately 75 percent of the world's agricultural diversity has been lost in the last century, according to the Food and Agriculture Organisation of the UN (FAO) 1996).

The illusion of consumer choice...

The industrialisation of agriculture has had dramatic impacts on the availability of foods. Global food systems are heralded as increasing the variety of foods we can choose from. This is only true, however, in a very limited sense. While supermarket shelves may stock an increasing range of brand names, these are controlled by a decreasing number of large companies. Similarly, the variety and availability of highly processed, "value-added" foods has been greatly expanded, while there has been a corresponding reduction in the variety of crops grown and of basic food types available.

Throughout the last few decades we have dramatically increased our consumption of processed foods. In the United States, national expenditure on fast foods is greater than that spent on higher education, personal computers or new cars, and has increased from US$6 billion in 1970 to a currently estimated $110 billion (Schlosser 2001). Contemporary architecture that leaves kitchens out of housing designs illustrates the growing consumption of processed and pre-prepared meals, and the declining need for spaces for the preparation and sharing of food.

As well as expanding the amount of processed foods available in retail outlets, industrial agriculture has also differentiated between the same foods, by marketing different characteristics of food. Agriculture and food technologies, for example, have enabled us to choose between 'salt reduced', 'low fat' and 'calcium enriched' food products.

The globalisation of food systems, and the resultant control by agribusiness, has produced a range of social, economic and environmental problems. Such problems clearly illustrate the need to re-think the ways in which we organise our food systems, so as to address these inequities, and to provide alternative food futures that can contribute to social and environmental justice.

Some thoughts on "Consumers" ...

Increasingly, our business and political 'leaders' speak to us as 'consumers' rather than 'people' or 'citizens'. This language reveals much about what is considered important in our society. It seems as though 'consumers' are the human equivalent of industrial food. When people speak of 'consumers', they speak of a 'target market' - of a 'commodified' human - important not because of who they are, but because of what they might purchase.

Certainly, people are 'consumers', we consume food and other products. But this is not primarily what defines us. First and foremost, 'consumers' are 'people', with hopes, dreams, fears, contradictions, passions and all of the other higgledy piggledy bits that make us human. That our consumption habits have been elevated to be our primary, defining characteristic is a reflection of the extent to which the culture/ideology of consumerism dominates our society.

Apart from ‘consuming’ we have many other practical ways of relating to food - by growing and preparing our own food, by building relationships with farmers and by creating other forms of distribution.

3. The ecology of food production

The industrialisation of agriculture has resulted in widespread environmental degradation. Ultimately, this stems from our industrial worldview seeing nature as a series of problems to be overcome rather than a source of life. This is reflected in current industrial practices such as contouring (laser levelling) paddocks, the plantation of vast monocultures, the widespread use of pesticides and the systemic use of artificial fertilisers to 'prop up' the deteriorating quality of soils.

Environmental Degradation in Australian Agriculture...

The exact extent of environmental degradation associated with agriculture in Australia is difficult to measure. Nevertheless, as far back as the 1930s, severe wind erosion and ensuing dust storms saw soil erosion become a national political issue. By 1975-77, it was estimated that over half of all agricultural lands required treatment for soil erosion or vegetation degradation (DEHCD 1978).

A report released jointly by the National Farmers' Federation (NFF) and the Australian Conservation Foundation (ACF) in April 2000 estimated that rural environmental degradation in Australia costs in excess of $2 billion annually, a figure that could rise to over $6 billion annually by 2020. The extent of salinity alone could increase from 2.5 million to 15.5 million hectares unless action is taken. These costs are a direct result of our agricultural practices.

Other costs which are more difficult to quantify include:

- Degradation of riparian (streambank), wetland and estuarine ecosystems leading to loss of commercial and recreational fisheries, reduced tourism income, increased water treatment costs and salinisation of irrigation water.
- Coastal sedimentation and nutrient influx and associated damage to the Great Barrier Reef and other reefs.
- General loss of environmental amenity and associated tourism returns.
- Loss of biodiversity, remnant ecosystems, habitat and species, and damage to parks and reserves.
- Loss of carbon stores.
- The social costs of unemployment, poor health, population decline and so on in communities reliant on agriculture for their economic prosperity.

Statistics such as those quoted above are nothing if not dramatic, and conjure up images of dead trees, eroded gullies, dust storms, blue-green algae and salt pans. But these are only the most visible forms of degradation. Often erosion, pest species and the effects of saline water tables are difficult for anyone without the right experience to see. Other problems such as nutrient loss, soil compaction, soil acidification and chemical residues are even more difficult to spot, but all can cause severe losses in productive capacity and in environmental quality.

Of all the current and potential environmental problems facing agriculture the most controversial (and the most clearly targeted by organic farmers) are chemical residues and genetic pollution.

Monocultures and pesticides...

Monocultures are rare in nature, in part because they create a paradise for plant diseases and insects - making for an extremely high risk farming strategy. As science writer Janine Benyus puts it, they are like equipping a burglar with keys to every house in the neighbourhood; they're an all-you-can-eat restaurant for pests (Benyus 1997).

Today, disease damagesr destroys 13 percent of the world's crops, insects 15 percent, and weeds 12 percent; in all, two-fifths of the world's harvest is lost in the fields and after some more spoils, nearly half never reaches a human mouth.

Around 1948, at the start of the era of synthetic pesticides, the United States used over 22,000 tonnes of insecticides a year and lost 7 percent of the pre-harvest crop to insects. Today, with nearly 20-fold greater insecticide use - almost half a million tonnes a year - the insects get 13 percent, and total U.S. crop losses are 20 percent higher than they were before we got on the pesticide treadmill (Hawken 2000).

Pesticides can certainly be used more rationally and more efficiently, but the problem is more fundamental than mere measurement and management - the whole concept of pesticides has a basic flaw: insects' huge gene pool, quick evolution, and very short reproductive cycles enable them to adapt and become resistant to our most powerful poisons - faster than we can invent new ones - as more than 500 species have already done (Conway 1997). Worse, by disrupting competition between species and by killing their natural predators, pesticides often transform previously innocuous insects into nasty pests.

Environmentally, agricultural chemicals and fertilisers also pose major problems for groundwater and aquatic ecosystems, the effects of which are yet to be fully understood. While this points to the counter-productive role of pesticides in terms of ecology (and even productivity), industrial agriculture in Australia relies heavily on their use, and it is widely believed by farmers that the benefits of chemical use outweigh the disadvantages. This is despite growing evidence of the human health impacts of pesticide use among farmers.

Data on the health status of rural Australians is patchy, but it does appear that rural people suffer a higher incidence of allergic reactions to dust and pesticides, while a number of overseas studies have found links between exposure to agricultural chemicals and a range of health problems.

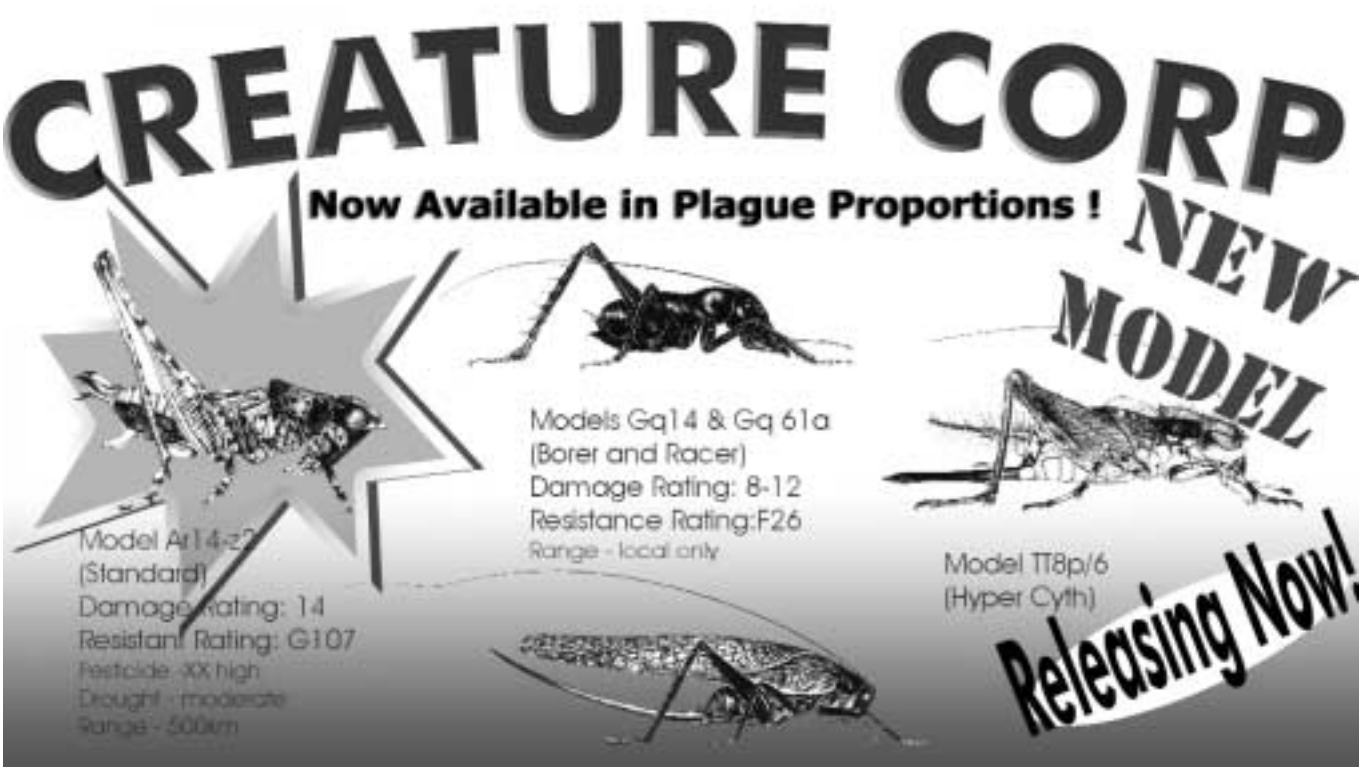
Internationally, the World Health Organisation estimates that around 3 million people are affected by acute poisoning from agricultural chemicals each year, resulting in 220,000 deaths. Another 735,000 people are affected annually by chronic poisoning, and about 37,000 people die of cancer induced by agricultural chemicals (Barr and Cary 1992).

