



# India Positioning High in Organic Agribusiness

Proceedings of  
**INDIA ORGANIC 2005**

Editors  
TEJ PARTAP  
SEETHARAM ANNADANA



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International Competence Centre for Organic Agriculture

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## FOREWORD

Looking at the pace of events leading to promotion of organic farming in several states across India, it appears that the Indian organic movement is at a turning point. I say turning point because, the initial production stage has reached a point where organic producers are seeking to find solutions to marketing of their products. There are many more fence sitters, who appear watching the economic prospects of adopting organic farming to improve their livelihoods.

It is but unfortunately so, that the organic market in India is in its infancy. Lot of efforts are needed, especially institutions like ICCOA to develop a flourishing market for Indian organic commodities. Like wise events to raise awareness among the prospective Indian organic consumers and build necessary infrastructure, to create a strong domestic market, are yet to happen.

Under this backdrop, **The India Organic 2005**, was the first ever organic trade fair & congress in India, organised by the International Competence Centre for Organic Agriculture in Lal Bagh Bangalore from November 4-7, 2005. The Government of Karnataka and APEDA, Ministry of Commerce Government of India were co organizers of the event along with a host of other sponsors. The success of the event is also attributed to enthusiastic response of stallholders and seminar and workshop participants and learned speakers.

In addition to the main goal of creating a marketing platform for organic producers, input suppliers and service providers, equally important was the intention of providing a platform for sharing knowledge and experiences. As the whole organic movement in India is in its formative years, efforts like this one promoting information sharing have great value. Gathering together the information shared and churning it properly to further disseminate it becomes specially important, when the first hand practical information and invaluable thoughts were shared on different aspects of the nascent organic sector.

The vast amount of experiences shared during the event relating to different aspects of organic enterprises, have been organised and presented by the editors under different chapters of this report. It is a remarkable endeavour by the ICCOA team. I congratulate the ICCOA team in general and Dr. Tej Partap & Dr. Seetharam Annadana in particular. I hope readers, especially organic entrepreneurs, will find the report useful in strengthening their resolve to establish flourishing organic agribusiness.

**Ramesh I. Harve**  
President, ICCOA



## ACKNOWLEDGEMENTS

India Organic 2005 was quite a multifarious event. We had planned to capture the mood of the organic world of India in its perspective and present it to those who were unable to benefit from it in person, and to the large section of readers interested in understanding this mood and perception of the organic people. From Ministers, His Excellencies, Planners, Scientists, people from the government line agencies, Traders, Farmers Leaders, NGOs and the organic farmers themselves – such was the range of those who shared their visions and experiences. In order to capture the messages from variety of these, so called organic stakeholders, several events were organised during these four days. We wish to thank all these people, whose names cannot be written individually here, but who came and shared their thoughts with us during these four days.

So many people around to share their views but without any written texts, no manuscripts submitted, imagine the task of capturing every thing in video camera. It has been an enormous task and several teams were at work in different places. After filtering the material it was put together by those who worked on preparing transcriptions of the videos. That was another huge task, done by college students in Madras, under the able guidance of Mr Kishore Rao of Genus a.b. Mr Kishore was also instrumental in putting the first ever written draft of transcripts in shape. We wish to appreciate the marvellous work done by these different teams.

Then started the task of giving shape to the synthesis report. President Mr Ramesh Harve, and Mr Samuel Moser of FiBL were great source of inspiration behind this whole effort. Their, continued interest in bringing out this publication and critical comments on the shape of the report were very helpful. We wish to acknowledge their valuable inputs.

Last but above all, colleagues at ICCOA, Mr Manoj K Menon, Mr Suresh KT, Mr Mahesh Ramakrishnan who also helped compile report of the organic cotton meeting, Mr Murali, Mr Ajay Kumar, Mr Shiv Kumar and Mrs. Lakshmi, deserve to be named here for their hard work in organising the events during India Organic 2005, which provided the platform to the speakers to share that much information. They have been very helpful during the whole process of preparing this publication all these months. Thank you very much dear colleagues for your time and efforts.

**Tej Partap**  
**Seetharam Annadana**  
Bangalore, October 3, 2006





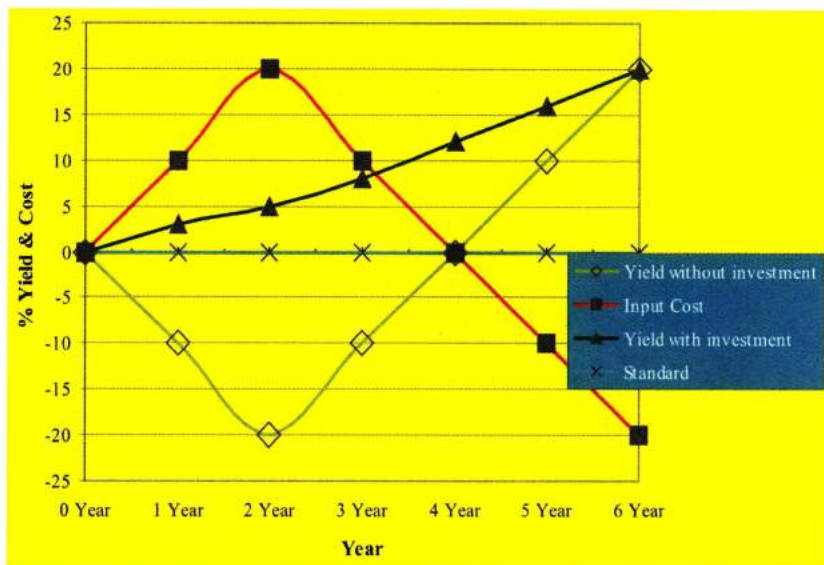


Fig. 1: Scissors Curve Phenomenon (Source, Partap and Annadana, 2006)

better than conventional practices. We need to seriously devise strategies of enhancing soil Carbon by making available required quantities of organic inputs to ensure zero yield losses.

- The first issue in organic agriculture is that productivity should be maintained in comparison to conventional farming. This is the common apprehension for conversion to organic in India.
- The second issue is that whatever organic food is available at our disposal, including organic milk, vegetables etc., the nutrition level has to be maintained consistently.
- The third issue is whether the pest and insects can be effectively controlled both from the plant and human health point of view by integrated organic systems.
- The fourth issue is of quality. Is organic produce scientifically, qualitatively, statistically proven to be better in comparison to products from conventional farming?
- The fifth issue is to estimate the real environmental impact of organic agriculture over conventional farming from economic, societal and ecological perspectives.
- Lastly, is there a large enough domestic market?

These are some of the questions demanding answers.

Let us look at the effort by government of India and many state governments from time to time to move towards organic farming, under the sustainable agriculture programs. The Ministry of Agriculture has always been advocating the balanced use of nutrients and complains of indiscriminate use of fertilizers. Facing this issue the Government has taken up a number of programs like the National Project on Development and Use of Bio-fertilizers, started way back in 1983. Under this program a huge capacity for production of bio-fertilizers was set up, a number of projects for the preparation of compost from waste were sanctioned, and state governments

# INTRODUCTION

## Events Shaping Indian Organic Agribusiness

*Tej Partap and Seetharam Annadana*

Unlike many countries in the developed world, India is still an agrarian economy, as it contributes 24% of GDP, and 13.1% of total exports. It employs over half of the country, by utilising 58.4% of country's workforce and provides a livelihood security to more than 650 million people. We are producing about 200 million tonnes (MT) of food grain using 80 MT of fertilizer and 6-7 MT of organic nutrients. The current policy of the government is to increase food production to 320 MT by 2011-12, which will need about 34 MT of organic nutrients. Though these figures look convincing as an agrarian economy the agriculture growth is less than 3%, and several problems have emerged that threaten food security and biodiversity. Yields have stagnated in most crops, external input use is alarmingly increasing, water the quintessential element for plant growth is depleting, all in all resulting in increasing susceptibility to pests and diseases, which is only enhancing the cost of production and reducing the profit margin for the farmer.

A report prepared by the Indian Council of Agricultural research (ICAR) as early as 1968 stated that 9 of the 16 nutrients required for sustainable plant growth were permanently depleted in a majority of India agricultural soils. It has come to the notice of several Indian state agricultural departments that the quality and efficacy of pesticides and insecticides is not up to the mark, resulting in them becoming useless every 5-6 years. Indeed it is a fact that the second-generation problems of green revolution will have greater negative ramifications on the sustainability of Indian agriculture. The sustainability of the whole system is in jeopardy and agriculture policy makers must take serious note of the ground reality. This year India has imported close to 2 lakh tons of wheat, over 9000 tons of black gram and over 4000 tons of green gram. The question all agriculture related technologists need to ask themselves is, what should be India's response to these problems?

One of the answer that is surely expected is the option of considering conversion to organic agriculture, in a manner without sacrificing on crop productivity. This will require resources to build up soil organic carbon in a manner that it is not competitive to animal feed and domestic fire, to ensure sustainability. There were crop residues worth 201.13 MT available in 2002-03, of which one third was used as fuel and the balance nutrient value is 3.865 MT. Second is animal dung, whose total production is 791.66 MT, and the available nutrient is 3.654 MT. Thirdly the total biogas is 675,943 kilovolts of installed capacity, which produces 2.5-3 million MT of manure with 0.075 MT of available nutrient. Lastly there is bone meal, blood, forest litter etc., totalling 36.55 MT, giving a nutrient value of 0.908 MT. In summary, estimates of organic inputs available is 12.228 MT which can cover an area of 259.08 MHa, but practically 6.114 MT is available nutrients and it can cover 129.5 MHa.

As editors, we wish to share a piece of information, unpublished but authenticated with practical experience with over 2000 farmers by a private agro research foundation. This is typically called the **scissors curve phenomenon**, as explained in the graph below. The feeling that organic farming will push India back to starvation is proved wrong by this study, as practical experience shows in hundreds of organic farms without a single grain of fertilizer or chemical, productivity is

also set up large scale capacities for soil testing. Now these facilities created by government of India put together, were renamed the National Centre for Organic Farming. It has a headquarters and six regional offices. In May 2000 the National Program for Organic Production (NPOP) was launched. National Steering Committee on Organic Farming through the Agriculture Produce Export Development Authority (APEDA), under the Ministry of Commerce, takes care of the National Standards On Organic Farming.

NPOP has accomplished the following:

- National standards for organic production have been established
- Accreditation policy has been developed
- Inspection and certification agencies have been approved
- An India Organic logo is in place and being promoted
- Equivalence of NPOP standards with European Commission standards has been settled

APEDA statistics indicate that the annual growth rate of organic in India is about 20%, the area under certification in India is 2.5 million hectares of land, with 150,283 metric tonnes of organic production capacities. There are 332 organic enterprises, 158 processing units, and 11 certification agencies with a total export of 6,472 metric tonnes, in the form of 35 different products exported by 60 exporters. It is suggested that it is better to promote organic from start mainly as certified organic for the benefit of the customer and to overcome technological barriers at production level. However the cost of certification is high and one way to decrease the cost of certification is to provide group certification to farmers through various ongoing projects such as, the National Program on Horticulture, started five years ago. The project worked well in North Eastern states and now this mission is extended to other states. Under the National Horticulture Mission, Government of India provides systems support for research and development, planting material, production program, harvesting management and marketing. Organic crop cultivation will be supported with additional assistance, such as Rs1000 per hectare for a maximum of 5 hectares on which the use of chemical fertilizers is not permitted.

NGO's and the state of Maharashtra have gone headway in the promotion of organic agriculture. Ten organic farming needs recognized by Maharashtra are;

- *In situ* water conservation
- Integrate pest management capacities
- Vermicomposting facilities decentralized
- Promotion through NGOs
- Organic link between user and farmer
- Promotion via eco-tourism
- Identification of potential crops/regions
- Training programmes
- Evaluation, accreditation
- Financial support

As in most of the agricultural activities, market is the key to success. In the development and promotion of organic concept, a lot of emphasis has also to be provided to marketing. The marketing of organic food in India should therefore be structured in order to bring about improvement in standards.

## Understanding The Organic Agribusiness

With ongoing sales, growth in developed countries is 8% to 20% for organic foods, which have attracted the interest of a growing number of farmers, food processing firms, retailers and governments. Along with fair trade goods, organics has become one of the fastest growing sectors of a global food market. Indeed it has been estimated that the international food market in organic foods could reach US \$ 100 billion. From an insignificant niche market as recently as the mid 1990s (Sahota, 2004), organics has leapt into the mainstream.

Common sense tells us that so far organic market growth has been rooted in an unlikely mix of fear and fashion. Many consumers may wish to go organic because of falling confidence in conventional food systems. There are few others in our civil society who are getting attracted by the positioning of the organics as a premium quality niche product. It seems that the assurances regarding the safety of genetically modified organisms, food irradiation and agricultural chemicals is increasingly falling on deaf ears. India organic is at present at a defining moment, and we are as yet not clear whether the emerging growth in organic market is going to be based more on an escalation of consumer demand or expansion of supply. Understanding this demand-pull perspective of Indian market growth will become necessary with increasing claims of several distributors, processors and retailers that they are experiencing considerable difficulty sourcing enough certified produce to satisfy buyers. To cope with demand, companies such as Fab India and Shreshtha's 24 L Mantra even sponsor the conversion of farmers to organic production. Yes, as we are witnessing, the organic agribusiness in India has just started to grow and at what point the market, both domestic and export, will mature is likely to remain a guess for some time. However, how high Indian organic business will rise, will depend on several factors, such as scale of intervention by the market forces and government agencies and the behaviour of so far unknown organic consumer. At this moment we need to make efforts, such as this event India Organic and the seminar series, to understand the factors better to create a conducive environment to support growth of India organic agribusiness.

One of the things that is truly remarkable about organic agribusiness, given its status as one of the fastest growing sectors of the food industry, is how little its marketing depends either on consumer research or on aggressive advertising and discounting. Despite a paucity of organic advertising in the mainstream media, that media portrays organics as the almost sole alternative to environmental and food safety risks associated with industrial agriculture. If you have seen the newspaper references to organic agriculture, agribusiness and organic food they suggest that the term 'organic' has come to signify a loosely defined bundle of desirable attributes related to quality, safety, ecology and tradition. The organic label will increasingly offer a simple, recognizable and comforting alternative to people at the times when they are looking for such an option.

The increasing involvement of large business houses and supermarket chains in organic retail may attract concern in India. Argument that in relatively small scale and localized food networks Indian consumer should get enough opportunity to be as close to the producer as possible and maintain his confidence in the integrity of the produce he purchases. Some may argue that big organic agri business may replace the small local organic agribusiness that pioneered the sector. However, learning from the experience of other countries in Europe and USA, increased visibility and availability of organic products is largely better facilitated by the supermarket retail chains. Experience of these nations has been that larger retailers have contributed to lower retail price premiums.

Whether it is domestic market or exports, we will need to ensure that organic products must retain their integrity and authenticity if they are to maintain an economic value. India needs tremendous effort to build its capacities to fulfil the several imperatives for aiming high in organic agribusiness. We have to admit that our institutional capacities are as yet too weak to make organic sector grow, as it is needed, even though efforts have begun both in public and private domain.

The INDIA ORGANIC 2005, the first ever effort by the International Competence Centre for Organic Agriculture (ICCOA), is a step towards building institutional capacities and creating opportunities to build confidence of organic farmers in this sector. What has been said during this event at the inaugural and closing ceremonies, in the open house of stakeholders and in the seminar series by several speakers bears testimony to it. Besides being a trade show, India Organic was also fashioned into an opportunity to listen to organic experts representing variety of fields from inputs, production, certification, value addition, export, domestic marketing, export, investment financing and policy.

This report is a synthesis of what valuable messages were delivered during ceremonies, and what information was shared during the seminars, stakeholders open house meeting and the organic cotton meeting. It is divided into nine sections namely; Perceptions and Visions Shared in the Inaugural and Closing Ceremonies, Open House of Organic Stakeholders, Organic Awareness And Policy Initiatives, Organic Market Issues and Opportunities, Organic Production, Technologies And Extension Experiences, Organic Inputs, Quality Assurance And Certification Issues, Significance of Post Harvest And Value Addition in Organic, Finance and Investment options for Organic Agribusiness And Organic Cotton Workshop and Stakeholders Experiences.

