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the seed

Health per Acre
Organic Solutions to Hunger

BIJA

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ORGANIC SOLUTIONS TO HUNGER

VANDANA SHIVA*

Since two decades Navdanya promotes biodiverse ecological agriculture that produces more food and less malnutrition.

Just as the food crisis is a consequence of a food system designed for profits, greed and control, we can redesign the food system for sustainability and food justice.

And this redesigning is precisely what we are doing at Navdanya. Over twenty years of research and practise led to the finding that biodiverse ecological production systems are the solution to hunger and malnutrition, to the agrarian crisis and farmers suicides, to the erosion of soil, water and biodiversity, and to the climate crisis.

*Dr. Vandana Shiva is the Founder and Managing Trustee of RFSTE/Navdanya

The green revolution and genetic engineering have been offered as "intensive" farming, creating a false impression that they produce more food per acre. However, industrial

To produce more food and nutrition, we need to design production systems which are biodiversity intensive and ecologically intensive.

agriculture is chemically intensive and capital intensive. The former produces more toxics, the latter more debt.

To produce more food and nutrition, we need to design production systems which are biodiversity intensive and ecologically intensive. Biodiversity intensive systems produce more food, nutrition and health per acre than industrial chemical monocultures. And by saving on costs of external inputs, they create more wealth per acre for farmers. When measured in terms of contribution to nutrition, health and rural incomes, industrial systems have very low productivity.

Women show great interest in viable methods of ecological farming that lead to increased production. Darwan Negi (front left), Navdanya Coordinator with years of experience, during a farmers' course.



Not only is the measure of productivity of industrial agriculture partial because all inputs, including resource and energy inputs, are not taken into account. It is also partial because not all outputs are taken into account. Only the production of monoculture commodities is counted.

Green Revolution systems have high 'yield', but low output. And it is output that feeds the soil and the people, not the yield of globally traded commodities, which are used for biofuel or animal feed.

Ecological agriculture is based on mixed and rotational cropping, and the production of a diversity of crops.

Navdanya's work on biodiverse farming has shown that the more biodiversity on the farm, the higher the output (For more information read the study Biodiversity-based Productivity: A New Paradigm for Food Security, Navdanya, 2009; see publications page 36).

Polycultures: No loss of land and biodiversity

Perhaps one of the most fallacious myths propagated by Green Revolution protagonists is the assertion that high yielding varieties HYVs have reduced the acreage, therefore preserving millions of hectares of biodiversity. Perpetuating this myth, Dennis Avery, a promoter of chemical farming has recently written, "Is the Green Movement finally ready to face the global need to triple crop yields and drop its dedication to land selfish organic farming? The planet's biodiversity is at stake". India's experience tells us that instead of more land being released for conservation, by destroying diversity and multiple uses of land, the industrial system actually increases pressure on the land since each acre of a monoculture provides a single output, and the displaced outputs have to be grown on additional acres. And globally, the chemical intensive land extensive system has had to spread to the Amazon rainforest. This is not land saving or biodiversity conserving, it is land destroying and biodiversity destroying agriculture.

The polycultures of ecological agricultural systems have evolved because more output can be harvested from a given area planted with diverse crops than from an equivalent area consisting of separate patches of monocultures. For example, in plantings of sorghum and pigeon pea mixtures, one hectare will produce the same yields as 0.94 hectares of sorghum monoculture and 0.68 hectares of pigeon pea monoculture. Thus one hectare of polyculture produces what 1.62 hectares of monoculture can produce. This is called the land equivalent ratio (LER).

Green Revolution systems have high 'yield', but low output. And it is output that feeds the soil and the people.

Increased land-use efficiency and higher LER has been reported for polycultures of: millet/groundnut 1.26; maize/bean 1.38; millet/sorghum 1.53; maize/pigeon pea 1.85; maize/cocoyan/sweet potato 2.08; cassava/maize/groundnut 2.51. The monocultures of the Green Revolution thus actually reduced food yields per acre previously achieved through mixtures of diverse crops. This falsifies the argument often made that chemically intensive agriculture and genetic engineering will save biodiversity by releasing land from food production. In fact, since monocultures require more land, biodiversity is destroyed twice over – once on the farm, and then on the additional acreage required to produce the outputs a monoculture has displaced. Further, since chemicals kill diverse species, chemical agriculture can hardly be promoted as conserving biodiversity.

Not only is the productivity measure distorted by ignoring resource inputs, and only focussing on labour, it is also distorted by looking only at a single and partial output rather than the total output.

Mixed cropping: More productivity and nutritional value

A myth promoted by the one-dimensional monoculture paradigm is that biodiversity reduces yields and productivity, and monocultures increase yields and productivity. However, since yields and productivity are theoretically constructed terms, they change according to the context. Yield usually refers to production per unit area of a single crop. Planting only one crop in the entire field as a monoculture will of course increase its yield. Planting multiple crops in a mixture will have low yields of individual crops, but will have high total output of food.

In the terraced fields of the Himalayas, women peasants grow jhangora (barnyard millet), marsha (amaranth), tur (pigeon pea), urad (black gram), gahat (horse gram), soya bean (glysine max), bhat (glysine soya), rayans (rice bean), swanta (cow pea), koda (finger millet) in mixtures and rotations. The total output, even in bad years, is six times more than industrially farmed rice monocultures.

For example, a mixed organic farm in the Himalaya produces 9000 kg of maize, radish, mustard greens and peas. A chemically farmed maize monoculture yields 5000 kg. This is 1000 kg more maize than in the biodiverse system but 4000 kg less food. In terms of nutrition per acre, the biodiverse farming system is much more productive than the chemical monocultures. It provides 305 (g) of calcium and 29.3 (g) of iron compared to the monoculture.

Similarly a biodiverse intensive system with mandua (finger millet), jhangora (barnyard millet), gahat (horsegram) and bhat (indigenous soya) gives 1400 kg of food per acre compared to a chemical rice monoculture which yields 1200 kg. In terms of nutrition, the former gives 338 kg of protein compared to 90 kg in the monoculture.

A baranaja (twelve crop) system produces 2680 kg of food per acre compared to 2186 of a maize monocul-

ture. In terms of protein the production is 4214 vs 242 kg, carbohydrate 1622.94 vs 1447.14, fat 131.8 kg vs 78.7 kg, and energy 9359470 kcal vs 7476120 kcal. In terms of vitamins, banana produces 1360.9 mg vs 1967 mg beta carotene in case of maize monoculture, folic acid 2206.3 mg to 437 mg. Minerals are – calcium 5052 g vs 218 g, iron 143.9 g vs 50.3 g, phosphorus 9505 g vs 7607 g, magnesium 3604 g vs 3038 g, potassium 11186 g vs 6252 g (Ref: Study *Health Per Acre*, New Delhi, 2011, see also p. 6 and publications p. 36).

The polycultures of ecological agricultural systems have evolved because more output can be harvested from a given area planted with diverse crops than from an equivalent area consisting of separate patches of monocultures.

Since providing nutrition and nourishment are the main aims of agriculture/food production, nutrition per acre is a more accurate measure of productivity than yield of a commodity in a monoculture. Also, the higher nutrition in biodiverse intensive farms further intensifies the ecological processes.

The main argument used for the industrialization of food and corporatization of agriculture is the low productivity of the small farmer. Surely these families on their little plots of land are incapable of meeting the world's



need for food! Industrial agriculture claims that it increases yields, hence creating the image that more food is produced per unit acre by industrial means than by the traditional practices of small holders.

Industrial agriculture productivity is high only in the restricted context of a 'part of a part' of the system whether it is of the forest or of the farm. For example, 'high-yield' plantations pick one tree species among thousands, for yields of one part of the tree (e.g. wood pulp), whereas traditional forestry practices use many parts of many forest species.

'High-yield' Green Revolution cropping patterns select one crop among hundreds, such as wheat, for the use of just one part, the grain. These high partial yields do not translate into high

total yields, because everything else in the farm system goes to waste. Usually the yield of a single-crop like wheat or maize is singled out and compared to yields of new varieties. This calculation is biased to make the new varieties appear 'high-yielding' even when, at the systems level, they may not be.

Traditional farming systems are based on mixed and rotational cropping systems of cereals, pulses, and oil seeds with different varieties of each crop, while the Green Revolution package is based on genetically uniform monocultures. No realistic assessments are ever made of the yield of the diverse crop outputs in the mixed and rotational systems.

Productivity is quite different, however, when it is measured in

the context of diversity. Biodiversity-based measures of productivity show that small farmers can feed the world. Their multiple yields result in truly high productivity, composed as they are of the multiple yields of diverse species used for diverse purposes. Thus productivity is not lower on smaller units of land: on the contrary, it is higher. In Brazil, the productivity of a farm of up to 10 hectares was \$85 hectare while the productivity of a 500-hectare farm was \$2 per hectare. In India, a farm of up to 5 acres had a productivity of Rs. 735 per acre, while a 35-acre farm had a productivity of Rs. 346 per acre.

Diversity produces more than monocultures. But monocultures are profitable to industry - both for mar-



Terraced fields in Uttarakhand.



Navdanya women farmers in Guptkashi, Uttarakhand.

The alternative to industrial agriculture

The higher productivity of diversity-based systems indicates that there is an alternative to genetic engineering and industrial agriculture – an alternative that is more ecological and more equitable. This alternative is based on the intensification of biodiversity – intensifying through integrating diverse species – in place of chemical intensification, which promotes monocultures and, unlike its ecological alternative, fails to take all outputs of all species into account.

As Navdanya's work on biodiversity based organic farming shows, India could feed twice its population through biodiversity intensification.

The UN report submitted to the General Assembly on 20th December, 2010 (Report submitted to the Special Rapporteur on the Right to Food, Olivier de Schutter) also confirms that ecological agriculture produces more food (p.8), "resource conserving, low-external-input techniques have a proven potential to significantly improve yields", and "ecological interventions on 12.6 million farms increased crop yields of 79 percent".

The UNCTAD-UNEP study in *Organic Agriculture and Food Security in Africa*, NY/Geneva, United Nations, 2008, found (p.16), "that ecological methods increase crop yields by 116 percent for all of Africa and 128 percent in East Africa.

Monocultures are profitable to industry-both for markets and political control.

kets and political control. The shift from high productivity diversity to low productivity monocultures is possible because the resources destroyed are taken from the poor, while the higher commodity production brings benefits to those with economic power. The polluter does not pay in industrial agriculture both of the chemical era or the biotechnology era. Ironically, while the poor go hungry, it is the hunger of the poor which is used to justify the agricultural strategies which deepen their hunger.

Diversity has been destroyed in agriculture on the assumption that it is associated with low productivity. This is however, a false assumption both at the level of individual crops as well as at the level of farming systems. Diverse native varieties are often as high yielding or higher yielding than industrially bred varieties.

Comparative yields of native and Green Revolution varieties in farmers' fields have been assessed by Navdanya. Green Revolution varieties are not higher yielding under the conditions of low capital availability and fragile ecosystems. Farmers' varieties are not intrinsically low yielding and Green Revolution varieties or industrial varieties are not intrinsically high yielding.

The measurement of yields and productivity in the Green Revolution as well as in the genetic engineering paradigm is divorced from seeing how the processes of increasing single species, single function output affect the processes that sustain the condition for agricultural production - both by reducing species and functional diversity of farming systems as well as by replacing internal inputs provided by biodiversity with hazardous agrichemicals. While

these reductionist categories of yield and productivity allow a higher measurement of harvestable yields of single commodities, they exclude the measurement of the ecological destruction that affects future yields and the destruction of diverse outputs from biodiversity rich systems.

Productivity in ecological farming practices is high if it is remembered that these are based on internal inputs and very little external inputs are required. While the Green Revolution has been projected as having increased productivity in the absolute sense, when resource utilisation is taken into account, it has been found to be counter productive and resource inefficient.