Genetic Engineering and the environment...

One of the proposed solutions to problems associated with chemical use is genetic engineering (GE). However, there are serious environmental risks associated with the release of Genetically Engineered Organisms into the environment. In addition to the risks (or unknowns), there are many problems which are known to be real.

Cross pollination from GE crops to neighbouring crops (commonly referred to as Genetic Pollution) has the potential to cause unpredictable disruptions to ecosystems. Unlike other forms of pollution (such as oil spills etc) Genetic Pollution is not reversible. It is impossible to clean up after a genetic leak and it is impossible to predict the consequences.

Agribusiness corporations, such as Monsanto, claim that GE crops will help to reduce pesticide use and will actually reduce the environmental impact of agriculture. For example,



The Mystery of Soil…

Soil biology is a vast and growing mystery. A recent RNA sample disclosed four thousand distinct genomes in each gram of soil, and they vary from place to place. Some appeared to represent major new taxonomic categories. Of each ten microbes observed on plant roots by microscopy, at most one could be cultured in nutrient media (the standard lab technique for determining what's living there); of each thousand in bulk soil, only one. The rest represent "a vast diversity of microbes…that we know nothing about". Soils, in short, have recently been discovered to "harbour a complex and largely unknown microflora" implying many unknown ecological and biochemical processes". Science can't understand how plants grow until it understands the ecology of what they grow from: as Donald Worster put it, " We can no more manufacture a soil with a tank of chemicals than we can invent a rain forest or produce a single bird" (Hawken 2000).

The soil is less a factory than a souk, a Casbah, a flea market, an economic free-for-all in which each buyer and seller pursues her or his own interest, and in which every scrap of merchandise - second hand, seventh hand, busted, salvaged, patched - is mined for its last ounce of value. Decay is good business because there are nutrients to be exracted and energy to be gained from the breaking of chemical bonds. If the net effect of the activity of the soil biota is overwhelmingly helpful - in fact, vital - to life on street level, it is not because nature has ordained it so, but because the various forms of life above and below ground have coevolved.

Extract from Natural Capitalism: The Next Industrial Revolution pages 203-204.

Monsanto's 'Roundup Ready' soybeans are genetically engineered to allow farmers to spray a single broad spectrum herbicide (active ingredient, glyphosate) over the top of growing soybeans, killing most weeds but leaving the Roundup Ready crops largely unharmed. However, the report, "Troubled Times Amid Commercial Success for Roundup Ready Soybeans," relying on previously unreleased data from the U.S. Department of Agriculture (USDA), indicated that on average 11.4 percent more herbicide is used on Monsanto's Roundup Ready (RR) soybean crops, than on conventional soybeans. The report found that in some case more than 30 percent more herbicide is used (Benbrook 2001).

Genetic Engineering - extending corporate control of food...

One of the main consequences of the introduction of genetically modified crops and animals will be the extension of corporate ownership and control of the entire food system.

Agribusiness and biotech corporations are using the new genetic technologies to technically integrate the various parts and stages of the industrial food system: seeds, animals, chemical inputs, machinery, harvesting, processing and retailing.

There are a number of strategies being used to create this technical and corporate integration of the food system. One important strategy has been for seed/chemical companies to genetically engineer crops to demand or be responsive to the application of their own particular brand of chemical pesticides. These companies then sell these seed-chemical packages to farmers, sometimes accompanied by punitive contracts that farmers are obliged to sign. Farmers will thus find themselves increasingly dependent upon, and at the mercy of, a handful of these large corporations, and caught on the chemical and genetic treadmills as they rely on these companies to develop new products to keep up with evolving pest resistance to the old ones.

An example is the engineering of herbicide-tolerant crops (such as the Roundup Ready soybeans mentioned above) whereby corporations can engineer their own interests directly into the genetic structure of the seed.

Scientists have also managed to genetically engineer sterile seeds, which effectively commit suicide through self-poisoning if they are not treated with a company's own particular chemical solution. Creating such sterile seeds has long been a way for agribusiness corporations to ensure that farmers are unable to save their seeds, but instead must repurchase their seeds every year. The same techniques are also being developed in order to link a range of functional and performance characteristics of a crop to the application of particular patented chemical inputs (known as 'traitor' genes).

Proponents of GM crops claim that they will be needed to feed a growing and hungry world population, but GM crops are instead a mechanism for allowing these global corporations to feed on the world, rather than to feed the world - feeding on the seeds, the knowledge, the food and the cheap labour of the world's poorest farmers and rural communities.

The techno-colonisation and commodification of the seed is one of the primary strategies for facilitating the globalisation and corporatisation of the industrial food system. To resist and reverse these trends will ultimately require more than just oppositional protest. The more difficult long-term task will be to develop alternative cultures and structures of food production, distribution and consumption, which represent ecologically sustainable, socially equitable systems which promote local food security.

What might a sustainable agriculture look like?

It is important to note that most farmers working within industrial agriculture acknowledge the importance of reducing environmental impacts. The debate is not about whether or not farming should be environmentally sustainable, but more about competing versions of what a sustainable agriculture might look like and how to achieve it.

The British agro-ecologist Jules Pretty (1998) outlines the differences between approaches. Within industrial agriculture, inputs such as chemicals, fertilisers and increasingly genetically modified organisms are seen as essential inputs whose use must be optimised to achieve maximum production and minimum leakage or waste. Alternatives to the industrialised mode of production focus less on optimisation and more on the farm as an ecosystem. Farming practices such as the use of nitrogen fixing crops and composting are favoured that not only increase production, but which build up environmental resources and enhance ecosystem processes such as the recycling of nutrients and wastes. Technologies such as minimum tillage are also used to reduce damage to the environment by reducing the amount of soil and nutrients that leave farms and enter waterways and neighbouring farms.

Many of these alternatives to strictly industrialised production are used by 'industrial' farmers, but in alternative approaches such as organic farming we tend to find a far greater emphasis on reducing dependence on external inputs and increasing landscape and biological diversity. This, in turn, means that building environmental resources and enhancing ecosystem processes must assume far greater importance. In the long term, according to Pretty, this will take us much further along the track of sustainability.

"A more sustainable agriculture seeks to make the best use of nature's goods and services as functional inputs. It does this by integrating natural and regenerative processes, such as nutrient cycling, nitrogen fixation, soil regeneration and natural enemies of pests into food production processes. It minimises the use of non-renewable inputs (pesticides and fertilisers) that damage the environment or harm the health of farmers and 'consumers'. It makes better use of the knowledge and skills of farmers, so improving their self-reliance. And it seeks to make productive use of social capital - people's capacities to work together to solve common management problems, such as pest, watershed, irrigation, forest and credit management.