The presentations of over 75 speakers and panellists were orally recorded, transcribed, resulting in transcription notes of over 250 pages. The editors have taken the liberty to delete repetitive and unrelated information from each of the presenters and tried to get across the core message for the benefit of the reader. This exercise was necessary if we had to put across a comprehensible message titled INDIA POSITIONING HIGH IN ORGANIC AGRIBUSINESS. This has been an overdrawn exercise stretching over several months, but at the end we hope we have a document that will be useful to both technical professionals and policy makers associated with Organic in India. For the benefit of readers, as an innovation, we have retained six selected slides from each of the presentations that indeed recognise the speaker and highlight his or her core message to the development and promotion of organic in India. These selected slides are presented at the end of each chapter. We believe, it is something very much informative but usually not done.





# Chapter I

**India Organic2005:  
Perceptions And Visions  
Shared In The Inaugural And  
Closing Ceremonies**



# Chapter I

## India Organic2005: Perceptions And Visions Shared In The Inaugural And Closing Ceremonies

### At the Inaugural Ceremony

*Mr. M V Rajshekran*

#### **Honourable Minister of State for Planning, Government of India**

Agriculture contributes 24% of India's gross domestic product (GDP), and 13.1% of total exports. It provides employment to 58.4% of country's workforce and a livelihood security to more than 650 million people. In the process of agriculture growth, however, several problems have emerged that threaten the sustainability of natural resources and production systems. These problems are often referred to as second-generation problems in the Green Revolution. They include stagnation of yields, continuous increase in inputs, a declining water table, and an increasing susceptibility to pests and diseases that requires higher use of pesticides.

The concept of quality food has undergone a drastic change over the past few decades. Now importers and domestic retailers have their own quality specifications or standards. Consumers have become health-conscious and are willing to pay for clean, natural and healthy food. Therefore, the organic food market in the world is growing rapidly. International trade in organic food shows annual growth rate of about 20-22% during this period. Many retail chains and supermarkets in advanced countries awarded "green status" by various government and private standards groups are selling organic food. The organic food processing industry is considered a major business. The world's largest market is the United States, valued at about US\$6.1 billion, followed by Germany and Japan at US\$2.5 billion, while France accounts for about US\$1.2 billion. Moreover organic foods command higher prices, which are often in the range of 10-100% higher than conventionally grown equivalents. Certification of products is the foundation of future organic agriculture.

Consumers should possess knowledge and have the confidence that the products they are buying are totally organic. Such an environment can be created by an organized system of inspection and certification supported by law and regulations of the state. The aim of organic certification therefore is to provide identifiable label, a logo, or a symbol and give an assurance to the consumers that the product is truly organic. Organic farming is a most welcome development to many, but consumers and producers have to be very cautious

about fake products that are sold. By organic farming we never mean the country has gone back to the traditional system of farming. What is needed is to integrate traditional knowledge with the modern agricultural techniques to sustain the health of natural resources, soil, air and water to maintain biodiversity and to increase farmers' incomes.

*Mr. Sompal*

**Former Chairman, National Commission on Farmers, Government of India**

**Former Minister of State for Agriculture, Government of India**

A report by the Indian Council of Agricultural Research (ICAR) in September 1968 indicated that of 16 nutrients, nine—nitrogen, phosphate, potassium, boron, molybdenum, sulphur, zinc, iron, and magnesium—had been depleted drastically on a permanent basis. It is documented that pesticides and insecticides become useless as often as once in every 5-6 years as insects develop resistance. It is a continuous struggle to invent new molecules. Yields are decreasing, costs are rising, and there is a figure available with the planning commission that in 2002 Indian farmer spent Rs172,000 crores on just three inputs: seeds, insecticides and pesticides, which constitute 55% of the total cost of cultivation. The sustainability of the whole system is in jeopardy, but this entire scenario is being taken note of by the global civil society, environmentalists and scientists. The question is what should be India's response to these problems? The answer that is expected is a conversion to organic agriculture. "Will this reduce productivity?" is the first apprehension expressed by anyone who is approached to undo chemical farming. The feeling that organic farming will push India back to starvation is a wrong perception, as practical experience has shown that without using a single grain of fertilizer or chemical, productivity of crops can still be maintained. The input-output relationship has to be studied, the soil profile should be improved and production costs have to come down, then all can have safe & healthy food. Small farmers livelihood is in a desperate situation in many parts of the country and converting to Organic may be one of the easiest solutions.

*Mr. K S Money*

**Chairman, APEDA, Ministry of Commerce, Government of India**

India has great potential in the agricultural sector as we have agro-climatic conditions to produce almost every vegetable, fruit and crop. Talking of agriculture as a whole, it needs to get into the marketplace, for which we must learn the discipline of the market. We have not been able to get our fair share of international trade in agricultural commodities. Therefore there is a need to reorient to meet the requirements and standards of the marketplace. The Agriculture Produce Export Development Authority (APEDA), under the Ministry of Commerce, takes care of the standards to be maintained for selling organic products in international markets. In May 2000 the National Program for Organic Production (NPOP) was launched. The integrity in the process of certifying the product has to be underlined. A consumer has to be assured that he is buying a genuine organic product.

Indian growers should follow the procedures throughout the supply chain from the seed stage to the shop shelf. Confirmed rigorous procedures for production should go through certification. The potential products that have been identified are rice, pulses, oil seeds, sugar cane products like sugar, jaggery, fruits like apples, mangoes, pineapples and lychees, as well as coffee, tea, cotton, spices, vegetables and coconut products. Annual growth rate in India is about 20%. The main focus is to bring farmers to centre stage by making the farmer organized and aware of the market requirements, varieties required, standards to be followed and quality to be attained. All the misconceptions and the problems of organic certification have to be addressed. Only by uniting farmers, processors, traders, exporters and end users with the single objective of promoting organic agriculture we can achieve the goal.

*His Excellency Mr. Dominique Dreyer*  
**Ambassador of Switzerland**

Switzerland has proved to be a classic example of a foreign country engaged in promoting good agricultural practices in India. In the past 40 years the Swiss have had good relations with Indians, working together in many projects. At present time environment issues have become a global priority. Switzerland engages in large-scale economic cooperation with India. India Organic 2005 is a testimony to the relationships we have with India.

Organic agriculture has become a global occupation. From 2002, the Swiss Federal Office of Agriculture has been involved in supporting initiatives for strengthening organic agriculture in India. Access to the domestic and international markets remains a great concern to Indian farmers. To cater to this concern the Swiss government funded a project that began in 2003 to assist Indian organic farmers in accessing the export markets. The project Indian Organic Market Development implemented by ICCOA assisted by the organization, the Research Institute of Organic Agriculture (Forschungsinstitut für biologischen Landbau, or FiBL). The Swiss government continues to offer help with marketing and market development, leading to the entry of Indian organic produce to Switzerland and other parts of Europe. In addition to this, help can also be provided in developing the domestic Indian market. The organization of the India Organic 2005 Trade-Fair is one such step. The objective is to promote Indian organic products in domestic and international markets and the sharing of knowledge and information with the Indian experts and scientists. On its part ICCOA has proven its capacity and competency in the continuous development of Indian organic movement and I congratulate it for their efforts.

*Mr. Gerald A Herrmann*

**President, International Federation of Organic Agriculture Movements (IFOAM)**

IFOAM, the International Federation of Organic Agriculture Movements, has agreed to be one of the sponsors of this Organic Fair. IFOAM's mission is leading, uniting and assisting the organic movement in its full diversity. And where can this better be done as at a fair



with many interested participants and visitors to exchange experiences, learn from each other and to trade. IFOAM is uniting the organic world. As the world wide umbrella representing about 800 member organizations which have up to several thousands members, it is relevant for us to be present at the international level. Our efforts and political advocacy work with FAO, Codex Alimentarius and different UN organizations are helping to make the world change – at least the world of food and agriculture into a better one.

Why then our participation here in India? India's agriculture, its tradition and knowledge has contributed to the development of the organic agricultural concept at an early stage. It has inspired pioneers decades ago – now we are contributing to bringing our knowledge back to India. IFOAM has decided to select India as one target country for establishing an office, the India Organic Service Center. This center is hosted by the Indian umbrella organization The International Competence Center for Organic Agriculture (ICCOA), the organizer of this Organic Fair.

India has a rich food and agricultural tradition, which has been already detected in the early eighties of last century as a source for organically grown and certified products. The first products have been tea and spices to be exported to the major northern markets. Today, India has 2.5 million hectare of organic wild collection and production but only about 80,000 hectares of arable land. While these figures do not sound promising we have to acknowledge that probably about 65% of the total agriculture is cultivated 'organically' but is not certified. About 1,500 farms produce 14,000 tons from which only 31 products are exported with a quantity of about 7,000 tons (figures are from 2002). The Indian government has taken steps to support farmers through the National Program for Organic Products (NPOP) and has identified more than 20 pilot regions for gathering more experience with organic farming. I want to encourage the Indian government to take further actions as organic farming is not only beneficial for food security but keeps the rural infrastructure intact, creates jobs, protects clean water, enhances soil fertility and biodiversity, and benefits the society in many other ways. Healthy soils produce healthy food and healthy humans! And, organic farming is cutting edge technology while at the same time not needing external input – no chemical fertilizers, no pesticides and no GMOs – making organic farming the societal choice.

IFOAM believes that India has a vast potential to develop. It has all predispositions: land, biodiversity, well educated people and interested consumers | villages, towns and big cities. This potential is still untapped or in its early stage of development. In addition the regulatory infrastructure has been developed already: an organic law is implemented, a competent authority APEDA is established and a handful Indian certification bodies are accredited. IFOAM offers through its international work, experience and influence as well as through its India Organic Service Center to assist with its knowledge to make this century an organic century for India! I wish this first India Organic Trade Fair a lot of success. Shall it be the

starting point for the fast development of a national as well as international organic fair bringing people together from abroad but also from all regions of India! Thank you.

## **At The Closing Ceremony**

*Mr. Ramesh L Harve*

**President, ICCOA**

All things good and bad should come to an end, just a week ago four days seemed to be very long. And today when I retrospect, these four days have just gone by in a flash. Even though ICCOA team is heaving a huge sigh of relief, and on the other hand, we are sad that such a pleasant event is coming to an end. But as they say, the end of everything is the beginning of something else, and that beginning is going to be a renewed momentum to the organic movement in this country.

Except for a few hiccups, our very first attempt, if I go back by the feedback I have received, at organizing a trade fair, at this scale on organic agribusiness seems to have been a complete success. Preliminary estimates indicate that no less than 30,000 people have come and visited the stalls here. Business enquiries worth crores of rupees have been generated. A number of producers have learnt about organic farming in all its glory and diversity. Organic farming is glorious because it is so diverse. And most of the consumers who have visited have appreciated what is organic. In the past four days, organic agriculture shone brightly. Be it in the extra ordinary interest shown in biodynamic farming, and the fascination expressed towards the agnihotra system of farming. Now more than ever, ICCOA is determined to repeat this trade fair next year: India Organic 2006 and we welcome you all again next year.

*Mr. H K Patil*

**Minister for Irrigation, Government of Karnataka**

Ever since independence, successive governments both in centre and the state have been giving due emphasis to the development of agriculture and horticulture by launching pro-farmer programs. Successful implementation of such programs has helped the state to achieve tremendous success in both the fields of agriculture and allied activities. Development of dry land through water-sharing programmes has been given priority. The agricultural policy lays the emphasis for utmost utilization of agricultural land and to increase productivity by taking advantage of varied climate, physiographic and agro climatic conditions and various soil types.

Karnataka today is rich with a variety of agricultural and horticultural crops. In recent years farmers have been taking up organic farming. The farmers have seen for themselves the advantages and have noted for them the improved soil health, reduction in the cost of cultivation, at the same time producing crops that have tremendous potential for export.

The 10th Five-Year Plan provides for development of a national institute of organic farming and certification, that will benefit us all.

It will be useful to prepare organic farming toolkits based on IFOAM principles and to assist farmers on the dos and don'ts relating to production of organic farm produce. It will be necessary to develop and introduce low cost nationally and internationally acceptable certification standards and procedures. There is need for greater investment on research relating to development of biological software essential for linking of productivity and quality in organic farming. In particular there is need for more research in soil health, enhancing efficient fauna and microorganisms.

Presently our farmers are not getting premium prices for organically grown farm commodities. There is need for greater consumer education for convincing consumer the nutritional and health advantage of organic foods. The highest priority will have to go to natural ways of pest management since pesticide residues in water and food are becoming major public health problems. At present the research support for organic farming is inadequate. Organic farming needs greater research support than chemical farming. Organic farming zones can be promoted under national horticulture mission of fruits, vegetable, tea, spice and medicinal plants so that certification and quality control become easy.

Ultimately net income per hectare will determine farmers continued interest in organic farming. You are all lovers of organic farming and you all are the people who want this to be popular and this is the system that will be of great help and will be a boon to agriculture. By the way we are now going ahead or marching, it will take too long a time. We can't face the aggressive marketing strategy of chemical farming. We will not be able to compete or enlighten or educate the masses about organic farming where our whole agriculture education is now for other systems of agriculture. I only wish that Government will take the initiative to see that the aggressive approach to popularise organic farming is really done and more incentives are provided to organic farmers across the country. As we went to a stall, we met Mr Ashok Kulkarni, he is the one who is trying to get his product certified, he wanted some help from the government and for 4 years he has gone around the state secretariat and the directorate of agriculture but couldn't get the required small support. Such a state of affairs needs to be avoided. I wish Indian organic movement good luck.

*Dr. Tej Partap*

**Executive Director, ICCOA**

India Organics 2005 has added a milestone in organic agriculture movement of India. It will become a chapter written in gold a few moments from now. It is time to give credit to those who contributed to make this event a great success. Key players of the whole thing are the people who put up the organic stalls, without you there would not have been any India Organic 2005. You will forever remain the pillars of the India Organic event that we

will continue to organize. The buyers' and sellers' meetings increased success. The success of this event cannot be attributed only to the number of people who came here for four days, but to the number of deals that the sellers have made with the buyers. The results will come in due course of time. I am sure we will see increased participation next year. So many one-to-one deals have been made, many offers are not known yet and they would not like to reveal it too. That means India Organic will add a lot of money to many pockets.

I would like to thank the international trade agencies and national buyers who are present here. It was like a business affair. The major event of the function side by side the stalls were the seminars. To ensure high standards of deliberations we invited experts in the field. The enthusiasm shown by almost 500 seminar delegates was unimaginable. Frankly, we were only expecting 150 delegates but you exceeded our expectations.

Government of Karnataka and other sponsoring agencies who were so generous in extending support to ICCOA, to organise this event. I wish to express appreciation for their contributions.

In SECO Switzerland, we had another partner as co-organizer. The Swiss ambassador is here, his presence here is further expression of support of the government of Switzerland. We thank this material, moral, financial and professional support.

This is the first time that IFOAM has been present in any organic forum in India, the president of IFOAM is present here all the four days. His mission seems to unearth the strengths of Organic India. He told me his impression was not to see the weaknesses but to see the strengths. He sent a message to all that whatever he has seen, he believes that India can be strongest country in the world in organic. The seeds have been sown, 2.5 million hectares of land in India is now Organic, with 150,283 metric tonnes of organic production by 332 organic enterprises, 158 processing units, and 11 certification agencies. It is in the hands of organic stakeholders of India to take it further and see that this tree grows and flourishes well.