What does all this evidence mean in terms of feeding the world? It becomes clear that industrial agriculture has actually reduced food security by destroying small farms and the small farmers' capacity to produce these diverse outputs of nutritious crops. Both from the point of view of food

productivity and food entitlements, industrial agriculture is deficient as compared to diversity-based internal input systems. Protecting small farms which conserve biodiversity is thus a food security imperative.

Data shows that, everywhere in the world, biodiverse small farms produce more agricultural output per unit area than large farms. Even in the USA, small farms of 27 acres or less have 10 times greater dollar output per acre than larger farms. It is therefore time to switch from measuring monoculture yields to assessing biodiversity outputs in farming systems.

At the level of individual peasant farms and at national level the Green Revolution has led to a decline in food security. The same applies to the Gene Revolution. What the Green Revolution achieved was an increase in industrial inputs, which, of course, created growth for the agrichemical and fossil-fuel industry. But this increased consumption of toxins and energy by the agricultural sector did not translate into more food.

Today, most of the one billion people who lack adequate access to food are rural communities whose entitlements have collapsed either due to environmental degradation or due to livelihood destruction and negative terms of trade. Food security is therefore intimately connected to the livelihood security of small rural producers. There are proven alternatives to industrial agriculture and genetic engineering, and these are based on small farms and ecological methods. Sound resource-use combined with social justice is the path of sustainability in agriculture that we should be taking.

Protecting small farms which conserve biodiversity is a food security imperative.

Biodiversity-based measures of productivity show that small farmers can feed the world.



HEALTH PER ACRE MEETING THE NUTRITIONAL CHALLENGE THROUGH ORGANIC FARMING

DR. VAIBHAV SINGH*



India is not shining but starving. Every fourth Indian is hungry. Every third woman is severely malnourished. Every second child is "wasted". Despite technological advancements, hunger has been increasing.

Every individual requires a diversified diet comprising of varieties of cereals, pulses, milk, five to ten

varieties of seasonal vegetables and fruits, nuts, spices, and traditional food items. We are a nation of 1.21 billion individuals. The food we consume, the water we drink and the air we breathe form a large part of the external input needed by the human body. If our food, our water and our air is polluted, pollution enters our bodies and minds.

As a member of the transplant team at the hospital I work at, I see young people who want to undergo renal transplant surgery at our

hospital. Contrary to my perception as medical student – when I thought that renal failure occurs at old age – as a resident doctor I notice that most of the renal transplants in my hospital are performed on young people, some even younger than twenty years of age. In one of our cases we had suggested a probable cause of renal failure. But despite two renal biopsies that were inconclusive, we still did not know why our 16 year old male patient suffered from a renal failure.

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According to medical literature 20 % of Americans above the age of twenty suffer from chronic kidney disease - an astonishing figure of one fifth of the adult American population.

Being part of the transplant team I have questions: Are we sure of the food we consume, the water we drink, and the air we breathe? The kidneys are excretory organs - they excrete toxic substances from the body by forming urine. When one thinks about the source of toxics that damage kidneys up to the point of failure, one realizes that there are four sources: food, water, air, and one's own body. I cannot think of a fifth one. But I think it is possible that the food, the water, and the air that are supplying toxic substances to our bodies are slowly and constantly damaging them - thus leading to 'deficient' individuals and, ultimately, a crippled nation.

If 'yield per acre' is chosen as a benchmark to measure the output per acre of certain food commodities, and if maximizing this output is

the aim, this gives peace of mind to the financial institutions at Dalal Street. (ed. Dalal Street in downtown Mumbai is the address of the Bombay Stock Exchange.) However, problems arise when corporations, sensitive to the slightest movement in the financial markets, try to market their insurance and their security as the only means to combat hunger and malnutrition - and as the only method through which the world can improve the health of its inhabitants. Security at the trade desk felt at the cost of 250 million hungry and undernourished Indians is not accidental; it is rather an attempt to rob one fifth of Indians of good health and of their future. It is sad that our Government - blinded by the 'shine' of India, deaf towards the suicides of our farmers, surrounded by scandals and scams - favours corporate security. And this 'security' means hunger and malnutrition for a large part of the Indian population - the poor, among them many women and the children, dalits, tribals, and all the down trodden.

Working in a corporate hospital and looking at the profile of the patients, I see that the poor Indian is suffering from under-nutrition, infection, accidents, deficiency disorders, cancers, etc., and that the rich is suffering from cardiovascular diseases (CVDs), diabetes, cancers, obesity, chronic degenerative disorders, etc. Both these trends are somehow related to farming practices and to the ill effects of industrial farming. The processed food industry - having a mutually beneficial relationship with conventional agriculture - adds new cases of diabetes, CVDs, and cancers to the already crowded wards of the city hospitals. Mc Donald's way of farming would be to grow all its potatoes on one farm - potatoes with a fixed texture, colour, size, shape, and taste - and to increase corporate profits by increasing mechanization and decreasing demand for human labour. This kind of 'promise' to resolve the food crisis is one of the reasons for the suicide of 2,50,000 poor Indian farmers in a decade, and it has left 250 million Indians undernourished.



Dr. Vaibhav Singh (left) during the seminar 'Health per Acre' in New Delhi.

There are several problems in using "yield per acre" as a benchmark of efficiency. Yield per acre measures only one crop grown in monoculture and ignores the nutrition lost by displacing biodiversity. The Green Revolution led to the increase of rice and wheat with chemical and capital intensive farming but it displaced pulses, oil seeds, millets, vegetable and fruits.

We did a retrospective analysis, and assessed the nutrition produced per acre of farm land through organic and conventional agriculture. We obtained 12 case studies with data on yield with the two farming practices which Navdanya collected in Sikkim, Rajasthan, Kerala, and Uttaranchal. We used data on nutrition in each food type by referring to 'Nutritive value of Indian foods' published by the National Institute of Nutrition, ICMR, Hyderabad.

We worked with the data of the 12 studies to assess the nutritive value per acre of farmland. These show that organic mixed cropping produces more nutrition per acre farmland than

conventional monocropping, and that the overall profitability in mixed cropping is higher than in mono-cropping. In the following (see next page) an example highlighting the difference between organic and conventional farming. (Complete data available in 'Health per Acre – Organic solutions to hunger and malnutrition', Navdanya/ RFSTE, 2011).

More nutrition - more nutrients

The table 'Average Production' shows that if we do mixed cropping we produce 124 kg more protein than in mono-cropping. 124 kg is enough to fulfil the protein requirement of 2000 adults per day. The total cultivable land in India is 452202848 acres. If it would be used for mixed organic cropping instead of mono-cropping, India could produce 56073153 metric tons more protein and fulfil the protein requirement of an additional 2.5 billion adults for an entire year. If India adapts organic mixed cropping, we can eradicate the protein energy malnutrition from the planet.

If an acre of farmland is used for organic mixed cropping instead of conventional mono-cropping, 2174 mg more carotene could be produced - enough to fulfil the vitamin A requirement of approximately 900 adults for a day. On a national scale, we could produce 982670 metric tons of carotene. In other words, we would produce 164106 metric tons more of retinol equivalent (RE / 1 unit of B-carotene = 0.167 unit of RE). 164106 metric tons of RE is sufficient to satisfy the daily Vitamin A requirement of 750 million adults for 1 year. 164106 metric tons of RE is sufficient to completely treat and reverse 1.3 billion early cases of Xerophthalmia. If we use the sample average amount of carotene produced per acre farmland by organic mixed cropping to calculate the total amount of carotene produced nationally, we can produce enough carotene to fulfil the daily Vitamin A requirement of 1.5 billion adults for one year.

When an acre of farmland is used for organic mixed cropping in place of conventional mono-cropping

Release of the study 'Health per Acre'. From left: Dr. Mira Shiva, MD, Initiative for Health Equity & Society; Dr. Sarla Gopalan, Former Secretary of Department of Women and Child Development; Dr. Sayeda Hameed, Member Planning Commission of India; Dr. Vandana Shiva, Founder Navdanya/RFSTE, and Author 'Health per Acre'.



39g of extra iron is produced. This amount is sufficient to nourish 16,250 lactating mothers with iron for a day. On a national scale, the extra amount of iron produced organically would be sufficient to meet the requirement of 20 billion hypothetical lactating mothers. To reach this conclusion, we assumed that all of the iron consumed would be absorbed. Overall, organic mixed cropping produces 72% more trace minerals on an average than conventional mono- cropping does.

Organic mixed farming – adapted on a national level - could solve the crisis of malnutrition, starvation, and poor health. The intervention that promises to solve this crisis should have many facets and levels. By facets we mean we will have to choose areas where change is needed - maximizing food production, controlling inflation, distributing justly and equitably, educating and implementing sound health policies. By levels we mean that each area of intervention should identify the target and the limiting factors and put in effort accordingly - diversifying food production, controlling food inflation, distributing in rural areas and among scheduled tribes and castes, educating women, and implementing policies that cater to the need of children under five and mothers.

Maximizing nutritional production is a more appropriate approach than maximizing the production of specific food items. Although malnutrition refers to both - over and under nutrition - under nutrition has reached a crisis stage in India. Moreover, macronutrient and micronutrient deficiencies have to be dealt with simultaneously. Health per acre is a concept that covers nutrition produced per acre of farm land, that deals with diversification of farm lands because dietary diversification is the current recommendation, that describes the quality of food produced, and that takes into account the environmental and ecological cost of food produced.



The real concept of health

Organic biodiversity based mixed cropping is the foundation of the concept of health per acre. It is a system of farming that increases nutrition produced per acre of farmland. A great amount of food, as well as a variety of food, produced and consumed at local level, helps in equitable distribution. The system promotes the growing of traditional local foods, and hence, also promotes the consumption of such foods at local level. The wide variety of local food items covers the entire profile of nutrients required by the human body. Organic mixed cropping methods maximize the nutrition produced per acre and, hence, help control inflation of food items. Another reason why such cropping method would control food prices is that food produced and consumed locally avoids the huge costs of transportation and storage, usually included in the price the consumer pays for food item. People usually know quite a lot about their local food items and their health benefits. As a result, educating people regarding the various aspects of health and nutrition becomes easier. The implementation of such knowledge also becomes easier as adaption, availability and cost are not mutually exclusive, but

rather facilitating one another. The approach focuses more on the root cause of the problem of under nutrition rather than on the treatment of current cases of malnutrition. Treatment is just one aspect of solving the crisis. However, irrespective of how sophisticated the treatment we offer is, under nutrition cannot be eradicated until we make the adequate quantity of a variety of food available to the target population.

A few food items produced abundantly cannot ensure an ideal blend of nutrients supplied to every person in society because any single food item is not the adequate source of all nutrients needed by the human body. To ensure proper nutrition we need dietary diversification, and to ensure dietary diversification, we need to diversify our farmlands.

The yield per acre of specific food items, used as a measure of effectiveness, appeared to favour conventional mono cropping over organic mixed cropping. However, when nutrition produced per acre of farmland in the two farming systems is compared, the result is strikingly different and speaks for itself: Organic biodiversity based mixed cropping is the sustainable, time tested, reasonable, intelligent, cost effective and ecological solution to the problem of malnutrition in India.

Yield per acre

Organic mixed cropping		Conventional mono-cropping	
Maize	4 qt	Maize	5 qt
Radish	2 qt		
Mustard leaves	100 bundles		
Peas	2 qt		
Total	9 qt	Total	5 qt.