Sustainable agriculture jointly produces food and other goods for farm families and markets, but it also contributes to a range of public goods, such as clean water, wildlife, carbon sequestration in soils, flood protection and landscape quality. It delivers many unique non-food functions that cannot be produced by other sectors such as on-farm biodiversity, groundwater recharge, urban to rural migration and social cohesion" (Jules Pretty and Rachel Hine 2001).

Contrary to the commonly held view that high-input/high-output industrialised agriculture is the only practical solution to increasing food demand, there are many examples from around the world of farmers actually increasing their production in the long term by switching to practices that protect the natural environment and strengthen communities. This is not a utopian vision. Unlike the new biotechnologies, and despite an almost total lack of support for research and education, regenerative agriculture has a compelling track record. The wider community also benefits from safer foods, less environmental pollutants and more employment opportunities, while governments benefit by spending less money on social welfare, the removal of pollutants from water, and public health.

Organic Certification in Australia...

The organic food and agriculture industry has undergone unprecedented expansion over the last two decades, and is currently recognised as the world's fastest growing food sector, with worldwide sales estimated to be worth US$20 billion and growing between 20 and 50 percent per annum. Consumption of organics is also increasing substantially within Australia, with domestic growth rates in the order of 20 - 50% per annum. The Australian organics industry is currently worth approximately AU$250-300 million, with AU$50 million generated from exports.

The industry is regulated by a number of non-government certification organisations, each of which is accredited by the Australian Federal Government. Organic certification organisations stipulate standards organic producers, processors, wholesalers and retailers must follow, thus helping to ensure the integrity of the organic industry. The formation of organic production standards has also provided the infrastructure necessary to sell organic produce on the domestic and international market, and has increased the visibility of the organic agriculture industry worldwide.

In order to sell produce as 'certified organic', it is necessary to obtain organic certification. There are currently seven nationally recognised organic certification organisations in Australia, and these include; the Bio-Dynamic Research Institute, the Biological Farmers of Australia (BFA), the National Association for Sustainable Agriculture Australia (NASAA), Organic Food Chain, Organic Herb Growers of Australia, Organic Vignerons Association of Australia and the Tasmanian Organic-Dynamic Producers.

Each of these certification organisations set organic standards that certified organic producers, processors and retailers must comply with. For producers, organic standards include requirements on organic farming methods, certified organic allowable inputs, animal husbandry practices, as well as advice on fertilisers, pest, disease and weed control. Certification standards advise; the volume and extent of input use, including animal, vegetable and mineral derived fertilisers, and on biological controls and animal health. Standards also stipulate requirements for production, transport and processing of organic products. Organic farming methods ban the use of genetically modified seeds, food irradiation and synthetically derived chemical inputs.

Procedures involved in obtaining organic certification vary between organisations, but they commonly include the submission of an application form to the certification organisation and an initial inspection of the farm by a recognised certifying officer. Successful applicants from the certification process are then certified either 'organic' or 'in conversion'. This is followed by an annual or biannual re-inspection process, and after a period of time (usually a minimum of three years), 'in conversion' producers are eligible to be granted full organic certification.

By purchasing 'certified organic' produce, consumers are assured that their food is sourced from farms that meet the requirements outlined by organic certification organisations and that are approved by the Australian Federal Government (under the auspices of the Australian Quarantine and Inspection Service).

The Organic Industrial Complex…

A number of critical changes have occurred alongside the recent rapid expansion in the organic food market. Foremost amongst these is the entry of new players - including food processors, supermarkets, government departments and scientific organisations - to the organic industry. As an outcome of their involvement, aspects of the organic food sector have now come to resemble industrial agricultural systems. For example, food processing firms engage in contracts with organic farmers, supermarket chains increasingly go direct to farmers, and organic production has become concentrated to fewer, larger and more 'efficient' farms.

Proponents of organic industrialisation argue that it has increased the scale of organic operations in Australia and elsewhere, and has enabled the international trade of organic produce. Indeed, much of Australia's expansion in the organic market has resulted from the growing export sale of organic products to Japan, Europe and parts of the US. While appeasing the currently insatiable demands of organic consumers, this pattern of trade has disconnected food eaters from food production by increasing the distance organic food travels, which has inturn increased the CO_2 emissions associated with the distribution of organic food.

Processing, packaging and other value adding has also intensified the energy consumption associated with the production of organic food. The release of frozen organic TV dinners by US based company Cascadian Farms - with ingredients sourced and processed within the US and distributed worldwide - is a prime example of the end-product of the organic industrial complex (Pollan 2001). The entry of corporate capital has also resulted in the concentration of organic production to fewer, larger and more 'efficient farm units'. While the entry of Heinz Wattie to the organic market in New Zealand, for example, has resulted in an increase in the area committed to organic cultivation, the number of farms producing organic peas has also declined from 50 in 1991, to 14 by 1997 (Lyons 2000). Alongside the industrialisation of organics, food processors and supermarkets maintain their demand for a standardised and uniform product. Such contractual requirements deny the seasonal and other variations that organic farming systems traditionally embrace.

The recently failed proposal by the United States Department of Agriculture to re-define organic agriculture in ways that would include genetically engineered seed, toxic sludge and food irradiation is illustrative of an attempt by 'non-organic' interests to shape certification standards and definitions of organics. Despite the failure of this attempt, some within the organic industry argue that corporate interests have had other wins in watering down standards, thus making them more 'achievable' for food processing companies and supermarket chains.

The continued expansion of the 'organic-industrial complex' represents a stark opposition to the historical roots of the organic agriculture movement - which values social and environmental responsibility - and poses challenges for the future of the organic industry.

4. Food and Health

It is one of the miracles of science and hygiene that the germs that used to be in our food have been replaced by poisons.

-Wendell Berry

You don't have to watch television for long before you see an advertisement telling you to do something about food and nutrition. Take vitamin supplements because you are not getting enough; replace meals with diet shakes because you are getting too much. Why, with all the knowledge and resources that the modern world has at its disposal, does our general health and nutrition seem so poor?

Choices about food are uniquely personal. It goes inside our bodies and we build ourselves from it. Most people understand the importance of healthy eating, and the appreciation of good food is becoming an increasingly important part of Australian culture and lifestyle. However, food can have a dark side as demonstrated by disasters like mad cow disease. Systems of food production have been revolutionised by the application of industrial concepts like economies of scale and production line processing. This has undoubtedly been financially beneficial for large agribusiness companies; however, there are reasons to doubt that this highly mechanistic system is meeting the health, nutritional and aesthetic needs of people.

Food, particularly fresh fruit and vegetables, comes with little information on which to make informed decisions. On the face of it, it seems reasonable to assume that any two tomatoes that appear fresh and healthy will be pretty much the same in terms of nutrition. A quick taste test involving a home-grown tomato and one from a supermarket will do to prove that not all vegetables are created equal, and the results of nutritional analysis tend to bear out the taste tests. There can be massive differences in the vitamins and mineral content of vegetables depending on the conditions in which they are grown.

It is a big leap of faith to trust the industrial food production and distribution system to look after our nutritional and health needs. Many food varieties have been selected or engineered for visible and economic qualities only. Most applications of genetic engineering aim at increasing production levels rather than quality. It is small wonder that many people have such a low intake of fruit and vegetables when eating a standard supermarket vegetable is sometimes like biting into a chunk of damp Styrofoam.

Food Safety

Food regulators should consider the protection of public health their primary goal, but in our increasingly economically rational climate, corporate interests feature prominently in the decision making process. While the history of industrial agriculture has not been one of good corporate citizenship, governments have consistently avoided taking a precautionary approach with respect to the effects of industrial agricultural practices. Regulators are continually playing catch up because biotech companies are locked into a cycle requiring the development and promotion of new products.

As a last resort we should be able to fall back on our ability as consumers to choose what sort of food we eat. Being distanced from the production process as we are, labelling requirements are an important part of informing this choice. Public demand in Australia for meaningful labelling of products that contain genetically modified organisms has been thwarted by the interests of industry and the structure of the distribution process. The strategy taken by agribusiness has been to make irreversible changes to the food system and remodel regulations to fit later.

The case of Starlink contamination demonstrates one way in which regulations fail and industrial agriculture magnifies risk (Klein 2001). The genetically altered corn, known as 'Starlink', which was meant for animals and deemed unsafe for humans due to its tendency to cause allergic rashes and diarrhoea, found its way into the supply of un-engineered corn in the United States. Airborne pollen carried past the ineffective buffer zones and contaminated corn intended for humans. This pollution was only detected when tests conducted by Friends of the Earth revealed traces of the corn in tacos sold at fast food outlets. Aventis, the company that owns the patent for Starlink, responded with a proposal to loosen restrictions to approve its consumption for humans.