During these four days, what happened was recorded through a survey, we had sent 6 people around to check with visitors, stall holders to know how they felt. May I share the key findings? Everybody said oh that was wonderful for organic agriculture and we encourage all those who organized to continue this as it strengthens the confidence of those who want to go organic, whether they are farmers or traders or consumers. This show also enabled farmers to contact the buyers, the deals that have happened has given great confidence to the producers that if they know no buyer, they can come to India Organic, they will be made to meet somebody. This was a solid achievement. Visitors who are here as serious consumers, stallholders have expressed that they never thought buyer could be so serious about organic. That means organic awareness is increasing and consumers would also increase. There were serious complaints, in food, travel and other things. Yes,

we have made note of shortcomings in the arrangements but I can say all of you simply came in so much numbers that we couldn't imagine, it was beyond our expectation. Good lessons learnt and in future we will do everything wonderfully that's a promise from ICCOA.

On behalf of ICCOA I would like to say thank you very much IFOAM for extending that moral support. Ladies, gentlemen, through this event you have known ICCOA, the name not known so far. It was a tough job for us to have made this happen with great success. It is time to wish you all a happy journey back home but with a promise that we will meet again in India Organic 2006.

## Chapter **II**

### **Open House Of Organic Stakeholders**





### Organic Perceptions And Experiences Shared

The open house of organic stakeholders was organised on November 9th, 2005, to permit all delegates to share their experiences, perspectives and views. It offered an opportunity to everyone to share their perspectives and experiences. These are presented in sequence (speaker wise).

- i. It is time to take stock of things, where we have gone wrong, where we have succeeded, and how do we go taking the organic movement forward given the background of our country, our state, culture, agriculture practices, cultural ethos etc. Let us all deliberate, give honest feedback, so that one can take right corrective measures.
- ii a. Organic agriculture is centred mainly on the cow. So no output should be brought from outside and excepting the produce nothing should go from the farm. There are large numbers of small farmers and many of them cannot afford to have their own animals such as a cow or goat. We had been following traditionally in India the mixed farming concept, which is now vanishing. I request that the government, along with existing subsidy, add fresh subsidies for encouraging mixed farming concepts. Then a small farmer with 1-2 hectare land can do organic farming with his own inputs.
- ii b. The second point is that the government should come forward in encouraging more Indian certification agencies. There are only few currently. We feel that proper support and recognition is lacking, so it's essential for government to come forward and encourage indigenous agencies. The third point is consumer awareness. If there is demand there will be supply, in western countries demand is high so organic products are sold well there. So my suggestion is that idea of organic farming should go from school level and some training should be offered to teachers too. Lastly, there should be a good mindset for organic farming from small farmers up to the policy makers level. Then India has got a great potential for organic farming.
- iii. The organic farming is picking up well in those areas where organic fruits and vegetables are grown. In tribal areas people are not using any urea or even chemicals. They are by default doing organic agriculture. These areas can be exploited very

- well. We have to provide recycling of farm waste and we have to promote integrated farming including animal husbandry. Certification fees for organic farming are high so ways be found to keep these low and within the reach of farmers. IPM has helped replace many of the toxic elements and IPM, INM, both concepts are very useful. Universities should undertake organic research on priority.
- iv. After retirement from agricultural university in Tamil Nadu, we have formed an organization for organic agriculture and a scientific society for integrated services based at Coimbatore. Our suggestion is that we have been talking about problems in marketing organic agriculture produce and here many stalls have exhibited rice, pulses etc. Is it correct to send recommendations to the government to procure organic rice and other products and distribute it through the public distribution system?
  - v. As a member of staff at the University of Agricultural Sciences, Dharwad, I work with people and I find it difficult to convince people about organic food, specifically with grapes, but we see people eating them and nothing happens to them, so convincing them is difficult? Do we have any guidelines where real impact and convincing people becomes possible for us?
  - vi. We are strong supporters of organic agriculture and we have been working on bio-fertilizer development in India. We have evolved lot of bio-organisms and supplied a lot of farmers in this country and they have been performing well. Higher use of bio-fertilizers and bio-pesticides should be encouraged for organic farming. The government should provide subsidies to producers of bio-fertilizer. Not all organic farmers can produce their own bio-fertilizer, so entrepreneurship in this area should be encouraged. Dry land agriculture could be declared as an organic farming zone based on nutrient status of soil wherever it could be implemented successfully. India has a great task in improving rain harvesting and improving the status of soil, so that the productivity is improved. A lot of government support and training is given on vermicomposting. That opportunity is to be used gainfully and should implement vermicomposting programme throughout the country. In this way our produce will be of better quality, dry land will produce more and income generation will be there for small farmers. Our people will get quality products and our country will become healthier.
  - vii. I am organic farmer representing a farmers' group from Warangal. Currently we are discussing organic farming. More than 50 years back our ancestors used to do organic farming because they used to depend purely on farm produce inputs. If you look at the present scenario, the agriculture extension officers who are visiting the villages, they are emphasizing on use of chemical fertilizers and pesticides. In

contrast we urge them to encourage the farmer community to go for organic agriculture instead. There is lot of scope for organic products domestically as well as internationally. In Warangal, we are doing organic farming with support from Oxfam and currently we are focusing on cotton. By attending this meeting we are confident of producing organic pulses and food grains too.

- viii. I am Organic grower from Maharashtra and I am one of the Alphonso mango growers. Having embarked on the tour to study organic farming and biodynamic agriculture specially. Just like we have a bachelor's degree in agricultural sciences, I think we need to have a specialized stream of bachelor's degrees in organic agriculture. On the other hand, there is very little consumer awareness. Under the National Horticulture Mission of India, which has been launched by the central government, there is massive emphasis on production technology only but very little on developing marketing for the produce. I hope through India Organic organised by ICCOA we get encouraged to build a very strong network of stakeholders. I feel we have to use all the effective tools to create awareness among the consumers about the benefits of consuming organic products. If the governments can play a major role in promoting iodized salt, then I think organic produce in India needs to have a much louder voice. I say let us rope in the governments and lobby to create awareness among consumers. We see lot of emphasis on organic production technology but on marketing front lot has to be done yet.
- ix. Let us try to educate students in the elementary schools, telling them about how to do organic farming, thinking that these young children will go talk to their parents in villages, and their children influence them. I am running a Krishi clinic, we are advising them what is organic farming and why it should be done. We have no support from government. We asked the district administration to help us to go to the schools for the past two years and allow us to talk to the children when there are no classes. We have covered 600 schools in Hassan district with lot of hurdles. I am an input producer for the past 15 years. I would like to get help in ensuring that some sort of circular goes to the district administration so that they permit us to go to schools and educate them. We wanted to have an organic garden in every school. We don't want any finance. This is only to see that total taluk becomes organic.
- x. ICCOA wanted to create market opportunity for the participants through the trade fair. We want to create market accessibility to the farmer groups, we wanted to bring in certain amount of knowledge to the visiting farmers and we wanted to bring to the notice of the people who visited this fair both from other parts of the country as well as abroad, as to what state is Indian organic agriculture today. We talked about low yield as a disincentive for organic farming. I think you should

have heard Mr Sompalji two days ago that this is a fallacy and propaganda being done by the people who do not like organic farming. Organic farming gives you a better than or equal yield as the chemical farming. It is just that you have to plan when you want to turn organic, you need to plan the activities in advance to measure the humus level in the soil, so many things and then you have to get into farming so that the yield does not go down. Since this was the first time we were having the trade fair, everybody was given a chance to put up a stall. Those who are not certified organic producers were also invited, so that they get a chance to know what is the advantage of certification. You would find that all the certification agencies of the country had participated and I am glad to tell you everybody in them has reported an extraordinary response to the proposal of certification. So I am sure next year when we meet, we will have this in a much more streamlined way. We could perhaps segregate the certified and non-certified ones.

xi. Everyone knows we have a long way to go. We have started a 1000-mile journey and this is the first step. As we progress further we will be able to sort out the problems. There are two issues:

- The inadequacy of agricultural graduates
- The inadequacy of the departmental personnel and the university faculties in conveying to the farmers the real concept of organic farming and how to go about it.

This is already well known, Dr Sompalji told us that if anything at all is needed in this country it is that we have to change the mindset of the bureaucrats and scientists. I think in the course of time this will be taken care of. One of the recommendations of this seminar should be to give guidance to all the universities. My second point is that there should be agriculture in the school curriculum. Karnataka government has taken the first step, the Institute of Agriculture Technology initiated this, organized a seminar and called all the concerned people. The primary education minister has assured us that this will be introduced in primary education from next year. The orientation courses for the scientists, for the departmental people and the administrators may be necessary. Certainly, that will be done. Karnataka state is the pioneer state in initiating organic farming, by selecting an area of 40-80 hectares in every district, and involving one NGO, one nodal officer from one department there, and a progressive farmer. In another two years this can be a model to others also. Probably in a year's time, the Department of Agriculture and Horticulture will evaluate the programme and report on the progress. Under that, the departmental people will be trained and they will be equipped with that knowledge. So the training programmes for these officers are going on in a

small way. IPM should be introduced. Other day in one of the discussions we told that it should not be IPM it should be OPM, Organic Pest Management. That can probably change the mindset.

- xii. I would say it is too early to provide a catchphrase for organic farming until we internalise the concept of organic farming. I would say it will take a year or two to really come out with a phrase or a slogan that would convey the basic spirit of the movement. So let us just think and come up with something. More interaction is required with other states and stakeholders. A bigger canvas would help us come out with a meaningful slogan. It is not difficult to convince the farmers about organic farming. It is the first step we have to cover something like 1000 steps. In India nothing is going to be easy. There are no shortcuts. One of the suggestions was that nothing should be brought into the farm; whatever is available within the farm should be made use of. Then the product should go out of the farm. We agree. The government is actually working out on proposals to encourage more certification agencies. It takes time. One person suggested that we distribute organic rice or paddy through the public distribution system. It is a question of having huge quantities at affordable prices. The economics have to satisfy everyone. That's a good suggestion but at present it is only wishful thinking.
- xiii. There has been the suggestion of the creation of a Web site for organic producers and buyers. In fact ICCOA is working on this already. In a matter of a few months you will have a website, a web directory, a CD with comprehensive detail of all the stakeholders in organic agriculture with buyers and sellers as well as processors, laboratories, certifiers and other providers. There was another suggestion, there should be an agency to liaison between Indian producers and exporters. ICCOA is holding negotiations with CBI, the Rotterdam, Netherlands-based Centre for the Promotion of Imports from Developing Countries, to act as their collaborators here. It will be their job to identify the buyers for us abroad, and training and developing the producers here to be competent to supply to the international market, this will be happening very soon.
- xiv. Someone here suggested that bio fertilizers be encouraged. That's well taken, government support should be given. Yes we do accept and appreciate that. A couple of other participants said that there should be a ban on pesticides, they should not be exhibited in the fair, in any of the stalls, we have taken note of that. There was another observation which said when you change over to organic farming, during that transition period what will the farmer do for his livelihood? Perhaps it's too difficult a situation for a small or marginal farmer to take to organic farming. Perhaps the wisdom lies in encouraging the big farmers to start first. They can manage their livelihood during the transition period. And they should be role models

for other small and marginal farmers. Even the traditional farming is not feasible for small farmers at present. If you force him to take to organic farming perhaps it would be difficult for him. You can't just ask him to experiment for two years to let him appreciate it, then take to inorganic farming again. That is not the way agriculture works in India. See average holding in India today is 1.4 hectare. What kind of farming can we think of? Forget about organic farming, even conventional farming is not feasible. If we say organic farming is going to be more beneficial, then it has to be shown. You have to have role models first, people who can afford to stay in spite of doing organic farming—those who can experiment and show other people. See, in our villages we have small and marginal farmers. We also have progressive farmers who are having holdings in excess of 6-7 hectares. It is these progressive farmers who serve as role models. Whatever they do, the other small farmers adopt. This is the normal tradition. I am not saying small and marginal farmers should not be subjected to this. If they are progressive in their mind they are welcome to do that. First we have to sensitize them. The land holding ultimately determines what kind of farming you are going to take up.

- xv. I would like to say, in a country like ours, agriculture is as diverse and complex as our society is. We have more than 3000 castes, more than 1000 languages and dialects, more than 12 major and 24 minor religions, faiths and beliefs. So in a diversely complex situation like this, agriculture won't be anything different to that. It is going to be complex and diverse. The same crop is grown in 101 ways by 101 people.
- xvi. While promoting organic farming, it should be taken up cautiously. Any hair-splitting observation, if we are too hypercritical, too sensitive to the practices then the issue or the moment gets killed in the beginning itself. We cannot afford to set very high standards, the reason is if we do so, the issue gets more advocated than practiced. Normally we Indians tend to advocate rather than practice. So that is my apprehension.
- xvii. In a country like ours with more than 1 billion people, India requires 40 years to double its population with its current death and birth rate. USA requires 120 years to double its population of 290 million. Pakistan requires 25 years to double its population of just 180 million. Greece and Spain require 6000 years to double their populations. So we cannot think of agriculture without thinking of this exploding population. So we are growing at astronomical pace. And this place around us is shrinking, actually in 1900 we were just 180 million people, and 33-34 people per square kilometre. In 2001 we were 331 per square kilometre, so land gets fragmented. Agriculture on such fragmented land will never become sustainable. Will organic agriculture provide any possibility of sustainable livelihoods on these lands and is nations food security than at stake?

- xviii. I have been into organic farming for past 7 years, use of vermicompost is hardly 25% and the badwith farming in the agricultural calendar is before for a year, and if it is included, 5-10% increase in the yield is going to be there. Besides this ingredients in bio-organic this Amrutpani, If these can be combined with your vermicomposting, it is going to improve the soil fertility, it is going to increase the yield.
- xix. Tourism is a business activity, that is slowly affecting tribals specially economic speed. They are not able to gel with it. Without giving any monetary benefit, we had good partnetship with Ecoland who ere invovle in organic farming, they gave us idea to identify traditional spices, to enhance traditional methods of farming. We have forgotten very special varietis that are getting extinct. Traditonal crops of tribals had to be given value. domestic markets are killing them. We are in process to bring that aslo. We are only resort in india that is organically certified. Vegetable farms are given to guests. We give messge like 'Think Green'.
- xx. I feel animal husbandry should be given importance. We talk about cows. I think subsidy should be given to purchase cows too. So much emphasis is given to organic farming; a farmer without cow cannot do organic farming. The government should make a very strong decision to give subsidy to purchase cows.
- xxi. I think conventional and organic farming are going together. Now the chemical farming is going down, that's for sure. Pesticides industry have themselves lost on around 55% of its consumption i.e 1300-1400 crores of pesticide business. The amount of spraying has gone down. On other side, organic farming is coming. Now for organic farming where are the good avenues.
- xxii. I am from Maharashtra. The farmers who have converted into organic, their mindsets have changed. Small % is changing to Bt, because companies abruptly come and say that Bt yields are like this. But we have seen large no. of farmers who take more than 8-10 rounds for Bt also. Growing Bt is a high risk strategy. Production cost is outrageous. Our research that included conventional farmers who used Bt also show this. It is very clear that the organic farmers in Maikaal project had better profits from organic cotton than the Bt farmers. There is lot of illegal Bt which is sold at very less price. Legal Bt is Rs. 1,800 per packet, illegal one is 400-500 Rs. And it is performing equally well. Look at the illegal business which is going on and farmers are producing Bt themselves. Even Bt parents are available to farmers. So this is the big trade which has emerged. Survey indicates that 60% is illegal which is not going on invoice. It is just going from farmer to farmer. I am a strong proponent of organic so I am saying that rain fed areas will have more advantage to push your organic in a big way, but Unless that illegal Bt is banned things will not move.