Analysis of macronutrients in kg/acre

Organic mixed cropping		Conventional mono-cropping	
Protein	64.2 kg		55.5 kg
Carbohydrate	304.0 kg		331.0 kg
Fat	17.2 kg		18.0 kg
Energy	1622000 kcal		1710000 kcal

Analysis of vitamins per acre

Organic mixed cropping		Conventional mono-cropping	
Carotene	3154 mg		450 mg
Thiamine	2330 mg		2100 mg
Riboflavin	460 mg		500 mg
Niacin	980 mg		9000 mg
Folic acid	80 mg		100 mg
Vitamin C	81000 mg		0
Choline	166000 mg		0

Analysis of major minerals per acre

Organic mixed cropping		Conventional mono-cropping	
Calcium	305.0 g		50.0 g
Iron	29.3 g		11.5 g
Phosphorus	1740.0 g		1740.0 g
Magnesium	626.0 g		695.0 g
Sodium	145.2 g		79.5 g
Potassium	1878.0 g		1430.0 g
Chloride	172.0 g		165.0 g

Analysis of trace elements per acre

Organic mixed cropping		Conventional mono-cropping	
Copper	6420 mg		2050 mg
Manganese	3030 mg		2400 mg
Molybdenum	790 mg		190 mg
Zinc	14240 mg		14000 mg
Chromium	48 mg		20 mg
Sulfur	645000 mg		570000 mg

**Average production, across 12 case studies, in organic mixed cropping
and conventional mono- cropping in kg/acre**

Organic mixed cropping		Conventional mono-cropping
Protein	240 kg/acre	116 kg/acre
Carbohydrate	833 kg/acre	785 kg/acre
Fat	66 kg/acre	23 kg/acre
Carotene	2919 mg/acre	745 mg/acre
Thiamine	6550 mg/acre	3991 mg/acre
Riboflavin	3179 mg/acre	1685 mg/acre
Niacin	31443 mg/acre	28381 mg/acre
B6	821 mg/acre	475 mg/acre
Folic acid	878 mg/acre	328 mg/acre
Vitamin C	24145 mg/acre	36833 mg/acre
Calcium	2166 g/acre	731 g/acre
Iron	82 g/acre	43 g/acre
Phosphorous	5158 g/acre	3117 g/acre
Magnesium	1866 g/acre	1496 g/acre
Copper	12591 mg/acre	6101 mg/acre
Manganese	25124 mg/acre	15629 mg/acre
Molybdenum	3694 mg/acre	1077 mg/acre
Zinc	43977 mg/acre	26769 mg/acre
Chromium	345 mg/acre	157 mg/acre

For a future with a perspective: Organic biodiverse farming provides more nutrition and more nutrients.



*Let food be your
medicine and
medicine be
your food.*
Hippocrates

MEETING FOOD SECURITY BY PRODUCING ORGANIC

Organic agriculture is the requirement of today and the recipe to feed the world's population of tomorrow.

(Compilation dr) The voices promoting organic agriculture are getting stronger, and there is a growing number of farmers and consumers joining the organic community. Now the political forces are bound to listen to the dictate of reason of the hour and to support organic agriculture by all means and whole heartedly.

Organic is more than just a label

In February 2011 the International Federation of Organic Agriculture Movements IFOAM and the Research Institute for Organic Agriculture FiBL, Switzerland, have released their latest survey The World of Organic Agriculture 2011. The report shows that even in the face of the global economic crisis, Organic Agriculture has not ceased to grow.

Organic is a development strategy

Food Security is the focus of IFOAM. With its campaign 'People before commodities' it is fighting to secure a fair wage for all certified and uncertified organic farmers in the global North and South. IFOAM represents the organic movement in international forums, bringing an alternative to industrial agriculture to the discussion table. The mainstream focus on industrial agriculture has created a paradox: the world produces 25% more than people require for a healthy diet, but still one billion are starving - and 70% of them live in rural areas. The global organic movement knows that a gradual conversion of global agriculture to small-scale organic farming would go a long way toward remedying this imbalance. Its key strategy is eco-intensification.

Organic can nourish the world

Approximately 37.2 million hectares of agricultural land are now managed organically. The number of countries in the global South with organically managed land has increased. And each year more people can nourish their families thanks to organic farming. If international policies supported this growth, the contribution of organic to the world food supply could be far greater.

Organic agriculture worldwide

In the following some key results of the IFOAM/FiBL survey on certified organic agriculture worldwide (data as of end of 2009/statistical information on organic agriculture available from 160 countries / see also tables page xy):

- There are 37.2 million hectares of organic agricultural land (including in-conversion areas).
- The regions with the largest areas of organic agricultural land are Oceania (12.2 million hectares), Europe (9.3 million hectares), and Latin America (8.6 million hectares).
- The countries with the most organic agricultural land are Australia, Argentina, and the United States.
- Currently 0.9 percent of the world's agricultural land is organic. However, some countries reach far higher shares: Falkland Islands (35.7 percent), Liechtenstein (26.9 percent), and Austria (18.5 percent). Seven countries have more than ten percent organic land.
- Compared to the previous survey, organic land increased by two million hectares or six percent. Growth was strongest in Europe, where the area increased by almost one million hectares. The countries with the largest increases were Argentina, Turkey, and Spain.
- Apart from agricultural land, there are further organic areas, most of these being areas for wild collection. These areas constitute 41.9 million hectares and have increased by 10 million hectares since 2008.
- There were 1.8 million producers in 2009, an increase of 31 percent since 2008, mainly due to a large increase in India. Forty percent of the world's organic producers are in Asia, followed by Africa (28 percent), and Latin America (16 percent). The countries with the most producers are India (677'257), Uganda (187'893), and Mexico (128'862).
- Almost two-thirds of the organic agricultural land of 37.2 million hectares in 2009 was grassland/grazing areas (23 million hectares).

- With a total of at least 5.5 million hectares, arable land constitutes 15 percent of the organic agricultural land. An increase of 13.2 percent compared with 2008 was reported. Most of this category of land is used for cereals including rice (2.5 million hectares), followed by green fodder from arable land (1.8 million hectares), and vegetables (0.22 million hectares).
- Permanent crops account for approximately six percent of the organic agricultural land, amounting to 2.4 million hectares. Compared with the previous survey, almost half a million hectares more were reported. The most important crops are coffee (with 0.54 million hectares reported, constituting one-fifth of the organic permanent cropland), followed by olives (0.49 million hectares), cocoa (0.26 million hectares), nuts (0.2 million hectares), and grapes (0.19 million hectares).

Agro-Ecology and the Right to Food

According to the UN report 'Agro-Ecology and the Right to Food' - presented on 8th March, 2011 before the UN Human Rights Council in Geneva - small-scale farmers can double food production within 10 years by using ecological methods. Based on an extensive review of the recent scientific literature, the report calls for a fundamental shift towards agro-ecology as a way to boost food production and improve the situation of the poorest.

"To feed 9 billion people in 2050, we urgently need to adopt the most efficient farming techniques available," says Olivier De Schutter, UN Special Rapporteur on the Right to Food and author of the report. "Today's scientific evidence demonstrates that agro-ecological methods outperform the use of chemical fertilizers in boosting food production where the hungry live -- especially in unfavourable environments."

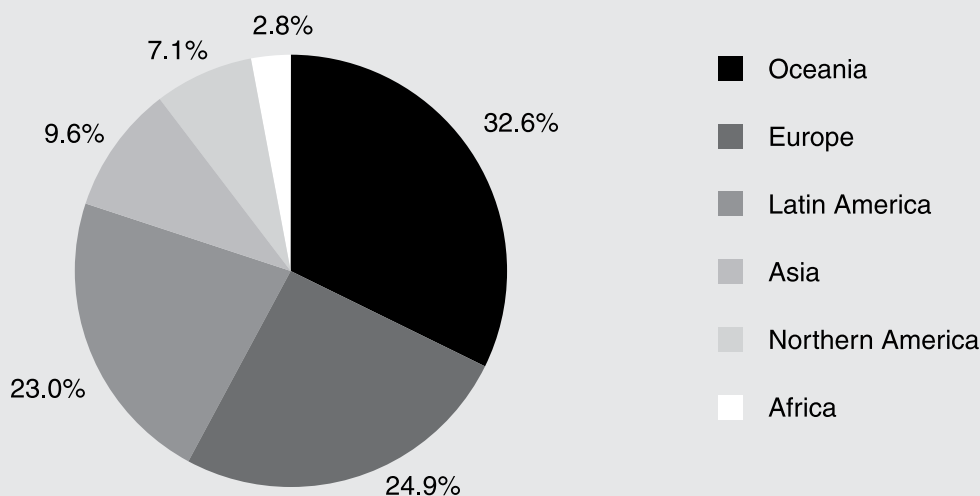
Agro-ecology applies ecological science to the design of agricultural systems that can help put an end to food crises and address climate-change and poverty challenges. It enhances soils productivity and protects the crops against pests by relying on the natural environment such as beneficial trees, plants, animals and insects.

"To date, agro-ecological projects have shown an average crop yield increase of 80% in 57 developing countries, with an average increase of 116% for all African projects," De Schutter says. "Recent projects conducted in 20 African countries demonstrated a doubling of crop yields over a period of 3-10 years."

"Conventional farming relies on expensive inputs, fuels climate change and is not resilient to climatic shocks. It simply is not the best choice anymore today," De Schutter stresses. "A large segment of the scientific community now acknowledges the positive impacts of agro-ecology on food production, poverty alleviation and climate change mitigation -- and this is what is needed in a world of limited resources. Malawi, a country that launched a massive chemical fertilizer subsidy program a few years ago, is now implementing agro-ecology, benefiting more than 1.3 million of the poorest people, with maize yields increasing from 1 ton/ha to 2-3 tons/ha."

The report also points out that projects in Indonesia, Vietnam and Bangladesh recorded up to 92 % reduction in insecticide use for rice, leading to important savings for poor farmers. "Knowledge came to replace pesticides and fertilizers. This was a winning bet, and comparable results abound in other African, Asian and Latin American countries. The approach is also gaining ground in countries such as the United States, Germany or France," states the Rapporteur. "However, despite its impressive potential in realizing the right to food for all, agro-ecology is still insufficiently backed by

Distribution of organic agricultural land by region 2009



Source: FiBL and IFOAM Survey 2010

public policies and consequently hardly goes beyond the experimental stage."

"Agro-ecology is a knowledge-intensive approach. It requires public policies supporting agricultural research and participative extension services," De Schutter says. "States and donors have a key role to play here. Private companies will not invest time and money in practices that cannot be rewarded by patents, and which don't open markets for chemical products or 'improved' seeds."

The Special Rapporteur on the right to food also urges States to support small-scale farmers' organizations, which demonstrated a great ability to disseminate the best agro-ecological practices among their members. "Strengthening social organizations proves to be as impactful as distributing fertilizers. Small-scale farmers and scientists can create innovative practices when they partner", De Schutter explains.

"We won't solve hunger and stop climate change with industrial farming on large plantations. The solution lies in supporting small-scale farmers' knowledge and experimentation, and in raising incomes of smallholders so as to contribute to rural development."