Because safety trials are expensive, the government has waived any requirement for them to be carried out for products that are considered 'substantially equivalent' to natural organisms. Substantial equivalence is not rigorously defined and ultimately gauged by the corporation that owns the patent on the organism. There is a contradiction here that cuts to the heart of the biotech industry. In order for a new organism to be patented, some sort of novelty or new idea must be demonstrated in it. An Orwellian situation has developed where one part of a biotech company works at ensuring that a new organism is substantially different to anything that has existed before while another part works at assuring regulators and the public that the organism is substantially the same as a natural organism.

The idea of substantial equivalence is also used at the level of international trade. The International Agreement on Technical Barriers to Trade (WTO 1994) uses the term "like products" to require governments to allow trade in genetically modified organisms in the same way that traditional products are traded (Stilwell 1999). If a country buys corn for instance, it cannot regulate against importing it from another country on the basis of concerns about it being genetically engineered or considerations about how it was grown.

Nutrition

One of the questions commonly asked of the organics industry is whether there is proof of better nutritional value in organic food. The short answer to the question is yes but there are a number of qualifications that need to be made.

Nutrition is a complex science. It goes beyond the analysis of quantities of vitamins and minerals in food and includes issues that we are only beginning to understand such as bioavailability, which is the degree to which the nutrients are absorbed and become available to our bodies. Some schools of thought within natural medicine hold that the well being of a plant directly influences the health-giving effects of its fruit. As our understanding of human biochemistry develops, we are likely to continue to discover health and nutritional issues that stem from modern agriculture's divergence from natural ecologies.

One thing that can be shown clearly through scientific testing is that the levels of vitamins and minerals in fruit and vegetables can vary dramatically depending on the environmental conditions under which they are grown. A famous study from the United States found that tomatoes grown in an area with soil rich in organic matter consistently had levels of some nutrients up to ten times higher than those grown in another area with poorer soil and higher fertilizer use (Bear, Toth & Prince 1948).

It is difficult to make a statement about the ability of organic farming disciplines to increase the nutritional quality of produce. Organic certification prohibits certain practices with respect to the use of agricultural chemicals, but there are other issues that affect nutrition. Soil quality, freshness and variety selection all play an important part and these things are not covered by most certifications. Despite this, nutritional studies of organics in Australia still demonstrate a remarkable improvement over industrial products (see Table 1).

Table 1 (Alenson 1999).

		Beans	Tomatoes	Capsicum	Silverbeet
Calcium (mg/kg)	Supermarket	40	6.7	4.7	6
	Organic	480	67	84	1600
Pottasium (mg/kg)	Supermarket	260	200	150	450
	Organic	1900	300	1600	2600
Magnesium (mg/kg)	Supermarket	26	10	11	69
	Organic	240	89	700	1700
Sodium (mg/kg)	Supermarket	<1	2.4	<1	180
	Organic	<10	26	20	1800
Iron (mg/kg)	Supermarket	0.6	<0.5	<0.5	1.4
	Organic	<5	<5	<5	9.4
Zinc (mg/kg)	Supermarket	0.38	0.19	0.13	0.57
	Organic	3.4	1.2	2.5	130

Genetically Engineered Foods will not be labelled

Most food products containing genetically engineered ingredients will remain unlabelled, following the decision by Australian Health Ministers on July 28, 2000 to grant a range of exemptions from the labelling of these foods. Despite the new regulations being greeted as the 'strictest' of their kind in the world, few of the wide range of existing foods already being sold in Australia which contain genetically engineered ingredients will require labelling.

'Exemptions' is what the government's GE (genetically engineered) food labelling laws have always been about. Over the past few years the Australia New Zealand Food Authority (ANZFA) have been proposing a variety of definitions and justifications for exempting the majority of currently available GE foods and food ingredients from labelling. The latest decision is a continuation of this policy approach, as it ensures that the majority of the large number of products containing GE foods already being sold in Australia will remain unlabelled.

The new laws - which came into force in late 2001 include a number of exemptions, including highly refined foods (such as oils and sugars), food additives and processing agents. A large percentage of packaged and processed food products in fact contain these exempt foods.

GE foods requiring labelling:

- Foods and food ingredients where novel DNA and/or protein is present in the final food;
- Foods and food ingredients where the food has altered characteristics;

GE foods exempt from labelling:

- Highly refined foods where the effect of the refining process is to remove novel DNA and/or protein;
- Processing aids and food additives except those where novel DNA;
- Flavours which are present in a concentration less than or equal to 0.1% in the final food;
- Food prepared at the point of sale (ie restaurant and take-away foods);
- Foods or food ingredients containing up to 1% of unintended presence of genetically modified product.

5. A vision for a Community Supported Agriculture

In response to an increasingly globalised food system, and the corresponding social, environmental and health problems which it poses, communities around the world have been developing a different vision for food production and distribution. Community Supported Agriculture (CSA) is a concept which encourages local, environmentally sustainable food production, and which supports both farmers and 'consumers' alike.

The CSA concept originated in the 1960s in Switzerland and Japan, where consumers interested in safe food and farmers seeking stable markets for their crops joined together in economic partnerships. Called "teikei" in Japan, it translates to "putting the farmers' face on food".

CSA is a partnership of mutual commitment between a farm (producer) and a community of supporters (consumers) which provides a direct economic and social link between the production and consumption of food.

CSA is a partnership of mutual commitment between a farm (producer) and a community of supporters (consumers) which provides a direct economic and social link between the production and consumption of food. Although CSA's take many forms, the essence is that supporters cover all, or part of a farm's yearly operating budget by purchasing a share of the season's harvest - up front. There is no agent or distributor between the customer and the farmer. All subscriber funds are directed to the farm or activities, which support the community-supported agriculture Co-operative.

CSA members make a commitment to support the farm throughout the season, and assume the costs, risks and bounty of growing food along with the farmer. Members help pay for seeds, fertilizer, water, equipment maintenance, labour and other costs. In return, the farm provides, to the best of its ability, a healthy supply of seasonal fresh produce throughout the growing season. Farmers can determine with certainty what to plant based on the growing plan arranged with the group. Becoming a member creates a responsible relationship between people and the food they eat, the land on which it is grown and the people who grow it.

This mutually supportive relationship between local farmers, growers and community members helps create an economically stable farm operation in which members are assured the highest quality produce, often at below retail prices. In return, farmers and growers are guaranteed a reliable market for a diverse selection of crops.

Sharing risks of food production...

One of the key differences between Community Supported Agriculture, and our current industrial food system is that the risks of production are shared equally between the people who benefit.

Under the industrial, and increasingly globalised model of agriculture farmers are subject to the whims of 'the market', which can be even more unpredictable than the weather or other natural disasters. With large mono-crops in particular, a single 'event', be it a market price drop, a hail storm, flood, insect plague or late frost, can often be enough to put a small farmer out of business. Consumers on the otherhand, remain oblivious to the problem - they are still able to purchase their tomatoes, or whatever - and probably wouldn't even notice that this time they come from Spain instead of from the Brisbane Valley.

Robyn Van En, the recognised founder of the Community Supported Agriculture movement in the USA talks about the risks of farming in the context of a CSA group.

"Even in a drought, there are certain things that you can mulch, certain things that will tolerate the drought and certain things that, if you've got a limited water supply, you can give that bit of water to. One year we had a rainstorm that dropped eight inches of rain…in three hours. It totally flooded out our winter squash patch. But that turned out to be 5% of the total share price, when it would have been a $3,000 loss to a typical farmer, which would scuttle a lot of farms" (Van En 1991).

This story highlights the fact that a trouble shared is a trouble halved or even less in the CSA model. For a farmer to lose a portion of their crop this can be devastating financially, but for the subscriber to miss out on squash for a few weeks in a row is simply an inconvenience.

In the industrial, market system, farmers are also subject to the localised whims of consumers. How easy is it to say, "I don't want any vegetables this week so I won't buy any". However, the farmer does not have the same luxury - the decisions of what to plant and how much were made long before the produce becomes available for consumption. In many cases you can't just decide to leave the fruit on the vine for an extra couple of weeks - or pick it a couple of weeks early to meet demand. If the farmers need to make a commitment to provide the food, why should 'consumers' not also make a similar commitment to purchase the food? The community supported agriculture model recognises that the community will accept their side of the responsibility.

Supporting environmentally sustainable farming practices...