- xxiii. I am an NRI working in an interior part of Karnataka. I do not pay 5 of my workers but look after their basic needs because as an organic farmer I am not earning myself much. I do this as part of my social responsibility. If we look at our Urban Indians how many of us are ready to change our lifestyles to cater to the life of people in Rural India. The image of the Indian farmer is much higher than what it actually is. Therefore when we are introducing organic agriculture the practices and principles followed should have some roots in our culture. Normally what I see in a gathering like this is we try to borrow ideas from somewhere else and impose it here, which may not sometimes work. We are critical about everything we take very high stands in the beginning itself. What happens in such a situation is that everything gets advocated instead of being practiced. We have to therefore be humble and learn things over time, we have to accept practices that will suit our environment and slowly try to implement the changes.
- xxiv. As a responsible officer and a responsible nation we have made rules in the interest of everybody. For example, In the processing industry we have rules like PF should be deducted I can give you a list of 40 processors – organic certified in the country who deprive the rightful right of the workers. So in what way are we honest. I think we have to be very honest in the organic industry. We may be honest to the extent of eliminating the last trace of urea but what about the other issues. We have to be very ethical and honest in the organic industry. I see a lot of unproductive expenditure in the organic farming where all the Govt. subsidies are all wasted. It gives me pain when these non-farm based expenditure happens at a large amount. If u look at the investment 10 years ago and now it has increased dramatically, but on closer look the investment in non-farm based services is more which I feel is unfair. I feel we should start de-certifying the projects which do not pay the workers and exploit the women workers. If you look at the women worker a mother of a 3 month old carries the child and plucks the leaves whole day and the end of the day is not paid her rightful pay. Most of the 90% of the companies do this I feel these companies do unfair business. Govt. also becomes a partner in crime because they do not have proper inspection in this regard. The organic movement should therefore be more ethical and honest. Regarding the pricing, actually in some cases I have seen the premium derived from the products were used in community activities like building a medical center, school buses for local children etc.
- xxv. President of Indian society for certification of organic products ISCOF. Sir organic agriculture is centered mainly around animal cow. So no output should be brought from outside and excepting the produce nothing should go from the farm. There are large no. of small farmers and many of them cannot afford to have their own animals like cow or goat. We had been following traditionally in India mixed farming

concept now it is being vanishing. I request to govt that they are giving subsidy for mechanical things, so along for that subsidy and encouragement should be made for mixed farming concept. Then only a small farmer with 1-2 hectare land can do organic farming with his own inputs. Second point is that govt should come forward in encouraging more of Indian certification agencies, only one or two now. We feel proper support, recognition etc are lacking, so its essential for govt to come forward and encourage indigenous agencies. Third point is consumer awareness, if there is demand there will be supply, in western countries demand is high so organic products are sold well there. So my suggestion is that idea of organic farming should go from school level, give some training for teachers too Last and fourth one is that there should be a good mindset for organic farming from small farmers to the policy makers level. Then India has got a great potential for organic farming.

- xxvi. After retirement from agricultural university, TN we have formed an organization for organic agriculture, scientific society for integrated services based at coimbatore. Suggestion for commission for horticulture: we have been talking about problems in marketing organic agriculture produce and here many of stalls have exhibited rice, pulses etc. is it correct to send recommendation to govt to procure organic rice and other products and distribute it through the public distribution system?
- xxviii. I must congratulate the organizers for this international seminar and it is successful. None of the local organic farmers were there as source person in any seminar. So many people are coming from different parts of state, they are expecting to see something in trade fair relating to trade. But along with they must try to educate farmers about practice package for organic farming like vermicompost. I am surprised to see pepsi being sold in organic trade fair. Stall for coloured flowers is also there which cannot be encouraged
- xxxii. I am from Gopalan organics, we could have done better to open session with producers and buyers, open session with sellers and the buyers. There is lot of confusion about price trend in organic products, most people feel there is hardly any advantage for producing organic products than the conventional ones. Second, which are the organic products in demand both at national and international levels?
- xxxvii. What we try to do is we try to educate the elementary schools, telling about how to do organic farming, thinking that these young children will go talk to their parents in villages, and they are influenced by their children. So they will come back to us, and I am running a Krishi clinic, we are advising them what is organic farming and why it should be done etc. we have no support from govt, when we asked the district administration to help us to go to the school for the last 2 years, allow us to talk to the children when there are no classes. We have covered 600 schools in

Hassan district with lot of hurdles. I am an input producer from last 15 years. I would like to get commissions help that some sort of circulation goes to the district administration so that they permit us to go to schools and educate them. We wanted to have a organic garden in every school. We don't want any finance. This is only to see that total taluk becomes organic, thank you

- xxxviii. What we have to think is are we going to spoil our health, are we going to take in every thing bad and give the rest to the world. So that is the philosophy change we are looking at. The fact is if u are doing it for exports u have to do a lot on certification, where as if you are doing it locally u need not cater to some clause of the certification. The transportation cost is incurred by the country. The other countries are also in competition. We have to therefore realize that the main aspect is to meet our needs first of quality safe food. That has to start at the lower level of the farmer. We have to work with the farmer community and make them aware of the food they eat. The thumb rule must be that 50% of the farmers produce should be used for self consumption and the remaining 50% will be taken up by people like Mr.Roy who can come with projects where they purchase spices and other items from various farmers. There where he is a buyer like he rightly pointed out he will look into the world market. You have to sell it to him on quality He is a buyer he cannot buy from you because he likes Indian people.
- xxxix. When you talk about organic we are not only talking about the quality and safety of the organic food but we are also speaking about farming techniques. Therefore we have to cater to a community at large. We have to relate to the various connecting communities and societies associated with the farming activity. So as Indians think that I am going to pay him I will charge a higher price. This will not work. Economics of the market place will not work. That is why I keep emphasizing at all forums that there is nothing like premium in organic. Premium in organic is because there is a shortage in the market for that product and there is a ultimate in the market place where need and production are to be matched and the market prices are going to come down. You have to be competitive and to be competitive you have to be efficient. We are talking about efficiencies in framing, knowledge based farming, and optimal usage of the land whereby you will be competitive in the global market. Do not think you are getting into a niche market, because of its global appeal. The cost of production of organic products being much lower in the case of organic in our parts of the world. Because our labor cost is lower and our ability to work in this area is incredibility, the farmer's ability to work with animal husbandry the farmers has problems like certification and marketing. We have to formulate a system means labor intensive. We are labor intensive but we have huge costs to be incurred in certification these are the problems they have there,

but we are very efficient when considering the past agricultural methods. 30 years before when we drove cars in Indian roads all cars were foreign made, but today we make world class cars with the type of technology we have. And that is what is to be done here also, so that the knowledge in terms of technology, in terms of inputs are lacking. So that is to be catered. The main is the way we decipher the knowledge existent. Now that is where the administration and training is required.

xxxx. Chairpersons Remarks; As an administrator I keep on telling people and I keep on listening to the experts, technocrats, scientists and others. Otherwise we are all jumping the gun and coming to conclusions. So my humble request would be taking an issue like this that's taking organic farming to our farmers who are in this complex background, it is very complex. But never give up. But still we have to be very cautious. Another major issue with us is we don't converge, "we" meaning the policy makers, or the politicians, administrators, scientists and the farmers. So we all work in isolation. I don't agree with what you say, you don't agree with what I say, and somebody does not agree with what others say. So in such a situation nobody knows where the truth lies, it's just a intermingling of truth and falsehood. We don't know where the truth lies, where the feasibility lies. Here the truth is feasibility of organic farming. Where does it lie? Does it lie in the domain of science, or does it lie in the domain of administrators or in the domain of farmers? Personally I feel it is with everyone. Unless all of us converge to put our efforts together the desired goals of India going organic will remain distant. Thank you all for your participation in this Indian Organic Stakeholders Open House.

### **Question And Answers Compiled Together For All Sessions**

At the end of each session, speakers answered queries of delegates. The questions went much beyond the topics, because of interest of participants. Therefore, in order to give a comprehensive shape to the question and answer sessions, editors worked to compile these together. Below are the fifty one questions and answers to these, asked during the three days of seminar series. In order to keep the natural flavour of these exchanges, we have intentionally overlooked at the English Grammer and maintained statements as they are:

Q1. I found that the organic products are being sold at abnormal prices. The ragi cost is Rs.35 in the organic stall, while outside it is Rs.6 per kg. I purchased a jam for Rs.125 when jams available outside costs Rs. 45. There is a premium of 500% being charged. Don't you feel by selling at such premium prices we are killing the organic products. I am an organic farmer and I know that as the years go by the production quantity increases and the initial investment made is recovered. Then why charge such abnormal prices making people feel that it is only for the rich. Why cannot we just charge 10-15% premium.

- A1. You told the jam is Rs.125 when outside it is Rs.45, this does not mean that the remaining Rs.85 is our margin. There are no much margin in this business as yet and we do not think we will be able to make money in the next 1 or 2 years. It is a scale up issue and if organic farmers can sell at lower prices then we will reduce our prices also.
- Q2. The organic products at the farm level are low priced but once they enter the middle men's hands where they are branded and packaged the prices shoot, Why?
- A2. For the organic food products to be successful, there are two aspects. One is from the organic farming point of view and the second is the success at the market place. This will lead to the complete success of the organic agriculture. I have worked both with the farmer segment and the customer segment. The issue of giving the farmer a fair amount is fine but the question is will the market buy. How will the market buy? We are not going to the middle class market. The way a technology or a new product moves is that it is the top end of the market that first tries the product. Then slowly it moves down as the price comes down more and more people use it, the market then moves down. At present Organic product is an inefficient producer it is more expensive. So you have to sell to the top of the market. Right now the farmer has to sell in the market he has to make some money, so there is no other alternative than to sell at the top end of the market. We need to first know what the top end wants, what they will buy only then the organic movement will succeed. Right now we have to enter in the top and slowly move down. There has been no product which has entered lower in the market and then it has moved up. There are 100s of products and 100s of brands which have chosen the top down approach. That is why there is a need to understand the marketing model and how it works. We have gone to both the top end and middle class customer. You go to a middle class customer and you ask if you are ready to pay more they say NO. Are you ready to buy branded products they say NO. We cannot advertise for organic because we can use advertising only when we have a large amount and are at low prices. We have therefore chosen a fragmented segment where the volumes are low but the prices are high.
- Q3. There are a number of organic farmers, but the supply is not constant. As a marketer I am concerned about the customer whose requirements are on a monthly basis. The farmer cannot directly sell the organic produce to the customer He needs a middleman who does the certification and the marketing of the organic product. Warehousing becomes a major concern for the middleman. The farmer is growing but is not able to hold because the customer needs it only on a monthly basis. Is there any solution by supply chain management for that?

- A3. You have to plan the production on the basis of the customer demand. You may have to harvest twice a year to meet the demand. Sometimes you have to hold the produce till a customer demand is generated. Sometimes to increase the shelf life we have to process or semi-process the produce. There must be a good communication message between the market and the farmer. The farmer must produce the quantity that is required. The extra production volume should be stored. I know it is a problem in India because the storage facilities in India are bad. There are cases requiring cold storage, but currently in India it is not possible. Maybe in future as the market matures there will be opportunities for farmers to grow according to the demand. My experience says that we can have storages in the rural areas where the costs are low and then keep supplying into the urban areas as the demand occurs. There is no certification involved in storing organic foods, but where the organic foods are stored the warehouses have to be screened before. The warehouse should not have stored any chemicals or fertilizers in the yester years. There should not be any contamination from the animal husbandry or other fungal or bacterial attack.
- Q4. You spoke about the logistics and the distance because of which you were not importing from India. Is that the only criteria or something else?
- A4. I explained here the infrastructure also, what is coming to the port from Himalayas has already lost all the freshness. You cannot import anything by air. The land transportation cost is very high and the time and money involved makes one rethink on export decisions. The whole system of transportation involved is so bad that we have all the inspectors involved, handling and storage, which adds to the problems. Taking the example of exporting one kg of mango by flight, it will cost Rs.70-75. It does make a great difference by sea, the cost is only Rs. 8 or 10.
- Q5. While specifying the product quality for mango you specified that they should be spotless and of a particular size. But while you are producing organically there will be cases where you will find these spots on the fruits. How are they avoided? When you are speaking organic then it has to be in the natural state.
- A5. The organic produce has its own product specifications but I have also seen farmers who have after the initial stages of organic farming, proportionately used the chemical and organic inputs to produce products of quality specification. These framers are very clever they do not sell to traders or associations which cater to these norms instead they directly sell to the supermarkets. I have been in the industry for 30 years and I know various practices but how you balance the two are very important, the market requirements and the processes.
- Q6. When you have a farm it is not possible that there will be all spotless fruits. It cannot be that one fine day all the fruits will ripe in a tree. It is a various stage

process. Should not the European market accept some cases in organic because it is not possible in organic to produce uniformly genetically modified produce.

- A6. From a marketing perspective the problem is the customer is going to look at the colour shape the size he is least bothered about the pesticides added. Educating the customer is what therefore he should look first. So once the awareness about organic spreads the customers will start looking at it from a health perspective rather than the color, size etc.

Secondly, organic is a knowledge based farming. You need experts and expertise to help correct the problems.

- Q7. We export organic fresh banana to Columbia what are the other places?

- A7. We source organic bananas from the South America, Peru. More than 9% of the world's Organic banana are sourced from South America. It is very cheap to source from South America because the ships come to Europe with the bananas and they go back empty. This means that the people make so much money from the bananas that they do not mind the ships returning empty. In your case if I have to ship bananas from India, the shipping cost is going to be so high, so forget it. There are other issues in importing from countries like Sri Lanka. In the fourth world countries like the Dominique Republic or Peru I do not have to pay the import tax while in third world countries like India I have to pay 60-70% import duty. Exporters will not like to pay that and try somewhere else.

- Q8. I work in Manali we have worked on millions of these programs like BTP, cheese making, beaming, basking and try to revive all these in good ways. We are also concentrating on organic farming. At present we are doing a little study on the market potential for the organic products. I just wanted to know the potential of organic apples in the international market, because that is the main source of income in Himachal Pradesh.

- A8. If you want to grow apples for global market then you have to grow apples for export quality. You will have to grow minimum 10,000 acres of export quality apples. It means that the small percentage that do not meet the global standards you will have to sell in the local market. What you can export in the organic market is not impossible but it is very very difficult. You cannot compete in the global market, forget organic think of ordinary apples. What are the prices in China , what is the difference between Indian apples and Chinese apples. You cannot compete with China. We have an assumption that if you cannot do a product in a conventional way you cannot do it in the organic either. I would suggest you to look into the Indian market where there is a huge potential. The world is coming to India and you are talking about exports. We have to first educate people about the health hazards

the usage of pesticides can cause and then we will have a huge market in front of us, not only for apples but also other fruits, vegetables and processed food. Then you start competing with China and the world. Try to increase the shelf life and things like that.

- Q9. I was exporting the coffee product to the European countries. The European Union did not reduce the import duties in line with the produce rates this led us to a lot of problems. I just wanted to know the norms in dealing with a coffee commodity and a coffee product.
- A9. The farmer is the trader we will follow world market prices. If I look for Cocoa beans in the world market, I can pay up to 200\$ more. I look at the stock exchange if the prices are 1100\$ I can go up to 1300\$ We are a trader it is very sad that organic is not a fair trade. Marketing should be market-driven in case of prices. You have to measure the market demand forecast and try to estimate future prices.
- Q10. I want to know about the low cost in organic farming. Organic dairy is not profitable?
- A10. I am not talking about the dairy, I am speaking of animal husbandry as an extra source because the cow dung is useful in organic farming. The very presence of the cow in the field helps in the biodiversity of the environment and the soil. When we go for organic agriculture we have to employ more labour. The organic producer should know each and every plant in the farm. The customer therefore has to pay more for good food. We are basically trying to meet the local demand first. What we are saying is produce those food items which have maximum demand in the domestic market. Automatically the prices may come in par to what rate we sell the conventional farming produce. Training of organic farmers is recommended in areas like marketing, finance, knowledge management either by the farmer or with the help of an organization.
- Q11. Low cost of production is one factor but we have to pay a certain % premium which works as a motivational factor to the farmer. But the market situation is that no farmer is not ready to sell his product at lower market price. Organic products have processing cost, certification cost, and other related costs. Then how can organic products be competitively priced compared to other products?.
- A11. On an average premium is sometimes 100% and sometimes it is only 50%. We pay a 500% more if it is organic. Now this is basically for the export market. When you go to marketing remember they have a system for costing where the gap is 20-25%. There is a huge cost involved in certification. This is where you have to work on various certification processes and compete with your conventional farming directly. Calculate the risk factor by considering your buying capacity, buying pattern and then invest in farming. If you have a drought or flood you are losing the complete



harvest. The basic amenity for a farming is animal husbandry. The feed factor of the farm is your animal husbandry through vermicompost, bio fertilizer etc.