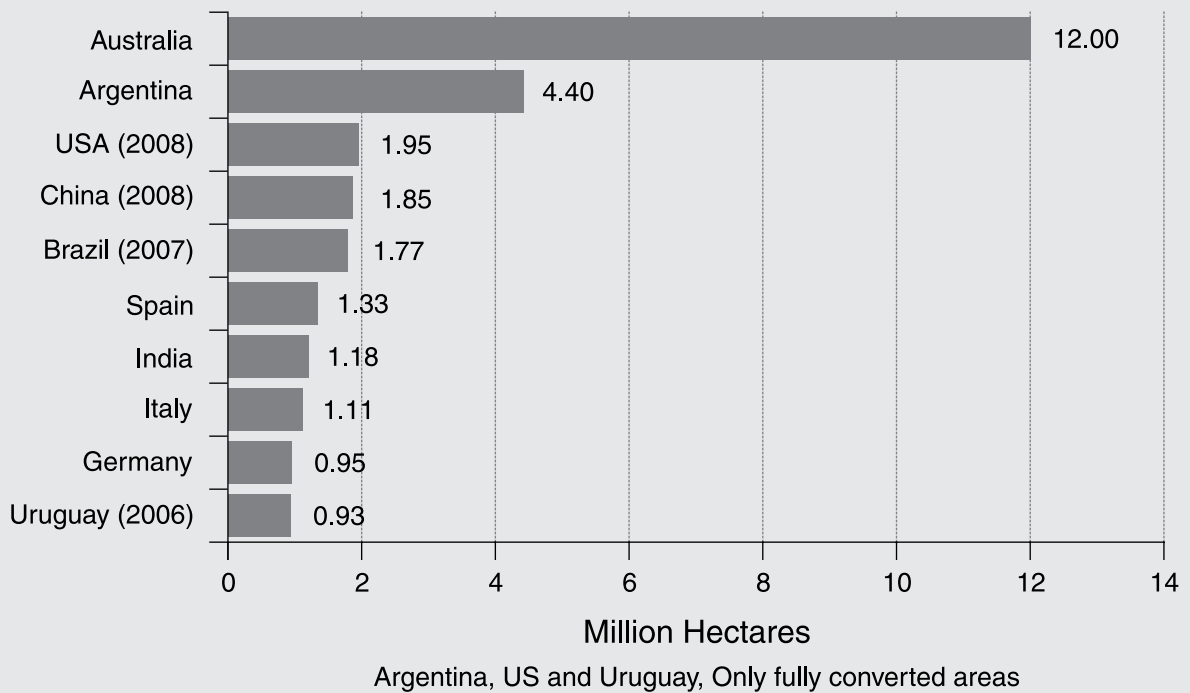
"If key stakeholders support the measures identified in the report, we can see a doubling of food production within 5 to 10 years in some regions where the hungry live," De Schutter says. "Whether or not we will succeed, this transition will depend on our ability to learn faster from recent innovations. We need to go fast if we want to avoid repeated food and climate disasters in the 21st century."



Around the world the number of organic cultivators (above farmers in India and Africa) and people who value and cherish organic food increases (below Restaurant specializing in organic food, New York).

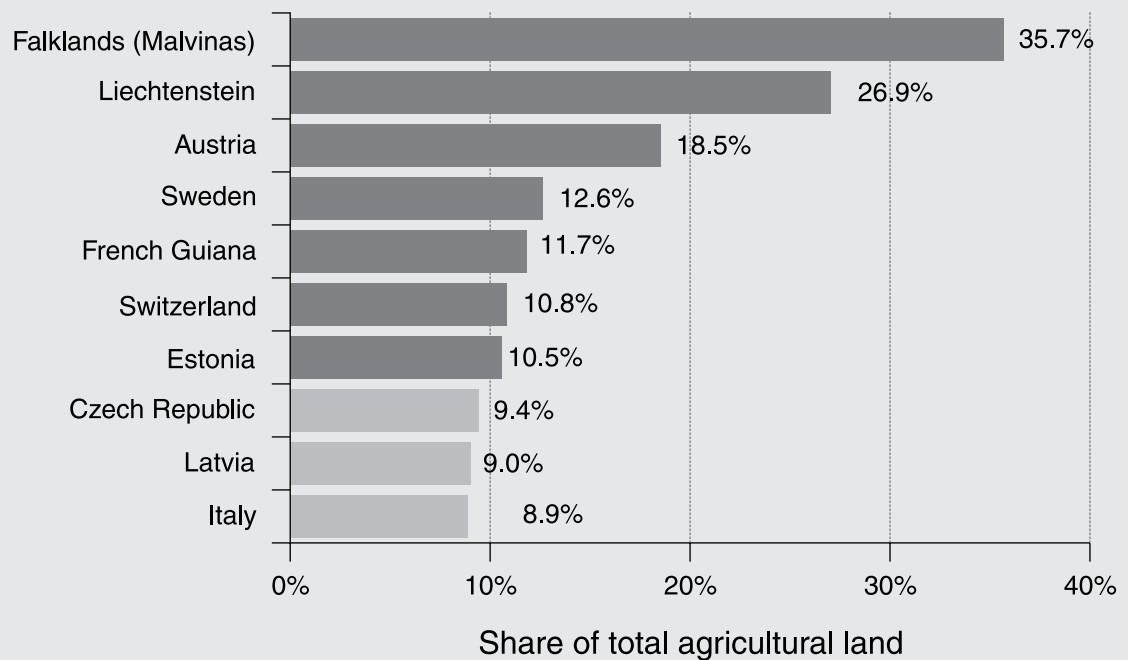


World: The ten countries with the most organic agricultural land 2009



Source: FiBL and IFOAM Survey 2011

The ten countries/areas with the highest shares of organic agricultural land 2009



THE GREAT SEED ROBBERY

VANDANA SHIVA

To attain food sovereignty and food security seeds must be in farmers' hands not in Monsanto's or other corporate claws.

The seed, the source of life, the embodiment of our biological and cultural diversity, the link between the past and the future of evolution, the common property of past, present and future generations of farming communities who have been seed breeders is today being stolen from them. And it is being sold back to the farmers as "propriety" seed, owned by corporations like Monsanto.

Under pressure of the Prime Minister's Office (which in turn is under the pressure of the White House because of signing the U.S – India Agriculture Agreement) Indian states are signing Memorandums of Understanding (MoUs) with seed corporations to privatise our rich and diverse genetic heritage.

The Government of Rajasthan has signed seven MoUs - with Monsanto, Advanta, DCM-Sriram, Kanchan Jyoti Agro Industries, PHI Seeds Pvt. Ltd, Krishidhan Seeds and J.K. Agri Genetics.

While what is being undertaken is a great seed robbery under the supervision of the State, it is being called PPP - Private Public Partnership.

The MOU with Monsanto focuses on maize, cotton and vegetables (hot pepper, tomato, cabbage, cucumber, cauliflower, water melon) will in effect hand over millennia of breeding by farmers to the company. The State will subsidize Monsanto's breeding. It will allow Monsanto's propaganda

Under pressure of the Prime Minister's Office, Indian states are signing Memorandums of Understanding with seed corporations to privatise our rich and diverse genetic heritage.

to replace extension by promoting "awareness building activities under Monsanto's 'gurukulam' training package with recommended package of practices for Rajasthan". The State infrastructure will thus function for promotional activities of companies. The private companies' seed distribution will be based on "seed supply and distribution arrangements, involving leverage of extensive government-owned network". Thus farmers' varieties will be replaced by increasing 'Seed Replacement Rate' – which in effect erases in one season millions of years of evolution and thousands of years of farmers' breeding. Instead of breeding and distributing public



The government of Rajasthan has signed a Memorandum of Understanding with Monsanto that focuses on maize, cotton and vegetables.

varieties, the state agriculture universities are acting against their public mandate and are violating the public interest by facilitating the privatization of the seed supply. Brainwashing by Monsanto based on "guest lectures by Monsanto's global experts and scientists" is being labelled as "knowledge transfer". Selling hybrids and then GMOs is being subsidized by using public land for "Technology demonstration farms to showcase products, technology and agronomic practices on land made available by the Government of Rajasthan".

The privatization of seed

Besides the handing over seed and land, "Monsanto will be helped in the establishment of infrastructure towards the fulfilment of the collaboration objectives specified above through access to relevant capital subsidy and other schemes of the Government of Rajasthan".

While public resources will be made available to Monsanto as a subsidy, "Monsanto's propriety tools, techniques, technology and know-how and intellectual property rights with respect to the crops shall remain the property of Monsanto although utilized in any of the activities outlines as part of the MOU."

This is clearly a MOU for the privatization of our seed and genetic wealth, and a violation of farmers' rights. The seed supplies that the agriculture universities are handing over to Monsanto are neither the property of the State nor of Monsanto. They are the common property of farming communities.

While the Government of Rajasthan has signed seven MoUs, it is the multinational corporations that will control the seed by buying out local companies or locking them in licensing arrangements. This is precisely what happened in the cotton seed sector. 60 Indian seed companies have licensing arrangements with Monsanto which has the intellectual property on Bt. Cotton. In the final analysis, this is not an issue of technology, but of seed monopoly.



While what is being undertaken is a great seed robbery under the supervision of the State, it is being called PPP - Private Public Partnership.



The Government has argued that these MoUs will introduce hybrids in Rajasthan. However, processes like hybridization are the technological means that stop seed from reproducing itself. This provides capital with an eminently effective way of circumventing natural constraints on the commodification of the seed. Hybrid varieties do not produce true-to-type seed, and farmers must return to the breeder each year for new seed stock.

To use Jack Kloppenburg's* description of the seed: it is both a means of production and a product. (*ed. Professor Jack Kloppenburg, Department of Community and Environmental Sociology at the University of Wisconsin, US, is known for his analysis of the social impacts of biotechnology and for his work on the global controversy over access to and control of biodiversity.)

Whether they are tribes people engaged in shifting cultivation or peasants practicing settled agriculture, in planting each year's crop, farmers also reproduce the necessary element of their means of production. The seed thus presents capital with a simple biological obstacle: given the appropriate conditions, it reproduces itself and multiplies. Modern plant breeding has primarily been an attempt to remove this biological obstacle, and the biotechnologies are the latest tools for transforming what is simultaneously a means of production and a product into mere raw material.

The commodification of seed

The hybridization of seed was an invasion into the seed itself. As Kloppenburg has stated, it broke the unity of the seed as food grain and as a means of production. In doing so, it opened up the space for capital accumulation that private industry needed in order to control plant breeding and commercial seed production. And, it became the source of ecological disruption by transforming a self-regenerative process into a broken linear flow of supply of living seed as raw material and a reverse flow

Where technological means fail to prevent farmers from reproducing their own seed, legal regulations in the forms of intellectual property rights and patents are brought in. Patents are central to the colonization of plant regeneration, and are based on the assumption of ownership and property.

of seed commodities as products. The decoupling of seed from grain also changes the statues of seed.

The commodified seed is ecologically incomplete and ruptured at two levels: First, it does not reproduce itself, while by definition, seed is a regenerative resource. Genetic resources are thus, through technology, transformed from a renewable into a non-renewable resource. Second, it does not produce by itself; it needs the help of other purchased inputs. And, as the seed and chemical companies merge, the dependence of inputs will increase. Whether a chemical is added externally or internally, it remains an external input in the ecological cycle of the reproduction of seed. It is this shift from ecological processes of production through regeneration to technological processes of non-regenerative production that underlies the dispossession of farmers and the drastic reduction of biological diversity in agriculture.

It is at the root of the creation of poverty and of non-sustainability in agriculture.

Where technological means fail to prevent farmers from reproducing their own seed, legal regulations in the forms of intellectual property rights and patents are brought in. Patents are central to the colonization of plant regeneration, and like land titles, are based on the assumption of ownership and property. As the Vice President of Genentech has stated, "when you have a chance to write a clean slate, you can make some very basic claims, because the standard you are compared to is the state of prior art, and in biotechnology there just is not much." Ownership and property claims are made on living resources, but prior custody and use of those resources by farmers is not the measure against which the patent is set. Rather, it is the intervention of technology that determines the claim to their exclusive use. The possession of this technology, then, becomes the reason for ownership by corporations, and for the simultaneous dispossession and disenfranchisement of farmers.

We need to only look at the cotton seed supply to see what corporations hijack of seed means. Monsanto's now controls 95% of the cotton seed market. It controls 60 Indian seed companies through licensing arrangements. It pushed the price of seed from Rs. 7/kg to Rs. 3600/kg, with nearly half being royalty payments. It was extracting Rs. 1000 crore per annum as royalty from Indian farmers before Andhra Pradesh sued Monsanto in the MRTP commission. 200,000 farmers have committed suicide in India since corporate takeover of seed started as a result of globalization.