While it seems like a big change for people ('consumers') to start sharing the risks of food production, we already do pay many of the costs associated with insuring crops from risk under the current farming system - only these costs are often hidden. For example, in order to offset the risk of crop failures, farmers are often encouraged to use increased amounts of pesticides or other industrial farming technologies, which, in theory, eliminate some of the variations of natural systems. As was seen in the preceding chapters, the broader community pays the longer term costs of pesticide use and industrial agriculture, through such environmental impacts as biodiversity loss, soil erosion, and nutrient run-off into waterways.

The need to eliminate risk is one of the key drivers of the 'green revolution' and the industrialisation of agriculture, in which nature is seen as a 'nuisance' to be controlled, rather than as the source of life, which we know it to be. In this way, the sharing of risk which occurs though CSA goes directly to the real issues of environmental sustainability in agriculture, by providing a model of 'risk management' which is based on community co-operation, rather than control of nature.

CSA agreements can greatly help the economic viability of small scale, organic farms, which in turn helps these farmers to survive and can stop the conversion of agricultural lands to urban sprawl in and around cities. There are also examples of farms, organic and non-organic who are implementing more sustainable land management practices including reforestation of unused land at their own expense.

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Presumably they are willing to take on this cost without any immediate return due to their close connection to the land and its environment. A community of supporters who begin to develop a closer link to the land may also be willing to participate in this important work by incorporating these costs into their share. The responsibility is once again shared by all those who benefit from the land use.

Paying the right price... at the right time...

In our existing food system, farmers receive payment for their crops at the end of the season - at exactly the wrong time. Most of the costs of food production are incurred at the start of the season - buying seed, preparing the fields, and planting. This means that farmers have a burden of debt for the period of the growing season.

In Community Supported Agriculture, farmers receive all or part of their income at the start of the season - when they need it most. As well as helping to share the risks of farming, this also can help to reduce the burden of finance on farmers. True, this does place a burden of finance onto the people who eat the food, however, as we will see later, there are a number of ways of doing this in an equitable way that does not disadvantage low income people.

De-commodifying food...

When food is seen as a 'commodity', it is basically treated as a homogenous unit - an apple from Tasmania is the same as an apple from Sweden is the same as an apple from Argentina. Food becomes divorced from any sense of place. It becomes another functional, industrial commodity to be bought and sold. 'Consumers' make their purchase choices based on the immediate and obvious characteristics of the commodity in front of them. In this context, we have witnessed an increasing requirement for food to 'look perfect', regardless of the nutritional qualities, the amount of residual pesticides, or the environmental impact of production. Perfectly good fruit is rejected because of the quality of the skin - which is not necessarily a good indicator of the quality of the fruit.

To 'de-commodify' food is to understand it's story…to know where it came from and how it was grown. People are much less likely to concern themselves with a spot on their tomato if they know that it came from the paddock down near the creek, on Sue and Arnold's place, and that the reason there are spots is because they have insects on their farm (along with an abundance of wildlife) and don't spray with pesticides.

Unfortunately in most cases, people can only guess which country their food was grown in. But with Community Supported Agriculture, because it builds direct relationships between farmers and the people who eat the food, the stories behind the food are made real and are celebrated. People know where their food comes from, how it is grown, and who tends the fields.

Celebrating community...

Experience shows that those sharing in the produce also gain satisfaction from reconnecting with the land and by participating directly in food production. An important aspect of CSA agreements is the community's involvement in the practical operation of the farm. In some cases this might involve regular work on the farm or organised working bee events that bring together all members of the CSA. Many CSA's in the US have a planting festival and a harvest festival - celebrating the cycles of nature - and helping the farmer with an influx of labour when they need it most. For some people, the benefits of becoming involved in a food community and becoming connected to the place where their food is grown may even outweigh the economic and health benefits of being part of a CSA.

Relative costs of CSA Membership

"CSA farmers in Minnesota and Wisconsin (USA) wanted to find out how the cost of a CSA member ship compared to retail prices for fresh produce. John Hendrickson and Marcy Ostrom, researchers at the UW-Madison Center for Integrated Agricultural Systems (CIAS), compared CSA produce prices to those at several other retail outlets. Hendrickson and Ostrom also surveyed CSA members for two years.

The researchers collected price information on the vegetables delivered by the three CSA farms for 13 weeks of the 1996 growing season. Each week, they recorded the type and quantity of produce delivered by each farm. They then traveled to each retail market to collect and record the prices for those items.

The study compared similar, but not necessarily identical foods i.e. not all produce in the study was local or organic:

- CSA produce was local and organic but it was not certified organic in all cases.
- Farmers market produce was local and certified organic.
- All produce from the retail food cooperative and health foods store was organic and approximately 75 percent was local.
- Grocery store produce was not local or organic.
- Supermarket produce was not organic and only occasionally local.

CSA produce cost compared to other markets. Based on a 13-week comparison. Positive values show how much more, and negative values show how much less, a CSA member paid for produce relative to the other outlets.

	Farmers market	Co-op	Health food store	Convenience Store	Supermarket
CSA 1	-$52.80	-$107.76	-$144.00	-$53.28	$21.84
CSA 2	$55.16	-$8.20	-$28.88	$21.28	$150.86
CSA 3	$90.50	$64.32	$21.86	$73.56	$189.50

These values do not include produce delivered as optional extras by any of the CSA farms and CSA 3, which appeared to provide the poorest dollar value, held free ‘you-pick’ days almost every Saturday. The value of this additional produce was not included in this study. Given the high value of some of the items, the total value savings related to the food would be significantly higher than shown in the table.

Many benefits of a CSA membership cannot be quantified. The member survey indicated that CSA members highly value extras such as you-pick days, whether they take advantage of them or not. Many members feel that CSA produce is fresher and better tasting than what they find in supermarkets. "

Extract from a Research brief provided by Center for Integrated Agricultural Systems: Research Centre at the University of Wisconsin's College of Agricultural and Life Sciences (http://www.wisc.edu/cias/pubs/briefs/052.html)

The benefits of Community Supported Agriculture

The benefits to the farmer are that:

- It provides a reliable income for the farmer who receives the money at planting - when (s)he needs it - rather than at harvest
- They are guaranteed a market for their produce
- The risks of food production are shared with the people who benefit
- The burden of debt is reduced
- It reduces loss and waste of harvested farm produce
- It can become easier to adopt environmentally sustainable farming practices
- Farmers have a direct connection to the people who benefit from their work
- Less effort needs to be put into marketing produce so more time can be spent on farm management
- The growing of food is celebrated!

The benefits to Consumers are that:

- They gain access to freshly picked, quality, organic seasonal produce at a lower cost than would otherwise be possible
- Food is 'de-commodified" - people know where their food comes from and how it is grown
- It allows shareholders to re-establish a connection with the land that many people feel they have lost
- Shareholders are encouraged to eat more fresh vegetables and less processed products
- Shareholders input into the growing plan and develop an understanding of the challenges of food production
- The growing and sharing of food is celebrated!

The benefits to the broader community are that CSA:

- Supports the biodiversity of a given area and the diversity of agriculture through the preservation of small farms producing a wide variety of crops
- Protects local farmland from urban sprawl by helping small farms to remain economically viable
- Develops a sense of social responsibility and stewardship of local land
- Reduces wasted resources in marketing produce, packaging and transport
- Supports safe, proven farming technologies rather than commerce-centric technologies such as Genetic Engineering

Farmers Markets

Farmers markets present another option for buying, eating and supporting locally grown foods. It is worth giving farmers markets a mention in this document, as this is another viable way to support local agriculture, specifically local sustainable and organic agriculture, through organic farmers markets.

Markets give people (consumers) a place where they can meet and connect. For the family farmer, it is a great way to sell their produce directly to the consumers. There are many advantages for the farmers, particularly maximising their margins by selling direct, which in turn has a positive effect / impact on the local economy. Direct selling tends to 'Grow' businesses in other ways than just giving a farmer of handful of cash on one day of the week. Networking identifies new markets, and people seeking large quantities of produce often go to markets to source them. Markets are also valuable places for farmers to trial new products, sell blemished produce or produce that would not be accepted for export.

Consumers worldwide are rediscovering the benefits of buying and consuming locally grown food. It is fresher than anything in the supermarket, where foods are often imported or they have been trucked from one side of the country to the other. Buying locally means tastier and probably more nutritious fruit & veg! Farmers markets are experiencing renewed growth around the world, with at least 3000 operating in America and a lesser but growing number in Australia.

6. Starting a CSA - some models and tools

In simplest terms, Community Supported Agriculture is a community based organisation of producers and 'consumers'. The consumers agree to provide direct, up front support for the local growers who will produce their food. The growers agree to do their best to provide a sufficient quantity and quality of food to meet the needs and expectations of the 'consumers'. Within this general arrangement of associative economy there is room for much variation, depending on the resources and desires of the participants.