Q12. We have stopped using urea in our paddy cultivation in Tamil Nadu and shifted to organic composites. The produce when sold in the market did not fetch any premium because only small number of consumers understand the difference.

A12. We have got a norm under which the government decides that this is the acreage or the hectare under which organic farming of rice or wheat is to be grown. We grow and then sell in the market. The footnote for any business is produce what you want to sell in the market. You first meet your own needs from your agriculture and then do business that is where people like Roy come and you think of business beyond the horizon. Products should be produced on a market-driven demand. You cannot just produce something and expect the buyer to come and pick it up. Therefore before planning to produce something always look into what the market wants. You cannot do something because someone told you, you have to first assess the market potential.

Q13. You said that the organic produce should be first sold in the domestic market and then taken to the export market. When you are promoting organic farming you should also guide farmers in the product they should choose for farming, the certification and marketing activities. We are farmers and find it very difficult to follow these methods, we pay the workers and in the end we find that in the Indian market we do not have sufficient demand for the produce.

A13. I think there are basically three reasons for this. The first is when the farmer has some traces of chemicals in the produce out of greed to produce yield he has spoiled his land.

Secondly he wants to sell his produce in the local market. Third he wants to get profits by selling the produce in export markets. The first thing a farmer must concentrate is to stop using the chemicals and save the soil. Everybody can grow organic and market because the global market is huge. Focus on your own environment and your own local markets.

Q14. What is conventional method of farming? Why price should be higher for organic products? Lastly why Organic Cotton?

A14. Conventional farming means the way, which it is currently done. That means you use chemicals, fertilizers, pesticides and GMO based crops varieties and so on. Conventional just means the prevailing system. Organic is one where in you convert into a sustainable, low external input system.

To answer your second question; Why do organic products come priced higher? Now when you go to buy a shirt and if you find it very nice in quality, the feel and the look etc, you don't question the seller why you have priced this shirt with Rs. 50. While the other one there is just for Rs. 30. Now for organic products, it is a product free of chemicals, which is an added quality. It is product, which has very good taste if you eat it. It has longer shelf life and I think from the way it is produced, you get lot of benefits to the society. I think you get a healthier soil, better water, less pollution. So all these are added values, so I ask you why should you not pay for something that is better, why not pay more for it? In India, especially in some climatic conditions it is possible to produce same level of organic products without incurring higher costs. So the question is right, why does the farmer need to charge more? On the other hand, look at the farms today, in what conditions they are, and if they manage to get a higher price for a better product, what is wrong if they get more out of it? What is wrong if they get less poor than what they are now? For me there is nothing wrong in it.

Third question, why to go for organic cotton? Yes I think the concern that some people are motivated to go for it is that they realize that farmers use incredible amount of fertilizers and pesticides but yields are going down. You might know that worldwide 25% of the insecticides are used in cotton. But it only covers about 5% of the area. And India, according to CICR, this figure is 55% of pesticides go into cotton. Can you imagine! How much that is? So it is a dirty crop product that is causing a lot of pollution. in environmental perspective I think it is a hot-spot crop. But also from the farmer's perspective, you can get out of this, you might have heard of suicide cases in warnagal etc. all these are just symptoms of the system. And the third answer to it is that there is a demand. Why not produce it, if there is demand. Because people in Europe and in USA, Japan say that yes we want fibers if they are produced free from chemicals, and we can pay a bit more. And they are willing to pay more not only because it is less toxic, but also because they care about the conditions of farmers in India, where it is produced, so I think these are the good reasons. Even cottonseed oil is consumed, so don't say you don't eat cotton.

- Q15. The question is pertaining to the source of nutrients in organic farming. We have been hearing about the source of nutrients like cow dung or compost or whatever it is, the basic material is cow dung. So we would like to know the scope for chicken manure. It is widely available throughout the world. It is concentrated manure, what is its feasibility? I wish to further ask about maturity of crops under organic farming practices. Now, we are finding difficulties due to delayed maturing of crops due to organic farming compared to conventional farming. So I would like you to throw some light on it.

- A15. In our research experiments also, we have seen delayed maturity, because crops grow slowly and nicely which takes lot of time. It depends upon the crop actually. Poultry manure can be used if they are produced by a 100% organic system. If you have your own organic poultry you can use it as well. In conventional places it is polluted, with vaccines, antibiotics and hormones. When you are making chicken dung compost, mix it with good cow dung and other green material.
- Q16. Is vermicompost better than the other compost. Why?
- A16. As scientists we have done many studies on vermicomposting and conventional composting. The number of microbes is very high in vermicompost than the conventional compost, which makes it better.
- Q17. As a scientist do you think combination of organic and conventional practices do not work. What is the reason?
- A17. When farmers apply organic biofertilizers and toxic chemicals together, the microbes are killed. So it is a waste. They are combining both and applying at the time of planting. All the microbes are wasted, it is a waste of money. No combination is possible in organic farming with any fertilizers, even if you wish to remain inorganic.
- Q18. I am involved in organic farming for more than 25 years now. So I would like to ask as to what is the progress Maharashtra has made in Biodynamic and Homa farming?
- A18. Biodynamic is already being promoted in Dhule district with the help of super biotech. And it is in a big way a great success and today we have got not less than one lakh sheaths which have been converted into organic nutrients. Agnihotra is extremely difficult to promote for a government driven agency or institution. But it becomes difficult for me as an officer or for my subordinates to promote this technology. It can be done voluntarily and people are doing.
- Q19. There are three types of KVK administered by different agencies. Few KVKs are the NGOs, few are the ICAR institutes, and large number of them are with state level universities. I want to know specifically which kind of these KVKs are involved in the organic movement?
- A19. KVK run by NGO's are practicing organic farming and those under ICAR are not using organic agriculture, the KVKs which have come into this have come through a system of first farmer field schools being run for IPM. That is first step. And organic farming becomes the second step. In Maharashtra most of it has come first from IPM, then IPM totally without pesticides and then another step going towards fully organic cycle, which is how the NGOs are working in Maharashtra.
- Q20. As we are still talking about mixing organic farming with chemicals, why are we introducing another food brand known as 'green food' when we already have an organic food brand? Government authorities should Justify it.

- A20. We are not saying don't use fertilizers. Whatever chemicals have to be applied, don't apply it indiscriminately. Apply in a proposed manner based upon scientific studies. Apply the organic and bio fertilizers also so that the contents and the health of the soil is improved. Now such crops are termed green as they cannot be labeled organic, which justifies the need for a second label.
- Q21. Future of organic culture in India looks bright but I was surprised that none of them has touched upon the most threatening issues of genetically manipulated organisms in agriculture. I would like to know the governments view on this, whether the definition of organic includes genetically manipulated organisms?
- A21. I think the standards laid do not apply to the genetically modified crops. It is not considered a part of the organic farming
- Q22. We have 10 organic training centres and roughly 200 farmers who are doing organic. How do they get support for organic farming and certification?
- A22. There is no direct assistance given for certification. In fact certification is one of the issue with which we are concerned at the govt. level. The high cost of certification. Under the national horticulture mission there is a specific provision for organic certification. And the provision is that a group of farmers covering a minimum area of 50 hectares can take assistance up to 5 lakhs on the recommendation of the state government.
- Q23. Speakers from Ministry of Agriculture made out a substantive case of available organic inputs. Could we have a platform where concerned stakeholders are involved to arrive to a conclusion whether it is a correct assessment or not, rather than someone assessing and making inappropriate statements on inputs situation.
- A23. We can always talk. Basically organic farming means that all requirements should be met on farm. That is the real organic farming, and my appeal to all of you is that if we are advocating organic farming then yields cannot be compromised. I think organic should move on its own and external organic inputs should always be the last choice.
- Q24. Is central govt planning to discourage production of chemical fertilizers and synthetic pesticides to promote organic farming in near future?
- A24. To discourage or to ban chemical fertilizers which do you want? You see at the Government level the choice is left to the farmer. The people and NGOs like you or the govt. extension agencies are there to educate the farmers and tell him what the best is for him. Now for us to say that whether the farmer needs pesticide, at government level we cannot tell him we cannot make it available. We have to make it available to him if he wants it. The choice whether he goes for organic farming or goes for any other farming or he wants to use any nutrient, has to be left to the

individual farmer. The govt. cannot make a law or force the farmer to use a particular input or particular nutrient or pesticide. Of course pesticides are governed by a set of rules. There is a procedure for approval of the pesticides, there is a law governing the use of pesticides and whatever is permitted is permitted within the ambit of the law. Biofertilizers and Biocomposed also are now governed by laws

- Q25. Organic Seeds? Whether modern organic model farm has been developed for marginal farmers? Whether Organic research has been started in Maharashtra Agricultural Universities and what is the out come? How about Organic Market ?
- A25. First about the Organic seed, it is a concept which is getting attention through the organic farmers, who for the first crop takes it from the market while for the second and third crop the organic farms produce their own seed But there is no separate business taking place for organic seed through seed corporation. We have been requesting to these agencies but due to low volumes none of them are interested in organic seed production. Yes several model organic farms are being developed by farmers in different taluks. Third, the role of Universities the universities are having a kind of a lukewarm approach to organic farming. They prefer to insist on a balanced and integrated use of the fertilizers rather than total organic. They think that this is the right approach and organic farming is not. Fourth was organic marketing For marketing we give assistance of 10,000 rupees to a retail center at the district or taluk office. There is no question of having doubt about such outlets that have come up. Over 71 such outlets are working in Maharashtra. They may not be working for all 365 days, which depends on when they have the produce. They organize festivals like organic wheat festival on one day where in they sell over 700 quintals was sold. This is how the marketing efforts are being made.
- Q26. The government of Kerala is supporting organic farming, but they are supporting actually not the farmers but the biofertilizer units. Several private companies with the support of the government are pumping biofertilizers to the farmers and take part of the subsidy. The quality they are offering for the biofertilizers and bioinputs supplied is very poor and it is bringing lot of problems.
- A26. To answer the question on the quality of biofertilizers. We have made quality checks in Tamil Nadu & Karnataka. We are continually checking the quality of biofertilizers and if any sub standard material is there we are reporting the same to the govt. You will be very happy to know very shortly we are going to cover the biofertilizers under the act at the country level, if any sub-standard material is there they will be penalized. Secondly, all NGOs are entitled to get the financial assistance from the govt. even for biofertilizer production.

- Q27. Don't you think it is injustice that giving more subsidies on chemical fertilizers and pesticides and no incentives to organic?
- A27. I think you have raised a very important question. If you see the subsidy we have been distributing, it has gone up to Rs. 18,000crores. We should give a subsidy on the production of organic nutrients, we are giving capital investment subsidy where ever you set up the composting units upto 25%.
- Q28. There are many markets for organic food, why are we concentrating on Europe instead of Japan?
- A28. Why we look at Europe is that they are potential buyers who are buying. Japan is a difficult market. Japan has different certification norms, our norms will have to confirm to their norms. Japan is a small country. There is limit to what we can do there.
- Q29. What is yield differentiation when growing cardamom in organic way?
- A29. Traditionally cardamom was a forest crop. Suddenly when you are having economic activity of exporting cardamom, in a very global fashion, and trying to maximize the production, it became a mono crop. A series of pesticides and diseases started appearing. Now it has come to a stage where you have to use 12-13 sprays of pesticides. This way the soil is dead within 3 years. The farmers bring new soil from other places, lap on top of it and then farm again. But what we dont know is, the mysterious plant or plant group which was saving this cardamom from the disease, and what cardamom was saving for other plants. That is unknown. There are lot of companion plants that are actually supporting cardamom in the wild. It grows in lower altitudes. We need to identify such plants and have mixed farming for cardmorn.
- Q30. We have brought special rice from Assam. It is magic rice. It does not need cooking. You just soak in water for half hour, it becomes soft and you can eat! So how CBI can help in marketing this kind of product?
- A30. Your Joha rice is a special quality of rice. You want to see if it can be exported. Discuss individually.
- Q31. Is there a documentation saying to what extent yields go down during the three years of conversion period?
- A31. We have 2 years of data monitoring, which is too short. So for that we did it on interview basis by asking farmers how much yields you got in that phase. Hence we got some data. It is 20 to 50% lower yields in first two years. We need to study for 10 years with more number of farmers which we could not do right now. In rain fed areas of Maharashtra, we are not noticing any reduction in yield even in first year.

- Q32. Why are small farmers not able to accept organic farming so readily?
- A32. There is a risk aspect attached to it. Even if our study shows organic farming in long term is better, not all farmers will be convinced. They will say can we afford? If it fails, am I ruined. The farmer who is wealthy, maybe he can say that I have enough resources with me just to try it. But a poor farmer cannot. So probably you will never manage to start only with marginal farmers unless you have a strong support system.
- Q33. Why is it that large farmers are pioneers in adopting organic cotton farming?
- A33. Larger farmers are definitely the early adopters. And I think one needs to have a balance between smaller and large farmers. But then you cant go by a measure. It depends on who wants to join, who is the extension officer with whom village people are interested. I think this dynamics of selection has its own dynamics which you cannot really put logically on table. Question is managing small farmers. Average land holding has reduced from 7 acres to 4.5 acres. Which means we have more farmers to manage, more smaller farmers, we have more risk of the farmer selling the cotton to market because he has no money. We have to give that many more inputs to farmers, we have to have that much more complicated database. So it's a whole lot of things coming into play. At the end of the day all that effort has to be appreciated. End of the day we also need some volume. Otherwise, it is not a developmental project, it also has to have commercial sense. So its how and where one does it, I think these are complicated issues.
- Q34. If we improve soil organic matter does the water holding capacity also improve?
- A34. I think there are number of points to consider. First of all, in same kind of climate, and soil, the organic matter of soil is determined by soil properties, whatever you do there can be variation from 0.9-0.95% or so. Second, the % of organic matter is not the only component that you should study. More important is turnover of organic matter, it is the microbial activity, the soil structure parameters which change. But to measure these it is difficult. So I think we can increase soil organic matter content. Compost practice could really improve, increase stabilized humus content, which can further increase organic matter content.
- Q35. We are trying to control major pests with bio-pesticides. Under normal circumstances we can control it. But sometimes what happens is despite best efforts, the minor pests become a major pest where the neighbour are inorganic and use pesticides to suppress the major pest. But the minor pest will become a dominant one and invade your crop and other organic system, so under that kind of crisis do you have a specific formula or crisis management system under organic plant protection system by which you can save the crop.

A35. The question is how are we going to evaluate the quality of biopesticides. For instance, you have dipel, NPV etc, how do we know about the quality of the inputs that are available in the market. For instance, bascinia needs certain humidity for it to work because they are all biological agents, bacteria and pathogens. So the question is, the quality, are they good? Are we using it at right time? Like we know it is not good to spray in the afternoon, UV rays don't help. So spray in evenings. So there are lot of knowledge based issues which are involved, and I would like all of us here to address this quality aspect. In case of emergency, you can use many things, in market very good quality of verticellium and other products are available certified. We have to teach farmers how to store these biological products because their shelf life is very short compared to other natural pesticides. Another thing is they have to be used at right time. Bio pesticide should not be used in hot seasons, but in evenings when weather is cool. Farmers are now producing many natural things themselves, like natural extracts from trees, if there are bollworms you can use chilly powder also. So when you want instant solution to those pests you can use the herbal solution of chilly powder. You can use it 10% as a knock down effect for your crop. And that is allowed in organic farming.