Rajasthan is an ecologically fragile area. Rajasthan farmers are already vulnerable. It is a crime to increase their vulnerability by allowing corporations to steal their genetic wealth and then sell them patented, genetically engineered seeds. We must defend seeds as our commons. We must protect the seeds of life from the seeds of suicide.

The future of the seed, the future of the food, and the future of farmers lies in the conservation of biodiversity of our seed. Contrary to the myth that we need to hand over our seed supply to corporations to increase food production, farmers' varieties - when used in agro-ecological systems - have the potential to double food production in ten years according to the U.N.

Seed sovereignty is the foundation of food sovereignty. Seed freedom is the foundation of food freedom. The great seed robbery threatens both. That is why it must be stopped.

The real facts and figures

Navdanya's research shows that biodiversity based ecological agriculture produces more food than monocultures.

In the arid tract of Rajasthan farmers only take-up single crop not because of higher economic return but have no choice due to vagaries of nature. It is seen that the income derived from mono-cropping of pearl millet

resulted in a net income of Rs. 3280. Of the total return that farmer achieved 60% was spending the inputs only. In contrast by adopting mixed farming system a total gain of Rs. 12,045 was recorded wherein the expenditure incurred was a mere 19%. A mixed cropping in the surveyed villages comprised of pearl millet, moth bean and sesame grown together in a unit of land. Further exploring the more common mixed farming wherein pearl millet is sown with mung bean. It has been observed that mixed farming system registered more returns (69%) as

compared to mono-cropping system. The increased return in mixed cropping is attributed to lower occurrence of weed and reductions in pesticides due to judicious use of inter spaces. Also at times the supplementary crop commands a higher price than the staple crop. A similar study for mixed cropping was also undertaken wherein a comparison between mono-crops of maize and mixed crops of maize, cowpea combined was studied. The maize, cowpea combined crop recorded 31% more returns than maize mono-crops.

Contrary to the myth that we need to hand over our seed supply to corporations to increase food production, farmers' varieties - when used in agro-ecological systems - have the potential to double food production in ten years.

Farmers protest against the agreement between their State and Monsanto (Photo The Hindu, 15th March, 2011).





A beautiful flowering sesame plant (above) and delicious sesame laddoos.



A Rajasthani favourite: Bajra (pearl-millet) roti

Comparative study on cost benefit analysis of productivity and total returns in mono-cropping (pearl millet) versus mixed cropping (pearl millet + moth + sesame):

	Mono-cropping	Mixed cropping
Land preparation	Rs. 720	Rs. 720
Fertilizers	–	–
Seeds	5 kg pearl millet	3 kg pearl millet @ Rs. 20 = Rs. 60 250 g Til = Rs. 8.00 500 g Moth = Rs. 7.00
Weeding	Rs. 800 (due to high intensity of weeds)	Rs. 200 (lower occurrence of weeds)
Harvesting	Rs. 800	Rs. 800
Threshing	Rs. 500	Rs. 500
Total yield	12 Qt	Pearl millet = 9 qtl. Moth = 3.5 qtl Sesame = 40 kg Total yield = 12.9 qtl.
Total return	12 Qt. @ Rs. 450/- Qt = Rs. 5400	Pearl millet = Rs. 4050 Moth = @ Rs. 2800/- Qt = Rs. 9800 Sesame = @ Rs. 12/- kg = Rs. 480 Total = Rs. 14330
Net Profit	5400-2920 = Rs. 2480	14330-2285 = Rs. 12045

Comparative study on cost benefit analysis of productivity and total returns in mono-cropping (pearl millet) versus mixed cropping (pearl millet + mung bean) per acre:

	Mono-cropping	Mixed cropping
Land preparation	Rs. 720	Rs. 720
Fertilizers	–	–
Seeds	Rs. 100	Rs. 75
Weeding	Rs. 800 (due to high intensity of weeds)	Rs. 200 (lower occurrence of weeds)
Harvesting	Rs. 800	Rs. 800
Threshing	Rs. 500	Rs. 500
Total yield	10.5 Qt	Pearl millet = 10.4 Qt Mungbean = 1.5 Qt Total yield = 11.9 Qt
Total return	10.5 qtl. @ Rs. 450/qtl. = Rs. 4725	Pearl millet = Rs. 4680 Mungbean = @ Rs. 2300/- Qt = Rs. 3450 Total = Rs. 8130
Net Profit	4725-2920 = Rs. 1805	8130-2295 = Rs. 5835

Comparative study on cost benefit analysis of productivity and total returns in mono-cropping (maize) versus mixed cropping (maize + cowpea) per acre:

	Mono-cropping	Mixed cropping
Land preparation	Rs. 800	Rs. 800
Fertilizers	–	–
Seeds	Rs. 100	Rs. 100
Weeding	Rs. 800 (due to high intensity of weeds)	Rs. 400 (lower occurrence of weeds)
Harvesting	Rs. 500	Rs. 500
Total yield	14	Maize = 11 Qt Cowpea = 2.5 Qt Total yield = 13.5 Qt
Total return	14 @ Rs. 850/ Qt = Rs. 11900	Maize = Rs. 9350 Cowpea = @ Rs. 2600/ Qt = Rs. 6500 Total = Rs. 15850
Net Profit	11900-2200=Rs. 9700	15850-1800 = Rs. 14050

Mixed cropping of pearl millet, moth beans (right) and sesame make for good profits.





Global Citizens Report on GMOs and Monsanto

Navdanya, together with independent scientists and organizations fighting genetically engineered seeds and crops, is currently working on a Global Citizens Report on GMOs and Monsanto. Bija will publish some of the findings in a later issue.

The failure of GMOs and Monsanto at local and national levels has become more and more evident in 2010, but at the global level the myth that GMOs are the only solution to global hunger and climate change continues to spread.

Monsanto continues to have free reign to flood the world's food chain with these harmful and experimental technologies.

This despite the fact that:

- Monsanto lost 47percent of its shares in mid 2010.
- Monsanto has been voted the worst company in numerous ethical ratings.
- Monsanto's herbicide resistant crops have created super weeds in the US.
- Monsanto's 'super cotton' has created super pests in India.
- Monsanto has established a monopoly in the cotton seed supply in India and anti trust cases are being fought against the company.
- In the US Monsanto has a major market share of GM corn and soya and anti trust proceeding have started.
- Thus far, in every instance, Monsanto enters into a country through corrupting regulatory bodies and scientific systems.
- Forbes Magazine had to admit in 2010 that they had been "wrong, very wrong", in naming Monsanto 'Company of the Year' in 2009.

Independent science has systematically shown the risks that GMOs pose to the environment and to our health. They also exacerbate and are more vulnerable to climate change. Conversely, evidence increasingly shows that ecological alternatives produce more food and are the real solution to climate change.

Monsanto's influence on governments, regulatory and research systems is also well established, leading to blatant corruption of governance, science and biosafety regulations.

All this has not prevented the largest philanthropic organization in the world from making a huge investment to promote GMOs: the Bill and Melinda Gates Foundation has just announced that it will provide \$17.7 to promote GM crops in Asia and Africa.

There is no global independent report on the reality of GMOs as an alternative to the report that is published by industry - the annual report of the International Service for the Acquisitions of Agri-Biotech Applications (ISAAA).

It is critical at this time to have such a report that can be used as a counter to industry. This is why GMO-free networks from the five continents and leading independent scientists that have been working over the years combating GMOs are joining to produce a Global Citizens Report on GMOs and Monsanto.

Organic Farmers and Seed Growers sue Monsanto

Organic Seed Growers and Trade Association – Press Release

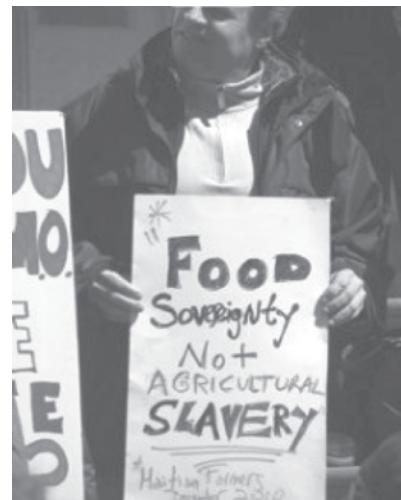
New York City, March 29, 2011: On behalf of 60 family farmers, seed businesses and organic agricultural organizations, the Public Patent Foundation (PUBPAT) filed suit today against Monsanto Company to challenge the chemical giant's patents on genetically modified seed. The organic plaintiffs were forced to sue pre-emptively to protect themselves from being accused of patent infringement should they ever become contaminated by Monsanto's genetically modified seed, something Monsanto has done to others in the past.

property," said Dan Ravicher, PUBPAT's Executive Director and Lecturer of Law at Benjamin N. Cardozo School of Law in New York. "It seems quite perverse that an organic farmer contaminated by transgenic seed could be accused of patent infringement, but Monsanto has made such accusations before and is notorious for having sued hundreds of farmers for patent infringement, so we had to act to protect the interests of our clients."

Once released into the environment, genetically modified seed contaminates and destroys organic seed

justifying this result is that Monsanto's patents on genetically modified seed are invalid because they don't meet the "usefulness" requirement of patent law, according to PUBPAT's Ravicher, plaintiffs' lead attorney in the case. Evidence cited by PUBPAT in its opening filing today proves that genetically modified seed has negative economic and health effects, while the promised benefits of genetically modified seed – increased production and decreased herbicide use – are false.

"Some say transgenic seed can coexist with organic seed, but his-



New York, March 26, 2011: Millions against Monsanto Rally.

The case, Organic Seed Growers & Trade Association, et al. v. Monsanto, was filed in the federal district court in Manhattan and assigned to Judge Naomi Buchwald. Plaintiffs in the suit represent a broad array of family farmers, small businesses and organizations from within the organic agriculture community who are increasingly threatened by genetically modified seed contamination despite using their best efforts to avoid it. The plaintiff organizations have over 270,000 members, including thousands of certified organic family farmers.

"This case asks whether Monsanto has the right to sue organic farmers for patent infringement if Monsanto's transgenic seed should land on their

for the same crop. For example, soon after Monsanto introduced genetically modified seed for canola, organic canola became virtually extinct as a result of contamination. Organic corn, soybeans, cotton, sugar beets and alfalfa now face the same fate, as Monsanto has released genetically modified seed for each of those crops, too. Monsanto is developing genetically modified seed for many other crops, thus putting the future of all food, and indeed all agriculture, at stake.

In the case, PUBPAT is asking Judge Buchwald to declare that if organic farmers are ever contaminated by Monsanto's genetically modified seed, they need not fear also being accused of patent infringement. One reason

tory tells us that's not possible, and it's actually in Monsanto's financial interest to eliminate organic seed so that they can have a total monopoly over our food supply," said Ravicher. "Monsanto is the same chemical company that previously brought us Agent Orange, DDT, PCB's and other toxins, which they said were safe, but we know are not. Now Monsanto says transgenic seed is safe, but evidence clearly shows it is not."

The plaintiffs in the suit represented by PUBPAT are the Organic Seed Growers and Trade Association together with organic farmer families, seed growers and organizations working in organic agriculture. Navdanya International is part of the plaintiffs.

THE RIGHT TO FOOD AND THE FOOD SECURITY ACT

Last year the Right to Food Campaign voiced its concerns regarding the proposed Food Security Act (see the following letter). One year later it had again to launch a country-wide protest against the National Advisory Council's framework for the proposed National Food Security Bill (see NAC Food Bill proposals 'short of expectation', The Hindu).

Ms. Kannimozhi,
Member of Parliament, DMK, New Delhi

14th April 2010

Dear Madam,

We write to you on behalf of the Right to Food campaign to express our concerns and demands in relation to the proposed National Food Security Act. The Right to Food campaign is a network of hundreds of organisations and individuals from across the country. It is in this regard that we have to meet you at the earliest.