If there is a common understanding among people who have been involved with CSA, it is that there is no single formula. Each group that gets started has to assess its own goals, skills and resources, and then proceed from that point. Most CSA's (in the US and Europe) have been started by farmers, but many have been started by various community, consumer and church groups (McFadden 1997).

Models schmodels...different approaches to CSA...

We have tried to describe a number of different models for CSA's, with the acknowledgment that communities can basically "choose their own adventure" and design a model that meets the needs of the people involved. There are however, a few lessons to be learnt from the experiences of CSA's in other parts of the world.

Generally CSA's develop around an existing farm and operate in a way that the farmer maintains responsibility for the management of their land and all growing aspects. The CSA supporters manage the initiation of new members, payment collection and distribution of the produce. These responsibilities can shift depending on how the relationships develop. In some cases the farmer may want to become involved in the distribution and promotion aspects of a CSA, or the supporters become more involved in farm activities like planting and picking.

Some CSA's, in order to achieve more diversity of produce, work with a group of farmers - this may mean one farmer suppliers the vegetables, another fruit crops and another dairy products. With such arrangements small farmers wouldn't have to devote land to extensive low value crops such as pumpkins or sweet corn and a larger farm wouldn't have to dedicate time to labour intensive crops like carrots or herbs. It is obviously important to recognise the different skills and soil required for different types of farming.

Still other CSA's are organised in such a way that different shares are offered for different types of produce. For example, the Silver Creek CSA in the USA offers, in addition to vegetable shares, egg, chicken, lamb and preserver shares (Greer 1999).

In areas where farming land is scarce, groups of CSA supporters have organised to co-operatively buy land and hire a farmer to grow the produce for them.

If there is a common understanding among people who have been involved with CSA, it is that there is no single formula. Each group that gets started has to assess its own goals, skills and resources, and then proceed from that point.

How big are CSA's?

For an overview of CSA in the US and Canada, a 1992 study found that most had between 35 and 200 members, and the average CSA farm was about 35 acres (Dyck 1992). A typical box of food held 2-5 kg of food per week, or enough for 2 or 3 people. Prices ran from US$10 to US$35 per week, with the average share costing US$346 for 22 weeks of food. (The range for memberships was between US$225 and US$500). There were about 1000 CSAs in the U.S. and Canada at the time.

Getting down to business...the nuts and bolts of CSA...

CSA's generally involve shares - where one share is equivalent to one season's worth of produce. A 'season' can be defined according to local growing conditions - it may be 3, 4 or 6 months or whatever the group decides.

People (consumers) purchase shares at the start of the season and this money is then given to the farmer to help offset the costs of planting etc. The farmer and shareholders then work out a growing plan - in accordance with people's tastes and the farmer's ability to grow. As food production starts, the shareholders then receive a stream of farm fresh vegetables (usually as a 'mixed box') commensurate with the value of their share.

The key issues to consider are:

Pricing:

How much should a share cost? How much do people pay and when? How can we structure the shares so as not to disadvantage low income people?

Distribution:

Who should collect the food? How often? How should the food be sorted? How should it be distributed to shareholders?

Management:

How can we manage the CSA efficiently and effectively? Who gets to make what decisions?

So how do we set a fair price for a CSA share?

Pricing is clearly an important issue for CSA's.

"The biggest contributing factor to CSA burnout and failure is setting the share price too low. Some CSA's offer low prices to attract new customers, but prices that are two low will not sustain the farmer. The idea is to share the risk and support the farmer" (University of California 1995).

The options for setting the share price are broadly based on the following 'benchmarks':

- Farmer's current market prices
- Approximate market value
- Competition based
- Costs
- Cost plus an agreed margin

In the market economy, producers strive for the highest possible price, while 'consumers' strive for the lowest possible price. In CSA's, prices are set according to what people determine is fair and sustainable. This means providing fair wages for farmers and incorporating the wider environmental and social costs associated with farming.

Because the costs of marketing and distribution are greatly reduced through CSA's (there is no fancy packaging, no glossy brochures, no wholesalers and no retailers), prices can usually be set at such a level that pays a fair wage for all work done, and that allows the CSA group to contribute actively towards land stewardship. Some CSA's have even set up a tithe system whereby a small percentage of turnover is directed towards sustainable agriculture projects or campaigns.

What about low income people who can't afford to pay up-front?

It is important to acknowledge that not all people who may want to join a CSA will be able to afford to purchase an up-front share. For a single person, this may be equivalent to 26 weeks of $20 boxes of fruit and vegetables - an up front cost of $520.

Fortunately, there are a number of ways of dealing with this.

Working shares

Working shares may be available where it is agreed that a member commits a number of hours each week in exchange for a reduced share price. This work may be through farm labour, packing, distributing produce or administration work.

Supported shares.

Supported shares are usually paid for (either fully or partly) by other members or organisations that wish to support a person to enable them to participate in the CSA. The share is then paid for by the recipient in instalments throughout the season. Well-off members (or even external supporters) could loan money into a fund which is then used to support low income members.

Savings shares

A limited number of shares may be issued which do not require up front payment. Instead, for the first season, the shareholder could pay an extra percentage on the weekly food box until they have built enough surplus to purchase their share for the next season. This would in effect be similar to a savings plan.

How is produce selected?

The produce to be grown by the farmer is defined at the start of the season - in collaboration between the farmer and the shareholders. The produce to be grown is selected according to the tastes of the shareholders, as well as the farmers' capacity to grow. Obviously some farms are better suited to different types of fruit or vegetables. In many cases, CSA's may include a few different farms in order to ensure a wider variety of produce. Generally CSA's aim to produce a realistic range of basic vegetables. Some also include speciality items, like berries, mushrooms or flowers. This makes the package more unique and less prone to negative comparisons to supermarkets based on convenience or price.

Matching produce with consumers' tastes seems to be the biggest challenge. Shareholders can be put off by wastage if they are given too much of something or a vegetable that they are unfamiliar with and have trouble using. A number of approaches have been taken to ensure that shareholders remain satisfied with the system:

- Recipes

Recipes can be developed or sourced and placed in the boxes when packed for distribution. Cooking demonstrations at drop off points can be provided for seasonal or unusual produce, perhaps a restaurant may be keen to participate in the CSA as a subscriber. The added activity of people picking up their weekly veges may even create more interest in their restaurant. Recipe sharing amongst CSA's can be a great way to connect up with other groups and keep the interest. Many CSA's also place emphasis on appropriate food keeping methods such as preserves, pickles, ferments and canning.

- Self Serve

In some CSA's, the produce is laid out in bulk at the farm or distribution point, and the shareholders package it themselves. Signs tell customers how much they can take, with bags or boxes of the appropriate size to fill, while others have scales that customers can use.

- Subscriber Credits

Subscribers use credits to make purchases. They are given a number of credits at the beginning of the season and can take whatever they want, up to a weekly credit limit. Produce that is overly abundant may be worth half a credit, while popular items and those in short supply are worth a full credit.

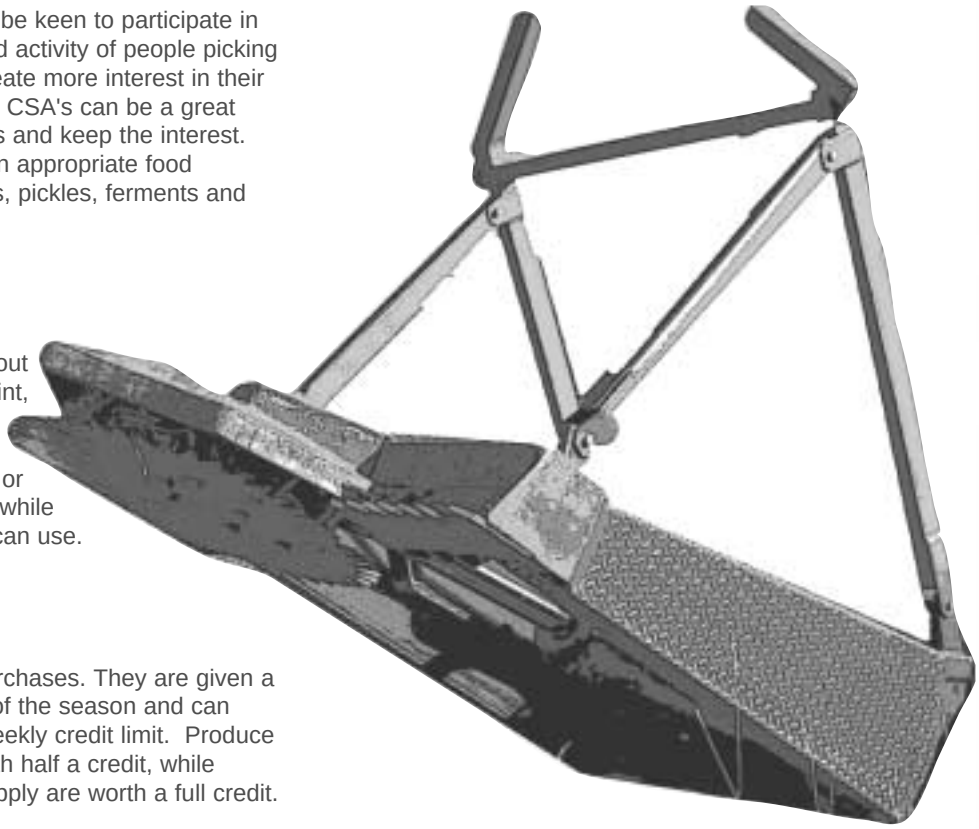
- Different share types

Some CSA provide differentiated share types to meet different needs, vegetable shares, egg shares, chicken shares, lamb shares, dairy shares etc.