In Maharashtra there are 4 seasons. All of us are having same doubt, during first and second season. I think in Dulhe district, the experience is that farmer taking 4-5 up to 10 pesticide rounds when he has converted to organic, he always thinks that he should spray something. But our final conclusion is that without any spray, now the farmers are getting good yields. There is no need to spray herbal preparations, biopesticides or biofungicides. Because many farmers were not having proper data, but now we suggest that if they require to spray they should use neem extract. Even in our areas, these formulations are available in market but not giving good results. The neem seed collected from farmer at local level, if crushed and used, that gives excellent results compared to all neem products. In my opinion there is no worry about pests. Our vice chancellor of Maharashtra said that if you will reduce the fertilizers from cotton, 90% pest problem will be solved.

The whole problem of organic farming is going back to pest management. Why don't we focus more on crop management and farming systems than just get tied up to pest management. See, everybody is saying killing is solution to pest management. When you work on farming systems and on soil, and when you remove fertilizers, you are obviously going to reduce pests. So the focus should be on farming system and not so much on pest management.

Q36. My question is how glyricidia improves the crop produce because the flavor in the produce is also equally important when maintaining the nutrition of the organic produce.



A36. Glyricidia is a traditionally known green manuring crop. The nutrient content in the leaf is very interesting as bulk of it is converted to a form, which is ammenable for takeup plants.

Q37. How is nutrition farming different from organic farming?

A37. There is a difference between organic farming and nutrition farming. Consider a case where the cultivation of organic bananas leads to a situation where the produce is of abnormally small size. This is due to the soil fertility and the chemicals in the environment though the practices involved were purely organic. When such diseases contract the plants it may have many reasons stated by others but I will attribute the main cause for all the plant diseases to nutrition. The developed countries like US also face problems with their produce due to the nutritional factors. The nutrition in the plant helps it fight the disease causing bacteria and viruses effectively.

Q38. Can we improve the micronutrients in the soil organically? How can that be done?.

A38. If you read the history we see that the tamarind trees are more in certain parts of India. If we see the present condition the most affected people are unfortunately from the same part. I was referring to the present day farms where they take water from a deep source and the land where there is a marginally high pH use tamarind leaves. This improves the soil pH and improves it to around 6.5. The Madar is working more effectively than our 1kg of gypsum. It works as good as gypsum or sometimes even better compared to gypsum as far as alkalinity is concerned. If we go with the nature we find most of the Madar in highly alkaline places.

Q39. Should we not facilitate the practical knowledge used rather than try and adapt some new methods, which may suite our cultivation?

A39. I do not believe in Western or Eastern as long as the knowledge comes it is all good. There is a great pool of knowledge and the use of all even in research is impossible. Any practice must be affordable and should be easy for the farmer to use and the method should help in bringing in returns for the investor. I do not look with that paradigm. The biodynamic farming is not of Indian origin.

Q40. The nutrients in the soil differ on various factors, how does it affect in the long run?

A40. The 3 main factors that affect the soil nutrients are

- the minerals of the soil
- the biological matters like the bacteria
- the chemicals used in the yester years

We can therefore use organic acid on the soil to bring back the minerals in the soil. There are some effects that depend on the way the soil is used.

- Q41. Regarding the pH in our farms the pH value was as high as 8.5 by the use of BG500. We have reduced it to 7.5 and are on our way to make it 7 within a years time. The time period is a matter of concern. Using the tamarind leaves as you are telling and the time of their shedding how long will it take?
- A41. Two years Three years time. We have done experimentation it depends on situation sometimes on seasons. You can take it for granted 2 to 3 years is fine.
- Q42. In organic framing, the plants require large amounts of N,P,K, how are these inputs provided by biodynamic farming? In organic farming there are many avenues by which we can treat the pH of the soil how can we do the same with biodynamic farming?
- A42. Biodynamic farming is basically an improved form of organic farming therefore all principles followed in organic farming are followed in biodynamic farming. You know the experience of BT500. In most soils the soil micronutrients get destroyed due to over exposure to sun, over ploughing, use of fertilizers in yester years and most of fungi in the soil get destroyed. It is important for the soil to be strong, once this is done the microbes can be built. It is not necessary that these nutrients come from the soil. Most of these nutrients are available in the air itself. For example Nitrogen, there are many studies to bring it down to the soil.
- Q43. There are a lot of plant diseases. As per the nutrition in the soil the causes of some of the diseases are due to deficiency in nutrition and some deadly viruses. Is there any remedy for the viruses in biodynamic farming?
- A43. We have done a lot of research on viruses, preparing plant vaccines. We will take the affected plant pluck it from the ground including the soil and the root and put in water for 1 to 2 hours and leave it over night. The next day we mix with water the cow dung and other components which I will tell later and spread over the field so that the remaining part will not be affected by the virus. The condition here is that the affected plant should be from your own field not from any other field. We have done this experiment with ladyfinger and tomato. If there are more than one virus this method is not effective. So in few cases this is successful while in other cases we have to find alternative methods. It is very important you use plant from your field. The success rate is very high as far as rice is concerned we have worked with more than 3000 hectares of land.
- Q44. I come from Maharashtra and own a mango farm. There is a severe problem of the virus attack on the tender leaves and flowers of the mango affecting the yield. There are a group of farmers who have joined hands to fight this common problem because even the use of chemicals has not saved us. I want to know whether there is anything that can be done organically?

- A44. We have grown beetle leaves near the mango leaves and this has helped us fight the virus attack and the attack of the white mites. The beetle leaves can be grown over any tree and they help to fight the insects and the pests to a greater extent. The addition of crushed neem seeds also helps fight insects as well as improves the productivity. The neem seeds can also be burned in a pot and a person can walk with the pot in the reverse direction it also helps. You can also use the sacred grass which I mentioned.
- Q45. I am doing many projects based out of Jalander, I have worked with farmers and there is flow of information from farmer to expert which is not included in the model. Your model only has the information flow from expert to farmer but the reverse is also equally important. Don't you think it is important in organic farming?
- A45. The first is the farmer or entrepreneur, the second is the interaction with local agricultural universities and research centers, the third is with input suppliers. In the first stage we interact with the entrepreneur himself, we try to extract what his ideas are and we render the knowledge accordingly. We take the help of local universities because they will know the climatic conditions and geographical conditions. We have experts at various levels to handle issues. We have a district level deputy organic product management expert to handle problems if the local expert cannot help. In the next level we have a knowledge expert handling many district deputy officers. We have a certification structure which helps the entrepreneur in the process of certification and marketing. Our fee structure is around Rs.1000 per service or even Rs.750. We have a basket of services and by clubbing many of these services the entrepreneur gets a low price. We also offer other services like some personal services, financial services and insurance.
- Q46. I wanted to know of the labour charges. In the 1980s it was 17% while now the PF % is 33 don't you think it should have been the reverse.
- A46. It is not the wages it is the return on investment. If you sell Rs.100 worth of coffee you will get only 17 and for cotton it is only 33% that is what the survey has said. When the coffee prices hit a low of Rs.55 in the world market the farmers did not get any returns for that produce. When we say fair trade there are two certification that are given.
- Q47. CO<sub>2</sub> as an agent for modifying the atmosphere, can we not use CO<sub>2</sub> instead of oxygen?
- A47. Our experience is that Co<sub>2</sub> can kill insects but not all, it does not kill the eggs. And I think its more important to kill the eggs.
- Q48. The direction in which so called contract farming or corporate farming is leading us, I was just wondering if you could kindly enlighten us on specific example of getting into a contract, who is bearing the risk?

- A48. See, E-choupal is actually an information platform it is not really an intervention per se. Why do people go in for contract farming? Because if I need potato chips I need 100 tonnes of potatoes so I have two alternatives, either I produce it myself under an extended structure of my own. Today every corporate is trying to reduce people directly involved in management of business and subcontracting as far as possible. The very word contract does not mean that you work for the company but the company contracts it out. There were times when a company needed amla as a raw material and went around telling farmers- produce as much as you want, we are there to buy it. I profess that all producer companies would actually primarily function for their own communities. Their own communities means farmers working on those farms and all those villages which are part of it.
- Q48. Why did you make the statement that organic is not fair trade.
- A48. I feel that organic must be a step ahead than many of the various businesses. People should produce organic food to serve other people. They must think of environment. They can charge a premium for providing the top quality even in the global market place. But that is yet to happen.
- Q49. Why are there different quality specifications for organic products grown in various parts of the world? For example, the oranges, bananas grown in India are accepted in some UK markets while not in Europe.
- A49. Sorry, I cannot answer that question.
- Q50. I wanted to know can we grow genetically modified crops under organic farming. Can we explode the productivity by this method.
- A50. To be organic the very first condition is that it has to be natural and no modifications done to the original and therefore GMO's are not included in organic.
- Q51. I come from a state where the chemical or conventional farming is being followed in the last 20 years. To retrace the steps of last 20 years is impossible. I have been working with large farm groups in the past years and we see to it that they follow organics. We continuously guide them to use organic substitutes instead of chemical. But in the last 3 days I have seen a lot of focus on the small farmer and marginal farmer groups. Do you have schemes by which the large farmers will get benefits.
- A51. As far as I know there are no special schemes or subsidies given by Govt. to convert to organic. In Europe the Govt. gave a 3-year subsidy while converting to organic but in India nothing is specified. Since you come from a very strong state, which holds a formidable amount of power at the center you could probably help develop some schemes. Though there are no subsidies for converting to organic, the marketing of organic products can be better guided by organizations like ICCOA. Organizations like ICCOA should therefore help the transition.



Chapter **III**

**Organic Awareness And  
Policy Initiatives**



### Opening Remarks Of Session Chairman

*Shri. Sompal*

The Organic farming is not traditional farming; it is in a way, high technology farming. Two things that we have to dispel from our mind are, first, that the farmer is not a biotechnology expert, and second, he is capable of making an extraordinarily good vermicompost. The only focus that farm policy institutions such as the state and central governments have is providing subsidies with some skeleton training programmes. Are we going to make our farmers experts in biology and biotechnology overnight and thereby practice organic farming? We need to think about this. Each and every organic practitioner in our country is indeed a specialist. They can go on and on for hours as to how he or she makes *panchagavya*—a practice using the five major substances obtained from cows: milk, ghee, curd, urine and manure—but fundamentally *panchagavya* depends on the quality of the cow you rear. Have we standardized the quality of the cow? What if the cow is eating plastic, it is going to provide contaminated urine?

Many advocate that organic farming should be looked at as a business. This is easy for individuals and organizations with a business background but quite tough for a farmer. If you want the farmer to be empowered, if you want the farmer to become rich, instead of living a subsistence existence, then they must overcome the attraction of government subsidies and organize themselves to market their produce better. Farmers and farmer groups must make crucial decisions: if a farmer finds that he can buy his needs economically, he should not waste his energy on making them. We need to corporatize the farmers in the sense of allowing the farmer to do what he knows best—farming—and take the other activities away from them and offer them corporate governance.

### The Organic World And India; Strengths And Weaknesses

*Gerald A. Herrmann, President IFOAM*

What is Organic Farming?

This is a sustainability put into practice.

What IFOAM believes is the holistic approach of organic farming. It's the soil, water, air, plants, animals, nutrients. This approach is not interested in eating products which have



traces of pesticides. This approach is also very conscious not to disturb nature but use nature for enhancing the system and strengthening it.

**IFOAM's mission in context**

Is leading, uniting and assisting the organic movement in its full diversity. That already shows you that IFOAM is the leader who leads people into the organic world, wherever they are working. IFOAM wishes to assist people, so the new IFOAM India organic service center is launched together with ICCOA, to help serving Indians with IFOAM's knowledge. IFOAM's goal is the worldwide adoption of ecologically, socially and economically sound systems that are based on the Principles of Organic Agriculture.

IFOAM is not happy with 0.1% organic farming or 1% organic farming. It's mission clearly says, we want to turn the world into organic. You might think what crazy guys are these they are saying they want to have 100% organic! But if you think 50-60 years back, what has the earth been? It was originally organic, so is it so strange now to ask that we want to turn it into 100% organic? IFOAM is keen to move it further and it has the right people here on this stage to assist us in that approach. When saying IFOAM is uniting the organic movement, then it means that everybody is welcome, be it farmers, researchers, consultants, or certifiers or traders. IFOAM is uniting, it brings together on a platform for organic to help people understand and learn from each other. This is to show you that in a small graph where are all our members (Fig 1.) come from.

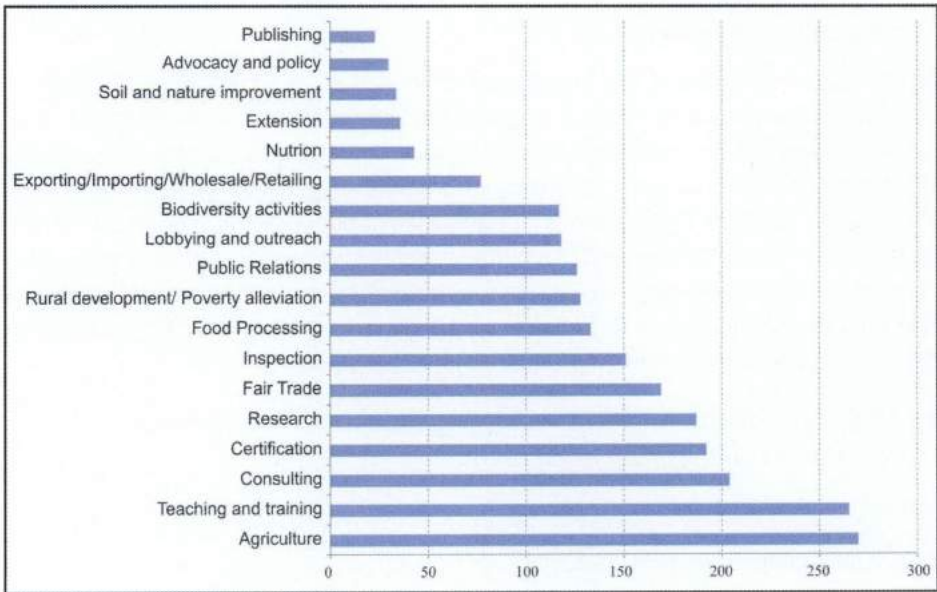


Fig.2: IFOAM member categories

All our members are coming from organic 108 countries, western Europe still is a strong power but Asia is growing very very fast. This is the new area where organic is growing rapidly, be it in India, China or South East Asia, the continent as such.

#### *International Harmonization Initiatives Of IFOAM*

IFOAM is developing standards and have been doing so for the past 50 years. We know that standards are necessary to guide farmers and processes to know what is the power in organic farming, to grow and process organic food. But during the past 15-20 years, we were not alone as a private sector to set standards, government also started, partly with our help, to regulate organic. Now India has its own organic standards to develop organic systems. However, India is also not alone, there are about 60 countries in the world having already set up their regulations and standards, each a bit different. They are all based on the same organic principles. It leads to an un-harmonized world because trade and businesses have lot of difficulty trading organic products around the globe, because the accessibility of markets is disturbed by these different regulations. It needs a lot of effort and money to overcome all these barriers and hurdles which have been built in organic. One of IFOAM's task is to work with Codex Alimentarius, FAO, UN agencies, with governments. They are all taking part in the international task for harmonization. We have set up with FAO and the governments a system to discuss how one can harmonize the regulations to make trade barriers go down and make the markets more accessible.

Just some figures (Fig. 2) how we have made the organic world strong. One can see representation in the western world, northern world, in the Europe and the U.S. Amazingly enough, U.S. is the second biggest market in the world with 10-13 billion US \$ turnover with a very small acreage. This organic market is living from imports and this is a chance for growers around the world if they want to supply food to that market. You see that Europe is quite heavily engaged in organic farming and the acreage has reached top figures in Sweden at 19% of organic farming. Again that means we are not that far from their 100% even if it sounds crazy saying that. On the other hand, it shows you that we have a long way to go from this 0.1 to 1-2%

Some market figures 25-30 billion US\$ business. A big business which is interesting and not only based on export but it is also based on local and regional production. US citizens believe that organic foods are healthier. 60% of Danish population often buys organic food, 30% of the daily bread in Munich is organic, 80-90% of the baby food sector is organic. And that's where we should start the nutrition of the new generation- the babies are the one who should not grow up with the food containing residues of pesticides because they are too tender. They should be the ones to grow up healthy. Baby food industry, got the message from the mothers and they are converting to organic. This leadership is what we need to develop an organic market. It needs entrepreneurs to take it up and whether the entrepreneur is a farmer or is a processor, or a food chain or whatever, we have to think organic and we have to drive, and spearhead the development of Organic.