You must be aware of the debates taking place around the National Food Security Bill, especially among the members of the eGoM on food security. We are deeply disappointed with the narrow manner in which the Bill is being visualised, where the government seeks to restrict the proposed Act to only providing 25kgs of food grains to a limited number of Below Poverty Line (BPL) households. This is meaningless in the face of high malnutrition, spiralling prices, drought and deepening hunger.

Such a minimalist view is inadequate to address the issue of providing food and nutrition security to the people of this country. Instead, the NFSA must be seen as an opportunity to not only address the injustice of large-scale hunger and malnutrition in the country but also to revitalise domestic food production and agriculture. For this, the Act must deal with at least some of the causes of hunger and provide each and every resident of this country with food entitlements.

The orders of Supreme Court already guarantee 35kgs of food grains per household along with other entitlements such as supplementary nutrition for young children, school mid-day meals, old age pensions, maternity benefits and so on. A legislation that reduces these entitlements, where the only aim seems to be curbing subsidies to the poor rather than ensuring basic social services to all cannot be accepted. The scope of this Act must be broadened to ensure that it meets its basic objective: protecting everyone from hunger and malnutrition. Policies must be put in place to also ensure that the invasion of corporate interests in agricultural production and in food and nutrition policy is stopped immediately. In concrete terms, the campaign demands a comprehensive Food Entitlements Act, essential provisions of which include:

1. An overarching obligation to protect everyone from hunger;
2. Promotion of sustainable and equitable food production ensuring adequate food availability in all locations at all times;
3. Protection against forcible diversion of land, water and forests from food production;
4. Protection of food sovereignty and elimination of the entry of corporate interests and private contractors in food production, distribution and governance;
5. Promotion of decentralized food production, procurement and distribution systems;
6. Protection of interests of small farmers especially ensuring that farmers are given remunerative prices for food items.
7. A universal Public Distribution System (providing at least 14 kgs of grain per adult per month as well as 1.5 kgs of pulses and 800 gms of oil);
8. Special food entitlements for destitute households (including an expanded Antyodaya programme);
9. Consolidation of all entitlements created by recent Supreme Court orders (e.g. cooked midday meals in primary schools and universalization of ICDS);
10. Support for effective breastfeeding (including maternity entitlements and crèches);
11. Elimination of all social discrimination in food-related matters;
12. Safeguards against cash transfers replacing food transfers under any nutrition-related scheme;
13. Strong accountability and grievance redressal provisions, including mandatory penalties for any violation of the Act and compensation for those whose entitlements have been denied.

Further, before finalizing the draft Bill to be discussed in the Cabinet, the eGoM must follow a consultative process wherein the opinion of different members of the civil society is gathered. Earlier processes of holding public consultations across the country, such as on the issues Bt Brinjal and the Coastal Regulation Zone (CRZ) Notification, should be followed for discussion the Food Security Bill as well. A public engagement of this nature serves to deepen democracy and allows ordinary citizens to directly voice their concerns to policy makers. (.)

Yours sincerely,

On behalf of the steering group of the Right to Food Campaign:

Annie Raja, Anuradha Talwar, Arun Gupta, Aruna Roy, Arundhati Dhuru, Ashok Bharti,

Colin Gonsalves, Jean Dreze, Kavita Srivastava, Mira Shiva, Paul Diwakar, Subhash Bhatnagar, Vandana Prasad, V.B. Rawat, Vinod Raina

NAC Food Bill proposals 'short of expectation'

New Delhi: The Right to Food Campaign on Monday announced its decision to launch a country-wide protest against the National Advisory Council's framework for the proposed National Food Security Bill, which, they said, fell short of people's expectation of a comprehensive food security bill that addressed nutrition and livelihood issues.

"Even the budget proposals show no commitment to food security of people," Campaign Convener Kavita Srivastava told journalists here.

Failed to seize opportunity

"By proposing to continue with the system of targeting the public distribution system beneficiaries, the NAC has failed to seize the current opportunity of a proposed food security bill which will honestly address the issue of hunger," she said.

Relegated to "enabling provisions"

The NAC had put up a note on its framework for the National Food Security Bill, along with an explanatory note, for public comments on its website. Monday was the last date for sending feedback to the NAC. The NAC, chaired by AICC president Sonia Gandhi, will meet here on March 24 to discuss the suggestions on its draft Bill.

"The NAC's framework food production has been delinked from food security. Hence measures that could ensure food security through ensuring food production have been relegated to 'Enabling Provisions.' These provisions are a wish-list, but there are no legal guarantees that they are enforceable at any time, even in the future," Ms. Srivastava pointed out.

She was accompanied by Mira Shiva of Jan Swasthya Abhiyan, Arun Gupta of Breast Feeding Promotion Network of India, Gautam Modi of New Trade Union Initiative, Dipti Sinha and Riya of the Campaign.

Ms. Srivastava said the framework proposed by the NAC provided guarantee to a "fragmented PDS, limited maternal and child rights, provision of cooked food to the vulnerable sections, ration cards in the name of women and portability of ration cards to migrant labour."

Nothing for old people

While providing for an independent redressal authority, along with civil and criminal liabilities on

denial of entitlements, the NAC framework had eliminated old age, widow's and family pensions although the Supreme Court brought it into the regime. The Campaign expressed its "disappointment" with NAC moving away from the idea of a "universal PDS."

Majority excluded

"The division of the population into categories of 'general', 'priority' and 'excluded' is just a continuation of the artificial division of households into Above Poverty Line (APL) and Below Poverty Line (BPL) which, experience has shown, excludes the majority of the poor. The government's own surveys have shown huge errors of exclusion in the identification of BPL families." (Gargi Parsai, The Hindu, March 9, 2011)



The proposed Food Security Bill does not address the issue of hunger of the vulnerable sections of society.

ORGANIC INITIATIVES

With training courses for farmers, lectures, field visits, exposure trips, didactic material and a great portion of enthusiasm the Navdanya directors and team spread the philosophy and the down-to-earth methods of organic farming to a growing number of interested people.



Navdanya helps Bhutan to go Organic

VINOD KUMAR BHATT* AND DARWAN SINGH NEGI**

Samdrup Jongkhar Province in the South Eastern Bhutan has decided to go organic with the help of Navdanya. To start with the local government banned the use of agro-chemicals in all 11 development blocks of the province. The Samdrup Jongkhar Initiative was launched by the Prime Minister of Bhutan during a workshop (18-20th December, 2010) at Dewathang in the presence of Dr. Vandana Shiva. It was decided that Navdanya will assist the initiative to convert the whole province to organic and subsequently assist Bhutan to become the first organic country in the world. Navdanya will initially help the initiative for three years.

*Dr. Vinod Kumar Bhatt is Deputy Director, Navdanya

**Darwan Singh Negi is Programme Coordinator, Navdanya

Farmer training in Bhutan

Immediately after the launch of the initiative, a Navdanya team started the training on biodiversity based organic farming in Dewathang. Between 21st – 26th December Navdanya trained about 500 farmers, agriculture extension officers and monks of the Chokyi Jyatso Institute, Dewathang; it organized 5 different training programmes in different parts of the province. Participants were also given hands on training on composting and several other techniques for improving soil fertility.

Bhutanese farmers visit India

As a follow-up of the training in Bhutan, and to strengthen Navdanya's partnership and commitment with the Gov-





The Bhutanese study group visits farmers in Punjab to learn about the impact of the Green Revolution.

ernment of Bhutan and the Samdrup Jongkhar Initiative, 27 selected Bhutanese farmers and agriculture officers, including the district agriculture officer as well as extension officers undertook an exposure tour to India (March 22 – April 4, 2011) and assisted a training course at Navdanya's Biodiversity and Conservation Farm in Dehradun.

On 22nd March Navdanya coordinator Darwan Singh Negi received the Bhutanese group in New Delhi. The next two days the group interacted with Punjabi farmers to understand the impact of the Green Revolution, including the ever increasing incidences of farmer's suicides.

Dr. Vandana Shiva and Sri Inder Jeet Singh Jai Jee briefed the group about the impact of the Green Revolution in Punjab. The Bhutanese farmers and agriculture officers interacted with farmers of villages Chooral Kalan and Balkan of district Patiala. They also met widows of farmers who – in the recent past - committed suicide due to heavy debt.

It was an eye opening visit for the guests from Bhutan. They observed that a number of Punjabi farmers are fed up with the ever increasing inputs, including irrigation needs, heavy use of chemical fertilizers, pest and weed control, and decreasing yields. Some of the farmers the Bhutanese talked to have already shifted to organic; some others are in the process of conversion.

Training at Bija Vidyapeeth

After their visit to the Punjab the Bhutanese group reached the Navdanya Biodiversity and Conservation Farm in village Ramgarh / Sheeshambara near Dehradun on 25th March.

Their training on biodiversity based organic farming included lectures on biodiversity conservation, seed selection and seed saving, soil fertility management, pest management, post harvest management, role of pollinators in organic farming, etc. The group was also given hands on training on different techniques of organic farming, including composting, vermicompost, mulching, green manuring, pest management with available resources, seed selection, and post harvest management.

The Bhutanese guests also visited Navdanya member farmers of three different agro-ecological zones in Dehradun and Rudraprayag districts and enjoyed a community lunch with the local member farmers. Navdanya's Mahila Anna Swaraj groups of the region taught the Bhutanese visitors how to make squashes from oranges and rhododendrons as well as apple jam and vegetable and citrus pickles.

In Dehradun the Bhutanese went to see the Forest Research Institute and the Buddha Stupa. They also visited the Women Farmer-Producer Company Umang in Rani Khet. Umang is a success story of hill women farmers that started with pickle making and now has an annual turnover of over Rs. 80 lakh. More than 500 women are shareholders of the company.

Navdanya will continue to provide technical support to the organic initiative of Bhutan. The Navdanya team will be visiting Bhutan frequently to impart farmers' trainings and look for local solutions to problems the farmers face. Navdanya will also accompany the entire transition progress with research and documentation - making first the province and later the whole country organic.

Quoting the Honourable Prime Minister of Bhutan

Ever since His Majesty the Fourth Druk Gyalpo proclaimed that "Gross National Happiness is more important than Gross National Product", this country has been on a unique development path that seeks to integrate and harmonize sustainable and equitable economic development with taking real care of our natural world, strengthening our rich culture, and governing wisely, responsibly, and selflessly in the glorious tradition we have inherited from our great monarchs. (.)

We have now entered most important phase in the evolution of GNH — putting GNH into practice and action in all we do and in all our policies, and bringing GNH fully and completely into the very fabric of our society.

- That's why we've started to bring GNH into all aspects of our educational system.
- It's why we're now using the GNH measures as a policy screening tool to ensure that every new policy advances GNH principles and values.
- It's why we're creating a new GNH Centre in Bumthang as a living model of GNH in practice.
- And it's why we are now bringing GNH fully into our agricultural sector by truly "going organic"!

Our goal is that Bhutan will be the first sovereign nation in the world to be fully, 100% organic in its food production, with the 'grown in Bhutan' label synonymous with 'organically grown.' That will create significant economic opportunities for our farmers and for the country, establish Bhutan as a global training centre for organic agriculture, and provide a major spur to organic growing worldwide.

Now we are taking a big step forward in this area by creating a partnership with world-renowned scientist, ecologist, and pioneer of organic agriculture in India, Dr. Vandana Shiva, whose Navdanya network in India has trained more than 500,000 Indian farmers in sustainable and organic farming methods. (.) Going organic will enrich and keep our soils healthy and fertile in perpetuity rather than degrading and depleting them through use of synthetic chemicals. Going organic will protect our precious ground water and surface water from pollution and fertilizer run-off. It will protect our biodiversity and save our birds and animals from the deadly effects of chemical pollution.