What about distribution?

Where farms are located hours away from the city, produce is usually brought in to a central area and is either picked up by supporters or dropped off by the farmer. CSA farms could deliver to a public park and ask subscribers to be there during a specified time to pick up their food. Alternatively, CSA boxes could be left at health food stores or other local food business for pick up. Stores are often happy to participate free of charge as it can increase traffic to their business - or they may even be a part of the CSA. In some cases CSA's use farmer's markets as the drop off point, allowing excess produce to be sold to other people who may not be a part of the CSA (yet!).

In most CSA's packing of the boxes is done by one of the shareholders - as paid work. This creates some employment for CSA members or provides an opportunity for low income people to have working shares to reduce the upfront cost.



So you want to set up a CSA? Here's how to go about it ....

1. A core group for strategic planning and decision making is formed. The core group usually consists of farmers and representatives of the supporters. Generally the (volunteer) supporters will be responsible for all activities that happen beyond the farm gate whilst the farmer concentrates on growing and farm management.

1.1. Responsibilities of the core group:

- To establish the business model that the CSA is to run under as discussed above, particularly in relation to what involvement and responsibility subscribers and farmer/s are to have.
- To develop the promotional strategies and member education.
- To determine what is to be grown for the season.
- To develop pricing strategies.
- To manage money collected and record keeping.
- To organise the distribution - including finding a distribution site and setting procedures.

2. The farmer develops a growing plan and a budget from this information.The budget would detail costs for a growing season, including fair wages for the farmer/s.This may be for only a portion of the crops depending on the numbers of supporters to be involved.

3. The growing plan and budget are reviewed and approved by the core group. The share price is then established based on this budget.

4. The production and distribution cycle begins.

7. CSA snapshots

Community Supported Agriculture - Some living examples

Primrose Hill CSA - Australia

(Source: www.primrosehill.com.au - Peter Kenyon)

The Primrose Hill Organic Farm lies in the Hawkesbury-Nepean River catchment at Mangrove Creek, which is a 90 minute drive North of the centre of Sydney. The cultivated area is surrounded by sandstone escarpments, overlooking the Mangrove Creek. This farm is well placed to provide an abundance of fresh healthy organic food to local residents, as it is located in one of NSW's most productive agricultural regions. This region has been used for farming since the early nineteenth century. Primrose Hill is 45 acres in size, and the majority of this land is covered in native bushland, which provides a home to many species of birds and animals. Nestled amongst this are five acres of land that is under organic cultivation. The produce harvested from this land supplies the CSA.

Through biodynamic farming methods, the soil fertility of the farm is improving over time. The water for the farm comes entirely from an on-site spring as well as rainwater catchment, since the rainfall for the area is only moderate.

Primrose Hill has been a CSA farm since 1999, and is owned by Nick Pook and his partner Leanne Zuvich. Nick explains that the idea for a CSA has taken some 3 years to develop into a business plan, and that he is committed to the concept for at least the next few years. The long-term viability of this farm will be dependent upon community support and its long-term financial viability.

How does it work?

Nick selects a range of seasonal produce to be grown on the farm, based on a survey of subscriber preferences. The selection of produce and planting schedule ensures that there is enough produce of sufficient variety and quality to meet subscribers needs and tastes each week. Subscriber boxes are delivered weekly to a central pickup point in Sydney's inner West (Marrickville Town Hall). Pickup time is between 5pm - 7pm, and this pickup provides a friendly social space for CSA subscribers to have a "yarn with Nick about farm activities and the week's box contents", and to meet other subscribers. Generally the box will provide two adults with a delicious and diverse range of vegetables for a week. During some periods, top-ups may be required to add variety to the box. This aspect of the CSA system reflects its celebration of food alongside natural and seasonal cycles, and acceptance that not all vegetables are available all year round. Instead, membership in a CSA enables subscribers to learn more about the seasons in which different produce are available, and the degree to which weather conditions shape the availability of foods.

As the concept of a CSA is based on a shared commitment and mutual trust between Nick and subscribers, members of Primrose Hill Farm CSA pay half yearly in advance. This provides Nick with some financial security, and the resources required to plant crops and maintain equipment and the land throughout the season, rather than relying upon income at the point of sale. As part of ensuring on-going relations between Nick and his subscribers, there are regular subscribers meetings and also a monthly newsletter to keep people informed of farming and associated financial issues. Subscribers are also encouraged, and therefore very welcome to visit the farm on a designated day each season.

The relationship between the subscribers and Nick is very important, as "subscribers rely on Nick to provide produce to the standard and in a variety representing good value for money". Whereas, "Nick relies on the subscribers to hold their commitment to support the farm - especially when the going gets tough".

Community Supported Agriculture in Brazil

(Source: 'Cultivating Communities', 14th IFOAM Organic World Congress, 2002)

In 1997 a group of 20 families and one small-scale organic farmer located on the Serra Grande plateau in the State of Ceara, 320 kilometres from its capital Fortaleza, decided to get together. The outcome of this coming together was the creation of a meaningful connection through food that has resulted in benefits for both producers and consumers. The motivation to do this was inspired, at least in part, by the growing number of organic farmers in the area and the desire to create market outlets for this produce, as well as the interest by consumers to access clean, safe organically produced food.

As part of the experience of building this relationship between the farmer and consumers, meetings were held to talk about the costs of producing food, and the availability of vegetables throughout the season. As an outcome of these conversations, a pricing system and schemes for choosing food were established. The consumer associate pays a monthly fee for membership in this relationship, and can choose between a 'free choice' or a weekly box with 10 different varieties of organic vegetables according to the season.

Reflecting the success of this project, it currently feeds about 450 consumers with produce supplied by 4 vegetable and fruit small holders and 3 egg, poultry and milk producers. This community supported agriculture relationship has resulted in a number of benefits for local communities and the environment. Firstly, it has enabled consumers to access organically produced foods at lower prices than available through conventional retailers, and at the same time has enabled producers to receive a guaranteed income that is about double the regional average. Secondly, for an economy pressured by international trade rules to lower wages and the price of agricultural commodities, the development of this partnership has been able to guarantee a good income to smallholders, while also ensuring good prices and quality organic produce to consumers. This relationship also provides an opportunity for cultural exchange between town and country communities, and for greater understanding of the challenges and opportunities of those living in different areas of the Serra Grande plateau.

The Circle of Responsible Production - Mexico

(Source: 'Cultivating Communities', 14th IFOAM Organic World Congress, 2002)

The 'Circle of Responsible Production' project that is currently working in the state of Jalisco in Mexico, bringing together organic farmers and consumers, represents a further model of community supported agriculture. This Circle was formed during the mid-nineties and brings together three different groups of people that share common goals about achieving food security, environmental justice and the provision of healthy food, and these include producers, consumers and promoters.

By being a part of the Circle, group members report that they are better able to understand and take responsibility for the impacts of their food production and consumption practices for themselves, the local community and the environment. For producers, they believe that membership in the Circle enables them to take responsibility in terms of their impact on the environment by gaining more information on the impacts

of the ways in which food is produced. While for consumers, they believe the Circle enables them to know more about the true cost of organic food.

A further key group of people within the Circle of Responsibility are promoters, who work to develop a sense of connection and responsibility amongst producers and consumers by organising meetings for these different groups to learn more about each others experiences and concerns. Environmental educators also support the Circle by organising radio programs, presentations and workshops which discuss the dangers of agri-chemicals in the countryside, and the impacts of agri-chemicals for people's health. By highlighting the problems of chemical systems of agriculture for human health and the environment, the Circle of Responsibility provides an alternative - organic - system of food production.