Overview World Markets for Organic Food & Beverages

(forecast)

Markets	Retail Sales 2003 (million US\$/€)	% of total food sales - ca.	Annual growth % 2003-2005	Retail Sales 2005 (million US\$/€)
Germany	2,800-3,100	1.7-2.2	5-10	-
U.K.	1,550-1,750	1.5-2.0	10-15	-
Italy	1,250-1,400	1.0-1.5	5-15	-
France	1,200-1,300	1.0-1.5	5-10	-
Switzerland	725-775	3.2-3.7	5-15	-
Netherlands	425-475	1.0-1.5	5-10	-
Sweden	350-400	1.5-2.0	10-15	-
Denmark	325-375	2.2-2.7	0-5	-
Austria	325-375	2.0-2.5	5-10	-
Belgium	200-250	1.0-1.5	5-10	-
Ireland	40-50	<0.5	10-20	-
Other Europe*	750-850	-	-	-
Total (Europe)	10,000-11,000	-	-	-
U.S.A.	11,000-13,000	2.0-2.5	15-20	-
Canada	850-1,000	1.5-2.0	10-20	-
Japan	350-450	<0.5	-	-
Oceania	75-100	<0.5	-	-
<b>Total</b>	<b>23,000-25,000</b>	-	-	<b>29,000-31,000</b>

Note: Official trade statistics are not available. Compilations are based on rough estimates. Sales figures are based on an exchange rate of US\$ 1.00 = € 1.00.

\* Finland, Greece, Portugal, Spain, Norway, Poland, Hungary, Czech Republic, Estonia, Latvia, Lithuania

Source: Compiled by ITC, December 2002

Fig. 3: Overview of world markets for organic food and beverages

We are also reaching out to new areas, cosmetics, textiles, climate change, what role can organic environment take over culture? In respect to climatic change we believe strongly that farmers should be supported in their activities in developing fertile soil, because a fertile soil needs increasing amount of the organic content in the soil. It is the real way how you can grow organically. Whereas instead of fertilisers used in growing crops, you can work on the soil. Working on the soil means working with organic matter, feeding the cows which are along with the farmer on that one hectare of area. Feeding the soil means keeping the soil full of life which is like feeding the people, feeding the soil will assist in feeding us. This is very important. But cows in organic farms is an interesting topic.

#### Where Lie The Benefits Of The Organic Farming For The Society?

Fertile soil means a clean water, less erosion, certification, healthy food. It also means more organic substance in the soil. It is going to make an impact on wide range of areas and we are not only talking about food alone.

### *What Are The Success Factors For The Development Of The Organic Sector (Box 1)?*

- **Professional promotion to the consumer and farmer**
- **Strong consumer demand**
- **High degree of support from food firms**
- **Sales through all channels including “conventional” supermarkets**
- **Local markets combined with export markets**
- **Moderate (<50%) price premia**
- **One organic label**
- **Ability to adapt to an ever changing environment**
- **Policy strategy implemented by governments (Action Plan)**
- **Division of tasks between government and NGOs**
- **Lowering costs on all levels**

#### *Box 1. Success factors for the development of organic sector*

Turning on to the world and seeing a lot of countries and also in our developed world, the focus is always on the farmers. But farmers always stay in business if they can sell their products. So market is the driving force of organic development. It is nice if the farmers are converting, it is good if they grow for their own consumption, it is welcomed but at the end you have to sell your products to the market whether it is local or export market, I don't care, but you need to sell your products. Therefore the point we should make to politicians, policy makers and development is don't underestimate the market. Therefore, when we see that countries are developing their farm sector even by subsidising farmers, it's nice. But you can't live on subsidies, and you should not. You are an entrepreneur, you are a businessman, you should live from business, so the need is to tell authorities to develop the consumer awareness, develop the demand in the market and the farmers will grow subsequently, automatically convert to organic because there is a market. Where there is a market, there organic farming will succeed.

We see that there is strong consumer demand. We should not look at consumers as strange animals but as kings. Because having no idea of organic farming, not understanding what we are doing, living in a different world, living in the cities, saying we don't care from where the food is coming, we have to look at them as our partners and our friends. That means you all have to go out to the market and tell them what you are doing. You have to educate them and if all are coming to you, then they say farming what is all that about? Why should I go there? What am I to do with farming? People are far away from

understanding what farming means? You know we have an advertisement for a chocolate. It is a pink chocolate or violet chocolate. And when the colour violet is advertised in the TVs and then if you go to kindergarten, and ask the children what is the colour? They say The colour is violet. This is what i am talking about. That means that we have to have a simple message we have to reach out. And where shall the money come from for doing that? It may not come from your pockets. It will not come from our pockets. It is an impossible big task, how can you educate more than 1 billion indians about organic food? This is a time we are in big business. And then we have the organizations to come in. It is their task to promote the right food as it is the healthy food they have to promote the benefits of organic foods. Because it is a benefit for the whole society.

Again soil, water, climate, energy, and all the benefits are delivered by organic farming. And so it is a service to the society and society should do its role and take it up and set the policies.

Then we look at next level. Who is processing, who is buying and trading your food? The organic movement tends to be critical with different structures. These are the guys because we know where they have moved us today. But we are most happy to see them as our partners because there are aslo people thinking and changing and contributing to the lives. It is the privilege of the farmers to come and talk to us about organic agriculture. It is a privilege of everybody on each level to come forward. Food chains and supermarkets are taking their share. Soif you are looking into marketing of organic, you should not only look into exports or local markets, but look into partnerships. They can be built at every level. It does not depend on whether they are big or small..small does not mean they are not ethical like big ones.

#### *Organic Market Development*

Development will be possible with small organisations, but we have to reach out to each and every one that means, reach out to the big supermarkets even. All marketing globally, regionally and export do not only consider export as the possibility to sell organic products, there are aslo other sources possible who will welcome the products at the regional level. Over the price premium, we do not want to be a movement for the rich. We want to be the movement for assisting people for getting the right food. That should be on every level. Someone should develop strategies that the price premium for organic foods are not too high and spread the message that yields in organic farming can be as high as conventional or even higher if it comes to certain regions mening that it can be economical to grow organic food even if you dont get a higher price. Organic farming means sustainability for your own food production, for your own regional marketing, and that should be for everybody and not only the rich.

One organic label is a driving force in the markets. How should the consumer be able to understand all your lovely products. Even I have a hard time remembering everybody I have spoken to. So the simple clear message is that an organic product does not mean you can have your own budget, instead you can try to grow your own organic. For the identification of organic, should be simple and possible if you promote one single message. Here the government has a role in promoting a seal. That seal maybe private or governmental but it should be one seal for easy identification. The ability to adopt this everchanging environment, dont believe that your environment is in stake. Norms are changing. 20 years ago we had the discussion, should we ever work with organic supermarket chains?, with the conventionals or all these bad guys? Now everybody is. So we should be able to overcome the barriers in our heads and even the feelings in our heart and say.. reach out to the others and try to get them on track, try to win them for your case. Also accept that you might get business from a farmer and adapt the changes required for. We will not make a stop to the development of the world. We will help many farmers in the next decade to go out of business because being small is very difficult. Even setting the policy in the right way, assisting the small farmers, costs are increasing, energy required is increasing, so at the end farmers have to think of how do they recognise themselves, how do they structure themselves to compete and to stay in production. That means dont put their ears into your head. Dont believe others, but your heart, the only one thinking in the right way.

Be open, learn and be prepared to change and adapt because if you do, it will be hard to survive. It needs a concise policy by the government. It is not done by just defining a law. It is done by having a feeder as a competitive authority. It is not done by having certification by just doing the inspection work. We need much more, a concise plan, a strong strategy so that we can be just a subsidiary of the government. We need a plan saying that where we want India to reach in the year 2010, 2015, 2020 and to reach that level we are aiming 10-20% of the agriculture to become organic. This needs a lot of adjustments in the policy sector, in the institutions implementing the policy of the government, the marketing and promotion strategy to be for the consumers. So we need a concise market plan, bringing all this different level together, building the right networks so that the different measures can work closely and link together, shrink together, to be of support for the successful development. Very important driving force of organic has been NGOs.

If they had not been there, we would not have the law and the policies of the governments. Governments are following what people are doing. And that shouldnt be changed so that it will be easy for govt. But for all NGOs, for farmers associations and for other groups, they have to work together and acknowledge that each of us have to do that part of the division of a task. Lowering cost would ever be a concern, we all have to work to make organic food affordable and it needs lot of means of lowering cost in organic, making organic bigger, it will rationalise transport, production cost etc., only than cost may come down.

There are lot of farming communities using the internal control systems. How is the internal control system being structured? This certifies that the control has to be implemented at very large numbers. To establish internal control systems, to bring down costs and provide certification, so regarding this you have to learn from each other. It is meant that regional farmers are grouping together and organizing their own internal control systems and the certifiers are coming not very often, so they were lowering the costs.

Another nice aspect which needs to be reflected in the policy making is the new participatory guarantee system. We are doing that already. This goes back to the times when we had no laws and regulations or guarantees in organic quality at that time, it was just the trust between the farmers, the consumers buying the product would trust product of farm because the logo of the organisation. Who went out and said that we look at each others aspects which was enough for the consumers. The consumers were not suspicious whether they are growing organically or not. This approach has been taken up from now and we are trying to strengthen because organic farmers are not ordinary farmers who have extra cost of around 45%. Other farmers are farmers who grow crops inorganically and may sell as organic products. The participatory guarantee system organises an association of organic farmers. The participatory system helped in lowering the cost of production for the farmers and made organic foods accessible in the local markets. so there is more to pick up on certification and if you think where democracy is involved, what certification has to be given? Can you imagine if we have 20% organic farming, this will work out, it will be a major. I believe that if there were one farmer, one certifier and one bureaucrat how would have we financed that system and other people still living dependednt on them again.

### **Organic Farming Initiatives of India**

*Satish Chander, Joint Secretary INM, Ministry of Agriculture and Co-operation, GOI*

Indian farmers traditional agricultural practices of the past now fall under "organic farming". Farming practices were totally organic 50-60 years ago, except that certification was not part of it. Comparing organic farming with conventional farming, the general habit is that we consider conventional farming as a sin. However let us not forget the fact that chemical fertilizers enabled India to get a major position in food and production globally. We are producing about 200 million tonnes (MT) of food grain using 80 MT of fertilizer and 6-7 MT of organic nutrients. The policy of the government is to increase food production to 320 MT by 2011-12, which will need about 34 MT of organic nutrients. The question is, from where and how is this volume of organic nutrients going to be produced?

Let us look at the effort by governments of India from time to time to introduce sustainable farming. The Ministry of Agriculture has always been advocating the balanced use of nutrients and complains of indiscriminate use of fertilizers. Facing this issue the Government has taken a number of programs like the National Project on Development and Use of Bio-

fertilizer, started in 1983. Under this program a huge capacity for bio-fertilizer was set up, a number of projects for the preparation of compost from waste were sanctioned, and state governments also set up large capacity for soil testing. Now this capacity is renamed as the National Centre for Organic Farming (NCOF). It is headquartered in Ghaziabad near Delhi with six regional centres. The government launched the National Programme for Organic Production (NPOP) in April 2000 under which the following have been accomplished;

1. National standards for organic production have been established
2. Accreditation policy has been developed
3. Inspection and certification agencies have been approved
4. An India Organic logo is being promoted
5. Equivalence of NPOP standards with European Commission standards has been settled

One way to decrease the cost of certification is the National Program on Horticulture, started on an experimental basis five years ago. The project worked well in Northeastern states and now this mission is extended to other states such as Uttaranchal and Jammu and Kashmir. Recently on the same lines government started the National Horticulture Mission, under which the Government of India provides systems support for research and development, planting material, production program, harvesting management and marketing. Organic crop cultivation will be supported with additional assistance, such as Rs1000 (US\$20) per hectare for a maximum of 5 hectares. A Technical Co-operation Project with FAO is being implemented. Under this project organic production packages, standards for cost effective certification and creation of data bank are being developed. Simultaneously the Government of India has set up a task force to address the issues of productivity and yields, one of the major issues concerning organic farming. India has a population of more than 1 billion, and food security has to be kept in mind when formulating any policy. NPOP standards apply to domestic markets also, because there cannot be two standards, one for domestic consumption and the other for export. India should continue to have uniform standards same for domestic and export markets. Ministry of Agriculture is considering support to the idea of organic where certification is undertaken on a decentralized basis either by the government agency or by an NGO. A second line of food with minimal use of chemical inputs also is being planned.

### **Organic Farming Initiatives In The States: Maharashtra**

*S K Goel, Commissioner of Agriculture, Government of Maharashtra*

The farming community faces both a vicious and virtuous cycle. A vicious cycle exists today and the virtuous cycle is what we are talking about in the seminar at large. The gamble of farming with nature and markets, the two major driving forces, has led to many



unwanted results in India. Farming communities having no alternative sources of income are at the mercy of rain, and their creditworthiness is very low. If this cycle in the present scenario is a vicious cycle, can it be converted into virtuous cycle? The main question is how to improve productivity in rain-fed agriculture. The solution is organic farming, and how do we go about it? Maharashtra state believes that organic farming will increase income and productivity within a given environment.



Fig. 4: A pictorial overview of Organic Farming promotion in Maharashtra

Ten needs of organic farming recognized by Maharashtra are: *In situ* water conservation, IPM capacities, Vermicomposting decentralized, Promotion through NGOs, Organic link between user and farmer, Promotion via eco-tourism, Identification of potential crops/regions, Training programmes, Evaluation, accreditation and Financial support.

In Maharashtra a vermiculture centre is established in each *taluk* and vermiculture is given to the farmers. The services of the NGOs are utilized to develop some serious thinking about organic agriculture among farmers, and for training, certification and Inspection. The state has developed training material, crop specific methodologies, different organic production and marketing manuals. The Maharashtra Organic Farming Federation (MOFF) has been set up, recruiting 140 NGOs to look into certification and other issues related to organic farming. Substantial funds are allocated for documenting traditional practices and indigenous knowledge in organic agriculture. These records are substantiated by a scientific validation of the same to make it more acceptable and applicable.

- Activity spread in all (32) districts and all (352) talukas
- Number of villages covered –
- 4007 in 2003-04 & 4321 in 2004-05
- Number of farmers involved –
- 2.08 lakh in 2003-04 & 1.72 lakh in 2004-05
- Farmer's groups formed -
- 987 in 2003-04 & 2393 in 2004-05
- Total area covered under organic farming –
- 3.40 lakh ha., with grants & 3.21 lakh ha. without grants

Box. 2 Statistical Overview of Maharashtra state Organic activity

## Organic Farming Promotion; The Tripartite concept

Pol M A, National Trainer of Organic Farming, Art of Living (AOL), Bangalore

Farmers' participation, active role of AOL in bringing about awareness among farmers and involvement of government departments is AOL's tripartite concept. By creating awareness about issues such as organic farming, soil erosion, depletion of ground water and drawbacks of chemical farming, AOL plans to build the self-confidence of farmers. AOL has 10-unit program for promoting organic farming: Model demonstration farms, Awareness Campaign, Training centre, Organization of exhibition in rural areas, Marketing support services, Market Information centre, Legal cell, Sri Sri Ghoshala, Organic seed bank & Library.



Fig. 5: AOL's collection of native cattle species, mixed farming demos, results of organic pomegranate promotion and water harvesting on farm techniques.