Going organic will create new economic opportunities for farmers and rural communities both by adding value to what they produce and by reducing the costs of farming. Going organic will empower farmers by reducing their dependence on foreign farm inputs, chemicals, and imported patented seeds, and by creating local seed sovereignty, and increasing reliance on local wisdom, traditional farming methods, and freely available local materials like manure, biomass, and leaf compost that fertilize and enrich the soil. I don't see us just growing more organic food but developing our own organic fertilizers and pest control agents using natural materials based in the rich medicinal flora for which Bhutan is renowned.

And maybe most importantly, going organic will strengthen our culture and rural communities. By creating good economic opportunities for our educated youth in rural areas, we can begin to stem the massive rural-urban migration that has created such serious demographic, economic, and social stresses. That in turn will keep our rural communities — with their networks of social supports, vibrant extended families, and mutual dependence — strong and vital.

Going organic is living GNH. It is also the key to putting GNH fully into practice and action in this country. I am most grateful to Dr. Vandana Shiva for coming here to help us take 'organic' from the fringe to the mainstream in the Kingdom of Bhutan. (From a speech in August 2010).

Rejuvenating Lost Gardens in Khajuraho

(*Vinod Kumar Bhatt*) During the last decade Bundelkhand was under severe drought affecting the farmers of the region year after year. 2010 was comparatively better but the rain was not enough to quench the thirst of the dry earth. Due to prevailing drought conditions local water bodies are drying up. Farmers are breaking the traditional water bodies such as bandhis as a temporary solution for irrigating their fields. 'Modern' agriculture and seeds require more inputs, including more water, so most of the time the crop is failing.

Navdanya is helping to find solutions for the current burning problem. One initiative is the rejuvenation of the lost gardens of Khajuraho, Madhya Pradesh, in partnership with INTACH which has identified 13 such gardens. The first rejuvenation endeavour started in 2008 with Pateria ka Bagh. An agreement for the project for the development and promotion of organic farming and biodiversity preservation (in association with the 'The Lost Gardens of Khajuraho') was signed between Navdanya and INTACH Delhi. The project plan is to establish nurseries and seed banks for local / indigenous seeds and plants and a Biodiversity Register for Bundelkhand. After the restoration of the monuments in Pateria ka Bagh mango, guava, amla, and jack fruit trees as well as banana and other local fruits and were planted in the garden.

The Kushwaha community, which is quite dominant in the region, consists of skilled farmers which also engage in vegetable cultivation. Thus at present, and till the fruit orchards take shape, vegetable cultivation is taken up in the gardens. These organic veggies will be sold in the local market and the profit goes to the orchard owner. Those formerly abandoned land will be able to provide a livelihood to the orchard owner right from the start and go hand in hand with the conservation and preservation of the heritage gardens.

Another lost garden, Rani ka Bagh is being rejuvenated now. Rain Ka Bagh has two beautiful temples and wells along with an old building. The garden is being taken on lease from the owner and will be handed over once it is brought into good shape and starts to sustain the owner family. The wells have been cleaned and their water is being used for drinking as well as for irrigating the garden. Vegetable production has already been started; the planting of local fruit trees in the seven acre garden as well as the setting up a seed bank are in the planning

The progress made in Rani ka Bagh was witnessed by the participants of the conference 'Sustainable Development of Khajuraho' (November 16-18, 2010) organized by INTACH India in association with INTACH Belgium, and the Madhya Pradesh Government. At the conference Navdanya stressed the need for a long term planning of Sustainable Agriculture. It also assured to assist INTACH in making a Sustainable Development Plan for Khajuraho keeping in view the surrounding villages. Navdanya also suggested that the local authorities promote local food to be served in the hotels of Khajuraho – thus supporting local farmers and helping to conserve local crops.

Seed banks for climate resilient local crop varieties is an upcoming venture. They should enable the farmers of the region to cope with unpredictable and rapidly changing climatic conditions.



Partnership with the Tibetan Government in Exile



An auspicious moment: The Honourable Samdhong Rinpoche (right) with Maya Goburdhun, Director Navdanya (left), and Vandana Shiva, Founder Navdanya at the Biodiversity and Conservation Farm.

(Vinod Kumar Bhatt) Navdanya's partnership with the Tibetan Government in exile started in 2003 with Dr. Shiva meeting the Prime Minister of the Tibetan government in Exile in Dharamshala. Navdanya started to train agriculture extension officers of the Tibetan government in Exile from their secretariat in Dharamshala as well as those from their 45 major settlements across India in biodiversity conservation and organic farming. The training included lectures as well as hands on training on different techniques of composting and improving soil fertility, biological pest management; cultivation of medicinal plants and agro-forestry, etc. Major emphasis was given to sustainable farming techniques that improve the environmental conditions vis-à-vis the yield of the crops.

Navdanya assists the Tibetan Government in Exile in their endeavour to convert the land of Tibetan farmers – formerly cultivated with conventional farming – to organic

and helps to create seed banks in the Tibetan settlements in different parts of India with the goal of not only conserving local varieties but also the indigenous seed varieties of the Tibetan plateau, of which some are under serious threat of extinction.

Navdanya is also committed to improve the socio-economic conditions of the Tibetan communities in India. In 2004 Dr. Vandana Shiva and Professor Samdhong Rinpoche launched 'Noodles and Pasta' by a group of Tibetan refugees living in Dehradun.

Dr. Vandana Shiva as well as members of the Navdanya team visited Dharamshala several times in the last few years to lecture on globalisation and sustainable development and the need of organic farming. In October 2005, a workshop, lecture and an exhibition on "Organic food for sustainable livelihood" were held in Dharamshala. The Navdanya cooks and farmers prepared

organic food which was served to more than 400 people after a lecture.

The partnership between the Tibetans in India and Navdanya also includes that the Prime Minister of the Tibetan Government in Exile, Professor Samdhong Rinpoche, is a regular lecturer at the Course 'Gandhi and Globalisation', held annually in November-December at the Navdanya Biodiversity and Conservation Farm.

Starting in 2005 Navdanya has assisted farmers in Khaira village, district Dehradun to convert their land to. Navdanya provided the farmers – which are very excited to convert to organic - seeds of wheat and paddy along with the training on organic farming.

On 24th March 2006, 17 farmers from another settlement of Tibetan refugees, 'Lakhan Wala', situated near Herbertpur in Doon Valley, were given training at the Navdanya Farm.

Navdanya started a new project with the Tibetan community and provides children with organic food in schools in Dharamshala, Dehradun and Paonta Sahib. Presently Navdanya is providing organic food items to about 1300 children of three Tibetan Schools on an experimental basis.

As a result of Navdanya's continuing efforts, the Tibetan Government in Exile passed a resolution in their parliament to convert the farmlands in all their settlements across the country to organic and to make selling of cow dung - which should be used for improving the fertility of the land – illegal.

This partnership with the Tibetan Government in Exile will go a long way. It will not only transform agricultural land in Tibetan settlements in India to organic, but also conserve biodiversity and protect the health of future generations.

Navdanya and the Art of Living

Navdanya's partnership with Art of Living, the NGO led by the well known spiritual leader Sri Sri Ravi Shankar, started in 2000 with a training in organic farming for a group of Yuvacharyas. Till now, Navdanya has trained over 1000 young Art of Living volunteers and activists in Dehradun

and Rishikesh. Art of Living presently works with more than 50,000 farmers in about 5000 villages of India. Dr. Shiva was invited by Sri Sri Ravi Shankar to Rishikesh and Bangalore to strengthen the partnership between the two organizations and give the movement new life.

Yuvacharyas of Art of Living during an open air lecture at Navdanya's Biodiversity and Conservation Farm.



A PASSION FOR ORGANIC

JUMANA PARKAR*

A Chef got inspired by Navdanya's concept of biological farming and fair marketing and founded the Mumbai Organic Farmers and Consumers Association.

Ubai grew up in Mumbai and is a Chef by profession. His earliest cooking lessons took place in his parent's kitchen at Peddar Road. Ubai graduated from the Indian Institute of Hotel Management, Aurangabad, followed by an associate's degree from Culinary Institute of America, Hyde Park, NY.

Ubai began his career at Copper Chimney an upmarket restaurant in Mumbai, and then had stints at Primo, a restaurant in Rockland, Maine. Instead of expanding his culinary skills and earning a big fat salary Ubai turned to sustainability. Primo, a world class restaurant in a 19th century Victorian house, which uses local, organic, seasonal ingredients to create an exciting menu, was a life changing experience for Ubai. The restaurant grew most of their greens, herbs and vegetables in its garden and sourced the rest of the produce from close by farms. The Primo people had bridged the gap from the farmer to the consumer.

Ubai's quest for simplicity, seasonality and freshness took him to a farm in Florida where he spent 6 months growing food. He had traced back to the root or rather the seed. A connect from the table to the seed.

One of the nights at the farm while fiddling with his radio he heard the voice of Dr. Vandana Shiva which moved him. As Ubai puts it, she appealed to the very core of his being. He returned to his homeland and instead of opening a restaurant he went on to learn farming. Ubai enrolled himself for a 10 day organic farmer's course at Navdanya's Bija Vidyapeth near Dehradun. The farming scene was very different from the one in America he says. He got an insight into Indian farming with smaller landholdings and its limitations. His travels took him to some more farms after which he went on to grow food.

Ubai was fortunate enough to have inherited farm land in a village called Katai, not far from Mumbai. For Ubai, migrating to the country was not an end in itself. Says he, "City life is not viable because we are so

*Jumana Parkar works at Navdanya, Mumbai



far away from reality. We don't even know where our food comes from and who grows it. Our children think mangoes come out of yellow cartons bought at a supermarket".

Food security, farmer suicide, hybrids, GMOs are pressing issues which need addressing. Ubai is looking at solutions at the urban level. As a consumer can we reduce our carbon footprint? How to keep money in the local economy, and give fair prices to the farmers?