Zürich Supported Agriculture - Switzerland

(Source: An exert from RAIN Magazine, Vol. XIV Number 2, Winter/Spring 1992 by Jan VanderTuin)

I was working part-time on an organic farm outside Zürich when I heard of an organic agriculture research institute in Basle. I went there with an eye open for alternatives to

market agriculture, having felt burned economically as an agricultural worker and farmer in the States. The institute director sent me to Geneva, to a successful project that addressed almost every problem I'd encountered in modern farming.

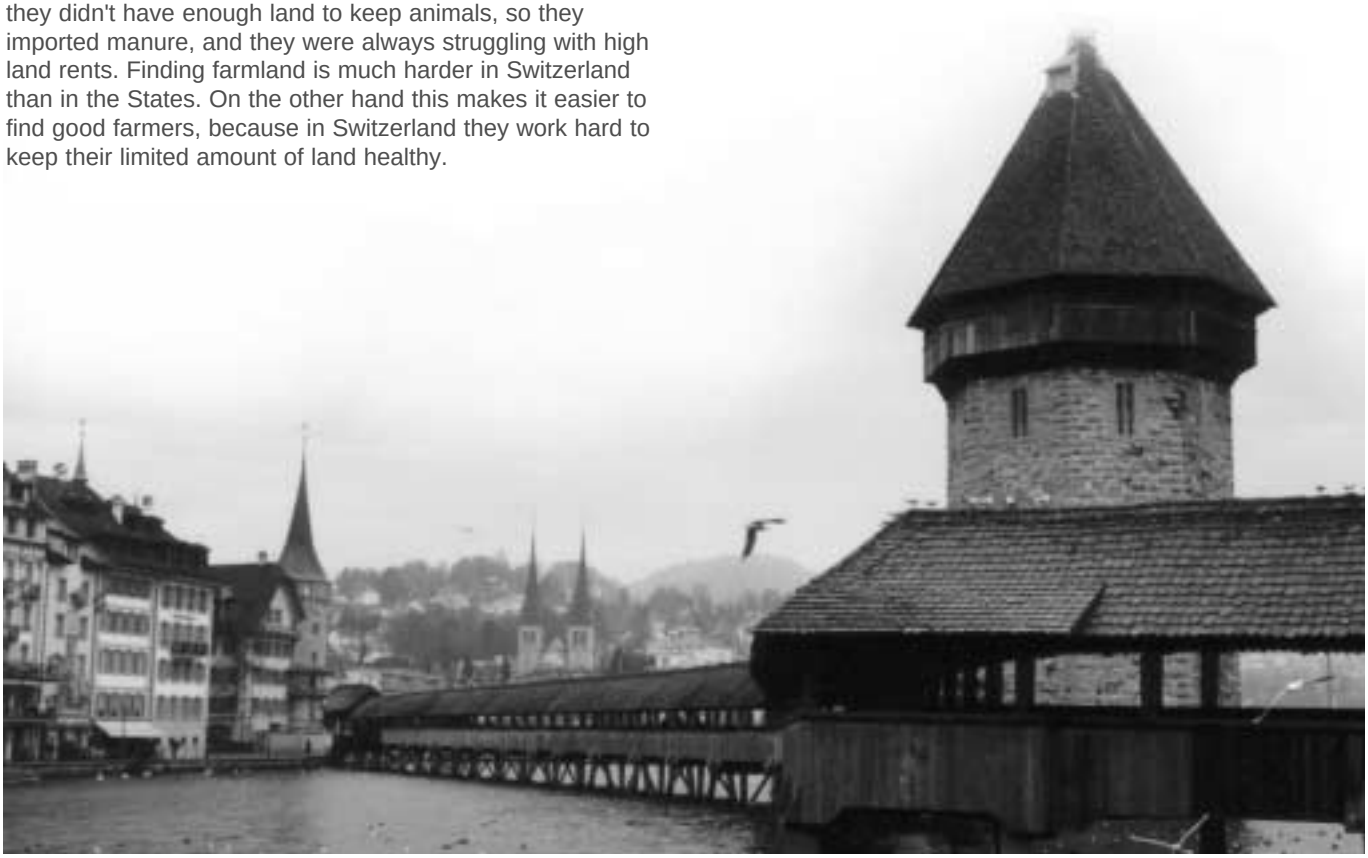
This producer-consumer food co-op in Geneva was founded by a man inspired by the co-op movement in Chile during Allende's administration. The basic idea, that consumers personally cooperate with producers to fund farming in advance, makes for more efficient use of land, since you know how much to grow, and much less stress for farmers, since you already have money to live for the year.

The Geneva group had been running for nearly a decade on this principle, with 180 families getting their produce from a small farm outside of the city. They began with small plots around town, producing somewhat haphazardly what they could with what money they got from people in advance. Although the harvests were small, the original investing consumers trusted that the growers were doing their best and would improve over time.

The share-holders included committed families who worked for international development organizations and were looking for ways to live sensibly at home. The project wasn't perfect: they didn't have enough land to keep animals, so they imported manure, and they were always struggling with high land rents. Finding farmland is much harder in Switzerland than in the States. On the other hand this makes it easier to find good farmers, because in Switzerland they work hard to keep their limited amount of land healthy.

Back in Zürich I was introduced to Christophe, a rather philosophical vendor of organic produce, nuts, cheese and raw milk. He went from suburb to suburb selling on the street out of a cute little French step-van. We collected a small core group, and I organised a meeting of local farmers, organisers from the CSA's I'd visited, and others who showed interest in starting a producer-consumer food co-op in Zürich. I was encouraged by Swiss interest in ideas that were unusual, especially since they came from someone who spoke no German. If only all of us could be so open as to accept outside perspectives that willingly.

We used the garden at an ancient Swiss farm that was extremely diverse and which had never switched to using chemicals. We set up a storefront in town for the project, which we called Topinambur, French for Jerusalem artichoke. At the storefront shareholders could pick up their share of vegetables twice a week, along with foods like olive oil and citrus fruits from various Italian co-ops we knew.



Appendix A - Web Links

http://www.attra.org/attra-pub/csa.html	Good paper including marketing ideas, sample outline for a members handbook and pointers for successful CSAs.
http://www.nal.usda.gov/afsic/csa/	Links to CSA resources in the US.
http://www.ofa.org.au/ofa/ofa.nsf/directory!openform	Database of Australian organic industries. Useful for getting a list of organic growers by region.
http://www.nal.usda.gov/afsic/csa/	Alternative Farming Systems Information Centre.
http://www.rafi.org	Excellent information resource on the corporate control of food.
http://www.isec.org.uk/	International Society for Ecology and Culture - have done excellent work on sustainable agriculture and local food.
http://www.nal.usda.gov/afsic/csa/csafarmer.htm	Community Supported Agriculture Resources for Farmers.
http://www.magna.com.au/~pacedge/permaculture/csa.html	Berry Organic CSA.
http://www.primrosehill.communityfoods.com.au/	Primrose Hill CSA.
http://vegweb.com/	Database of vegetarian recipes.

Appendix B - Books

The Permaculture Book of Ferment and Human Nutrition, by Bill Mollison (1993).

Farms of Tomorrow Revisited: Community Supported Farms, Farm Supported Communities, by Steven McFadden and Trager M. Groh (April, 1998).

On Good Land, The Autobiography of an Urban Farm, by Michael Ableman (June, 1998).

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"After reading this document I am seriously investigating setting up a CSA on our farm at Daylesford in Central Victoria where we moved a year ago. I am 100% behind CSA's as a practical and exciting way to share the risks of food production, which is essential if we are to connect with farmers and through them to the land and our biological existence within a broader ecology. Remember the economy is a wholly owned subsidiary of our environment, and not the other way around."

Scott Kinnear - (Spokesperson on Genetic Engineering & Consumer / Retailer Interests for Biological Farmers of Australia Co op Ltd)

“Consumers are demanding 'clean and green' foods, the absence of genetically modified organisms in food production systems and the adoption by farmers of more sustainable farming practices. There is no guarantee that these can be delivered via 'high tech', chemically-based, agriculture. This booklet - the first local publication to explain the advantages of Community Supported Agriculture - outlines a realistic alternative to the current system of food production and distribution. As such it will be of great value to those seeking to build a more consumer-friendly system of food provision in Australia.”

Geoffrey Lawrence - Professor of Sociology, Head, School of Social Science The University of Queensland.