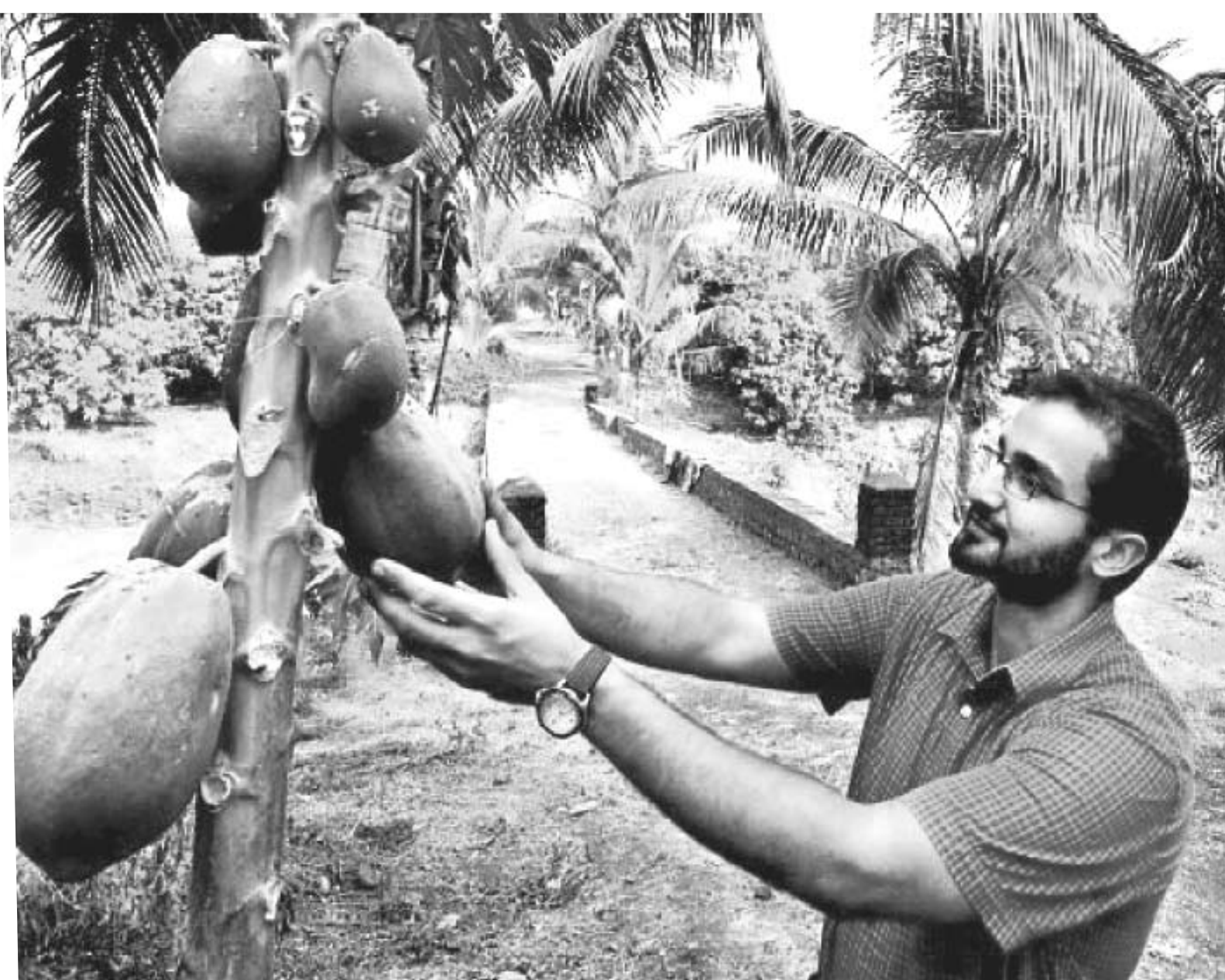
Ubai initiated Mumbai Organic Farmers and Consumers Association (MOFCA) a collective of 12 farmers. MOFCA has come up with a scheme 'The Hari Bhari Tokri' which offers consumers a basket of fresh veggies, a weekly supply sourced from farms within a radius of 150 km from Mumbai. Under the scheme one partners with a MOFCA farmer for an entire growing season (usually 3-4 months) by paying a deposit. For the first time consumers are able to connect with the farmers, understand how and where the food that they consume

comes from. By having a predetermined number of consumers to grow for, farmers are able to plan their growing cycle in advance. The consumer is assured of quality, without intermediaries, at reasonable prices which are not subject to economic fluctuations or false scarcity.

Today after four years of having taken up farming Ubai is still exploring alternatives. Learning to build sustainable mud houses, looking at energy conservation, at water harvesting, supporting the local community around the farm - Ubai is doing it all. In his words, "It's not just a shift in life style that I am looking at; it's a shift in consciousness that I am striving for. Ubai at the young age of 28 has taken the road less travelled. He walks lightly through his orchards and smiles sweetly knowing there is a long way to go.

It brings a quote by Masanobu Fukuoka (Author of 'One Straw Revolution') to my mind, "The ultimate goal of farming is not the growing of crops, but the cultivation and perfection of human beings".

Ubai Hussein made organic vegetables a household name in Mumbai.





BIJA VIDYAPEETH – EDUCATION FOR EARTH CITIZENSHIP

International College for Sustainable Living, Navdanya Biodiversity and Conservation Farm, Ramgarh, Dehra Dun, Uttarakhand



Governor Margaret Alva was the Chief Guest at the inauguration ceremony of Grandmothers' University 2011. (Photo; Governor Alva, standing with microphone; to her left Dr. Vandana Shiva, Navdanya; table right: renowned environmentalist Sunderlal Bahuguna and faculty member Usha Maira.

The Grandmothers' University (March 15 – 17, 2011) celebrated Bhoomi through a trans-generational dialogue between grandmothers, mothers and daughters, which centred around the Rights of Mother Earth, the gifts of Mother-Earth and the Earth and her elements in our body. These three themes were explored during three days through the art of story telling, music, pottery and sharing of knowledge.

Food is one of the most precious gifts that Mother Earth unfailingly offers to us. As she feeds us we too must remember to give back to her and help her renew her fertility in various ways including composting. Down the generations women have evolved a food wisdom which enables them to prepare nutritious food that not only enhances health but also promotes well-being. This wisdom is based on an intimate knowledge of seasonality and locality.

Across cultures the Earth has been a metaphor of the Body, more specifically the feminine body. In indigenous systems of health care such as Ayurveda, the earth elements are also the body elements; ecological balance and health are thus intimately interconnected.

It is vital to disseminate traditional knowledge and its numerous benefits on a continuous basis among the future generations - in order to keep alive India's immensely glorious traditions, civilisation and history.

Governor Margaret Alva
Inauguration Speech Grandmother's University, 2011.

Upcoming Courses 2011

July 2-3, 2011:

Slow Weekend at Navdanya: Aamrapalli (Mango Festival)

The Slow Weekend timed with the ripening of mangoes will provide an opportunity to participants to spend time in the peace of the mango orchard at Navdanya's organic farm and relishing and tasting different varieties of Mangoes. They will taste the difference between the langda, dusheri, chausa, kalmi, hazari, safeda, ram kela, tota puri and fagli. In addition to the tasting, participants will have an opportunity to learn recipes of mango dishes.

October 3 - 5, 2011:

Bhoomi and the Gift of Food - Building Earth Democracy and Food Justice

As the assault on the Earth increases and the threat to human survival intensifies, new paradigms and movements for Earth Democracy and defence of the rights of Mother Earth are emerging. Simultaneously the growing food crisis and hunger is demanding food justice so that the Right to Food of all can be ensured.

The course will cover this emerging worldview and experiences and movement building for the defence of the earth and peoples right and explore how the Rights of Mother Earth and the rights of people are intimately connected especially in the context of food. The food web is in fact the web of life. The ecological crisis and the food crisis are consequences of this web being destroyed and poisoned.

The course will also take advantage of Navdanya Seed Bank and Organic Farm to show how protecting the earth and producing more food go hand in hand. Participants have the option of attending the Bhoomi - The Earth Festival on 2nd October, 2011 in New Delhi.

October 22 - 23, 2011:

Slow Weekend at Navdanya: Akshat (Rice and associated crops of the kharif season)

The Slow Weekend timed with the harvest of rice will give the participants an opportunity to unwind while they join in harvesting 600 varieties of rice, forgotten foods such as mandua (ragi) and jhangora, and other associated crops. They also learn about organic farming. In addition the participants will get an opportunity to learn organic recipes

based on the kharif crops (autumn harvest) - rice, forgotten foods, dals and fresh seasonal vegetables.

November 7 - 12, 2011:

The Ganga Yatra: A journey to witness India's Lifeline under Threat

Invited Resource Persons - Mr. Sunderlal Bahuguna, other members of Save the Ganga Movement, Navdanya team as well as local communities.

Ganga is India's lifeline spiritually, culturally and materially. However, this lifeline is today under serious threat. The building of dams and hydro electric projects and increasing pollution is destroying the Ganga. Save the Ganga Movements are emerging to create awareness on the threats to the Ganga and to find ways to protect the Ganga - our living heritage and life support.

The Ganga Yatra will begin from Dehradun, travel through Tehri and Uttarkashi and end at Rishikesh with the Ganga Aarti.

November 24 - December 4, 2011:

Gandhi and Globalisation

Invited Resource Persons - Mr. Satish Kumar, Dr. Vandana Shiva, Ms. Madhusuri Prakash, Aruna Roy, Venerable Samdhong Rinpoche.

The course on Gandhi and Globalisation will address the multiple crisis that globalization has unleashed - the economic crisis, the ecological crisis and the political crisis. The economic crisis is now being felt worldwide including in prosperous Europe and USA. The high resource demand of globalization is creating resource wars across the planet - wars over land, wars over water, wars over seed and wars over food. This is increasing violence and militarization. Corporate globalization has also undermined representative democracy making States representative of corporate interest rather than public interest.

Gandhi's philosophy and politics is more relevant than ever before in finding ways to live peacefully, equitably and sustainably on this fragile planet. The course will explore the contemporary relevance of Gandhi's key concepts of Swaraj, Swadeshi and Satyagraha.

The course will show how Gandhi's observation that the earth has enough for everyone's needs and not for some peoples greed can be translated into emerging movements for the defence of the earth and people's rights.



Faculty and participants at a Gandhi and Globalisation Course held annually at Navdanya's Bija Vidyapeeth.

PUBLICATIONS

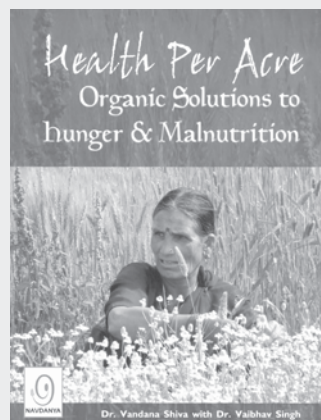
Order by phone or email or pick up your copy at the Navdanya office.

Health per Acre-

Organic Solutions to Hunger and Malnutrition

Dr. Vandana Shiva with Dr. Vaibhav Singh
Navdanya/RFSTE, 2011

Health per Acre is based on agricultural field studies in Rajasthan, Uttarakhand, Sikkim and the Navdanya Farm. Comparisons between conventional and biodiverse, organic farming and the resulting nutritional values show that a shift to biodiverse organic farming and ecological intensification increases output of nutrition while reducing input costs. When agriculture output is measured in terms of Health per Acre and Nutrition per Acre instead of Yield per Acre, biodiverse ecological systems have a much higher output.



For further reading:

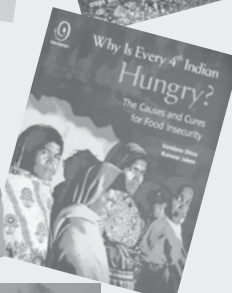
Biopiracy of Climate Resilient Crops

Gene giants steal farmers' innovation of drought resistant, flood resistant, and salt resistant rarities.
Navdanya/RFSTE, 2009



Why Is Every 4th Indian Hungry?

The Causes and Cure for Food Insecurity
Navdanya, 2009



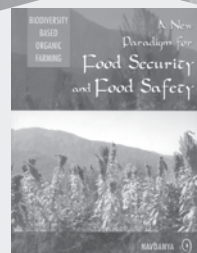
Anna Swaraj

Towards a decentralized, democratic Food Security System
Navdanya, 2009

Biodiversity based organic farming:

A new paradigm for Food Security and Food Safety

Navdanya, 2006



No GM Crops and Food

Why and how to fight genetically modified crops
Handbook for Activists/Navdanya, reprint 2009

For a complete list of publications and prices contact Navdanya.

NAVDANYA SHOPS FOR BIODIVERSE ORGANIC FOOD

New Delhi: Navdanya Shop, Hauz Khas Market, E-52 • Tel: 26854069

Navdanya Stall No. 18, Dilli Haat, (opposite INA Market) • Tel: 65343067

New: Navdanya in Gurgaon: C-105 First Floor, Arcadia, Southcity 2, Gurgaon, Haryana
Tel: 0124-3262011

Dehradun: Shop No. 8, Shiva Palace, 57 Rajpur Road, Dehradun
• Tel: 0135-2743175/2749931

Mumbai: Navdanya – The Organic Shop

No. 10 Mayfair Housing Society, Oberoi-Raviraj Complex, off Andheri Link Road,
Andheri (West), Mumbai 400 053 • Tel: 09920418027



Organic India on their mind



Darwan Singh Negi (centre), Coordinator Navdanya, and farmers at a field course in Yavatmal, Maharashtra.



Dr. Vandana Shiva, Navdanya, speaks to farmers at a meeting in Punjab.



**Research Foundation for Science,
Technology and Ecology/Navdanya**

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