So far 5000 farmers have been trained in soil preparation, use of Bijamrut and Jivamrut, selection of local seeds, mulching, irrigation, indigenous cow products, *agnihotra*, *dashaparni arka*, pesticides, vermiculture, mixed cropping and inter-cropping and water conservation. As AOL concentrates on drought-prone areas, watershed management is essential. It is being practiced using continuous contour trenches, Gabian structures, *nala bunding* and farm ponds. The impact of watershed management is seen by, improvement in soil fertility, increase in water-table level, increase in crop yield, lesser investments, higher income, diversified cropping pattern, introduction of high-value horticultural crops and, lastly, harmony in society.

## Organic Initiatives In Private Sector

Bharat Mitra, India Organic, IITC, Lucknow

The Green Revolution has failed us in so many ways. Organic is exactly the opposite as it comes from consciousness. China is the main competitor of India in many spheres of commerce. However in organic products, China could offer collaboration and cooperation, given that the market for organic produce is essentially unlimited and countries need not fight over it. As long as we maintain our customer value at an affordable price, and concentrate on holistic sustainable development, the whole world is ours.

Ayurvedic product exports have not picked up due to lack of uniform, acceptable standards. Raw material production is extremely unregulated and captive production of most ingredients is essential for a quality product, so taking the organic route is a better option. A company called Indian Organic is supporting the livelihoods of rural India directly and indirectly. It has converted hundreds of hectares of land that have been chemically abused into organic land. The company has envisioned its commitment to the bottom line, which encompasses economy and positive social and environmental implications of farming as well as profit. Organic products are no longer niche products but a mainstream and this will keep on growing as awareness increases.



## IFOAM's mission

### **IFOAM's mission**

is leading, uniting and assisting the organic movement in its full diversity.

Our goal is the worldwide adoption of ecologically, socially and economically sound systems that are based on the Principles of Organic Agriculture.

## International harmonization

- IFOAM Basic Standards (IBS)
  - Continuous development
  - Stakeholder consultation (affiliates and public)
  - Regional variations
- IFOAM Accreditation Criteria
  - Continuous development
  - Stakeholder consultation
- IFOAM/FAO/UNCTAD International Task Force on Harmonization
  - Regulatory bodies/governments
  - Private sector (certifiers, accreditors etc.)
- Codex Alimentarius, ISO

## Some facts

- 56 % of US citizens believe that organic foods are healthier
- 2.2 Billion US sale values of organic fruits and vegetables in USA
- 60 % of Danes buy often organic vegetables and milk
- 6 % market share for organic food in Denmark
- „Number one“ teas in Egypt are organic teas from SEKEM
- 30 % of the daily bread in and around Munich/ Germany is organic
- 80-90 % market share for organic baby food in Germany

## Policy Dialogue on Biodiversity / GMOs

- Biodiversity dossier
- Biodiversity leaflet
- GMO brochure, in nine languages
- FAO/IFOAM/ISF Organic Seed Conference, 5 - 7 July 2004, Rome, Italy
- IFOAM UNEP Conference on Biodiversity, 24 - 26 September 2004, Nairobi, Kenya
- IUCN World Assembly, 17-25 November 2004, Bangkok, Thailand



## Success factors

- Professional promotion to the consumer and farmer
- Strong consumer demand
- High degree of support from food firms
- Sales through all channels including „conventional“ supermarkets
- Local markets combined with export markets
- Moderate (<50%) price premia
- One organic label
- Ability to adapt to an ever changing environment
- Policy strategy implemented by governments (Action Plan)
- Division of tasks between government and NGOs
- Lowering costs on all levels

## Participatory Guarantee Systems

### Motivation for PGSs:

- High certification costs
- Disagreement with the method ensuring quality
- Political ambition to strengthen farmers
- ISO 65 type accreditation being seen as not appropriate

### Similarities and differences to third party certification:

- Similar definition of organic standards or principles
- Application and oversight mechanisms vary:
  - written standards
  - reliance on affidavits or producer statements
  - use of seals from consumer or farmer ass.
  - „guarantee“ issued by shop or marketing org.



## INDIA's Policy On Organic Farming including certification for domestic market

by  
Sh. Satish Chander  
Joint Secretary (INM),  
Krishi Bhawan, New Delhi.

### Government efforts for sustainable and organic agriculture

- The Ministry of Agriculture recommends balanced use of nutrients and avoid indiscriminate and excessive use of chemical fertilizers.
- Launched "National Project on Development and Use of Biofertiliser" in 1983.
- Promotes balanced & integrated use of nutrients through soil testing programmes.
- Promotes organic farming.

2

### Promotion of Organic Farming by the GOI

- Launched "National Programme for Organic Production" (NPOP) in April 2000 under which
  1. National standards for organic production notified
  2. Accreditation policy developed
  3. Inspection & Certification Agencies approved.
  4. India Organic logo promoted
  5. Equivalence of NPOP Standard with European Commission settled .

3

- Launched "National Project on Organic Farming" on pilot basis w.e.f. October 2004 with an outlay of Rs. 57.05 crores with objectives of
  1. Capacity building through service providers
  2. Providing financial support for setting up Bio-fertilizer unit, Vermiculture hatchery and compost plant for fruit & vegetable waste
  3. Human Resource Development through training, field demonstration, market development etc.
  4. Setting up of model organic farms

4

- The Policy of Ministry of Agriculture on Organic Farming seeks to promote technically sound, economically viable and environmentally acceptable use of natural resources. The policy has three distinct features:

(a) Appropriate cropping patterns (crop rotations, intercropping, relay cropping etc) and livestock integration.

(b) Use of Organic materials (green manure, azolla, crop residues, animal manure, farm wastes etc) as nutrient sources and soil conditioners.

(c) use of non-chemical methods for control of pests diseases and weeds.

- The Policy identifies area and crop potential for organic farming.

5

### Further Policy action for organic farming

- DAC under TCP of FAO has taken up issues such as development of organic production packages, standards for eco-friendly/green food, cost effective certification and creation of data bank.
- Constituted expert panel to address the issues of productivity/yield of organic farming.

6

# Organic Farming in Maharashtra

India Organic - Bangalore, 4 - 8 November, 2005



**Dr. Sudhir Kumar Goel, IAS**  
**Commissioner Agriculture**  
**Maharashtra State, Pune-1**

## OUR VISION

- To work for increase in farmer's income through organic farming
- To become a credible & dependable supplier of certified organic products
- To facilitate a lifestyle closer to nature which is vital to healthy living.

## INHERENT ADVANTAGES

- Varied agro-climatic regions
- Prevailing traditional farming
- Local self sustaining agri-systems
- Progressive farmers
- Rich knowledge base
- Availability of trained manpower

## STEPS TAKEN BY GOVT. OF MAHARASHTRA

- Awareness Programmes.
- Identification of potential crops/regions.
- Training Programmes.
- Evaluation and accreditation.
- Financial support.

## STEPS TAKEN BY GOVT. OF MAHARASHTRA

- State / District/ Block level conferences and fairs for organic farming promotion.
- Buyer / seller meet.
- Promoting use of vermi composting.
- Active participation of NGO's.
- Active participation of KVKs as a service provider.


## Action Plan

- Documentation of ITK
- Scientific validation of ITK by SAUs/ICAR
- Recommendations based on ITK
- System of domestic & international certification
- Domestic & foreign market development

## **TRIPARTITE PARTICIPATION FOR PROMOTING ORGANIC FARMING**

Presented by:

- Dr. Malay R. D., Director, Sri Sri Institute of Agricultural Sciences and Technology, Bangalore
- Dr. Pof M. A., MBSS, DCH (Child Specialist), Art of Living teacher & National Trainer of Organic Farming
- Mr. Unde S. P., MSc Agri., National Trainer of Organic Farming
- Mr. Bhoite K. N., Yuvacharya, Phaltan (Maharashtra)

 SRI SRI INSTITUTE OF AGRICULTURAL SCIENCES AND TECHNOLOGY  
21<sup>st</sup> km Kanakapura Road, Udayapura, Bangalore - 560082

## **WHAT IS TRIPARTITE CONCEPT?**

- Farmers' participation
- Active role of NGO (the Art of Living) to bring awareness among the farmers
- Involvement of Government departments

## **HOW IT CAN BE ACHIEVED?**

- By creating awareness about organic farming amongst farmers
- Building farmers' self-confidence through the Art of Living Programs
- Building good rapport and coordination with Govt. depts.
- Contribution from people in the form of *Shramdaan* or donations
- Strong commitment and continuous support from NGOs

## **WHAT WE ARE LOOKING AT...**

- Sugarcane productivity has gone down from 100 metric tons to 22 metric tons per hectare
- Farmers are confused whether to follow chemical farming or organic farming
- Proper advice is needed
- Established Sri Sri Institute of Agricultural Sciences and Technology
- Team of Volunteers and National Trainers for Organic Farming are spread over the country

## **10-POINT PROGRAM FOR PROMOTING ORGANIC FARMING**

1. Model Demonstration farms
2. Awareness Campaign
3. Sri Sri Training Center
4. Organization of Exhibition in Rural areas
5. Sri Sri Marketing support services (sale counter / Super Bazar) for Sri Sri Organic Products
6. Sri Sri Agro / Market Information center
7. Sri Sri Kisan Legal Cell
8. Sri Sri Goshala
9. Sri Sri Organic Seed Bank
10. Sri Sri Krishi Vigyan Granthalay (Library)

## **IMPACT**

- Improvement in Soil Fertility
- Increase in Water-table level
- Increase in crop yield
- Lesser investment higher income
- Diversified cropping pattern
- Introduction of high-value horticultural crops
- Harmony in Society

Chapter **IV**

**Organic Market  
Issues and Opportunities**

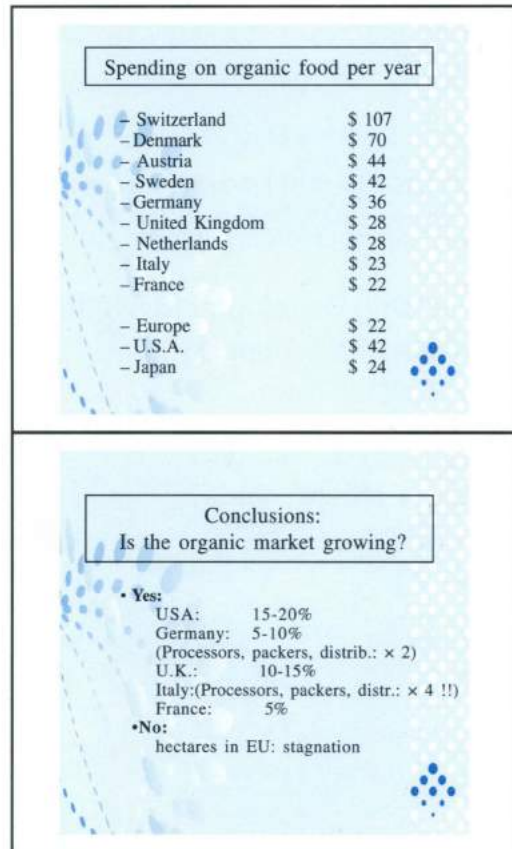




### European Market, CBI And Organic Food Ingredients

*Joost Pierrot, CBI, The Netherlands*

The Centre for the Promotion of Imports from Developing Countries, known as CBI, is based in Rotterdam, Netherlands. It assists potential exporters from developing countries in their efforts to enter the EU markets. CBI is present in South America, Asia and Africa. Established in 1971, CBI has trained more than 1000 companies, provided more than 850 technical assistance programmes, organized 300 exhibitions and published more than 150 documents. CBI has a turnover of €15 million and has a staff of 35 people as well as 10 general export consultants and 90 branch consultants. The target groups are exporters in developing countries, business support organizations and importers. CBI generates market information, organises export development programmes and training in export marketing. CBI disseminates information through the CBI News Bulletin on market surveys, export manuals, export market plan etc. This can also be accessed at CBI's Web site, <http://www.cbi.nl>. Export development programme is the second activity, looking at sector-specific products and exporters, such as organic food. The various elements involved are pre-selection, technical assistance, training on export marketing, market entry and market consolidation, and invitations to trade shows.



*Fig. 6: A chart of spending on organic food per year and some conclusions for the market*

CBI assists with a range of organic foods, such as processed fruits and vegetables, edible nuts, grains, pulses and seeds, herbs and spices, coffee, tea and cocoa, honey, cane sugar and syrup, oils and fats and essential oils. Although there are 590,000 of organic cultivators in Asia (as well as 4.7 million hectares in South America and 321,000 hectares in Africa), Italy is the most important supplier of organic produce in Europe.

*How Are Organic Products Retailed In, Europe; Germany?*

Natural and health food stores: 40%, Supermarkets: 40%, Bakeries, other outlets: 10%  
Direct marketing and box stores: 10%.

*What are the consumer-price differentials over conventionally produced items?*

Potatoes: +70%, Milk: +30%, Chocolate: +35%, Coffee: +55%, Bananas: +50%

Questions Exporters Must Address

Do you have the right product?, the right quantity?, the right quality?

Do you have an export department?, have an organic certificate?

## Partnership Development Model For Marketing: Kerala Spice Growers And Ecoland

*Rudolf Bühler, Ecoland*



*Fig. 7: Project area and images of Ecoland in Kerala, India*

A German company, Ecoland Herbs and Spices, has undertaken a venture in Kerala, India, to produce organic exports for the European market. The project objectives are:

- Founding and implementation of a control and certification institute for organic products according to the then European Union Regulation 2092/91 of 24 June 1991 covering organic guidelines) in Kerala.
- Selection and qualification of suitable farmers in the project area.
- Implementation of a organic production scheme according to Ecoland and Regulation 2092/91 requirements.
- Foundation of a farmers producer group for cultivating herbs and spices according to the Ecoland production scheme.
- Implementation of a extension service for providing the organic farmers with assistance and information.

## Market For Organic Spices In The European Union

Roy Clark, Tradin BV

First we source the organic produce, such as soya from Japan, pineapples from Philippines, coconut oil from Indonesia, coconuts from Sri Lanka, nuts and basmati rice from India. Companies have a list of items that they source from Asia. In India the organic supply has to grow and the pricing should be affordable. The concept of "grow organic and become rich" is not a valid argument for market development. You have to compete with the whole world. The prices of mangoes in Africa are cheaper, than why will Europe import from India? How will they buy basmati rice from India when Pakistan's rice is US\$300 cheaper than India? Why would you buy pepper from India when Vietnam pepper is cheaper?

### The organic world market: Europe, history and projections

- 1998: \$ 6,4 billion
- 2000: \$ 9,6 billion
- 2002: \$ 11,1 billion
- 2004: \$ 15,0 billion
- 2005: \$ 15,9 billion (estimated +7%)
- 2006: \$ 17,1 billion (estimated +7%)

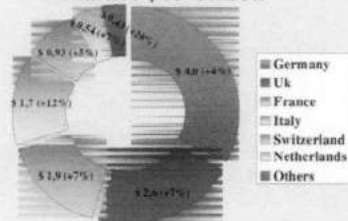


### The organic world market: Europe, some conclusions and trends (1)

- High per capita income = developed organic market
- Germany the biggest market by far: grows again!
- UK bigger than France (and Italy)
- Germany, UK, France and Italy (\$ 10,2 billion) = 68% of total European market



### The organic world market: Europe, breakdown (2004): Total European market \$15 billion



### The organic world market: Europe, some conclusions and trends (2)

- Biggest 7 markets (incl. Switzerland/Sweden/Netherlands) = \$ 12,2 billion = 82% of total European market
- Others: many small market(s), but growing fast
- Eastern European markets: start to develop!
- Overall growth picking up again (estimated +7% in 2005>)

Fig.8: An Overview of the European Organic Market



If you are in organic and if you want to grow then look at the potential that the product can generate. Do not first look at the export. First look at the Indian market and then think of export. People do not understand the reality. People do not realize that the market for organic produce is small, so the quality and price should match or else they will not be able to succeed.

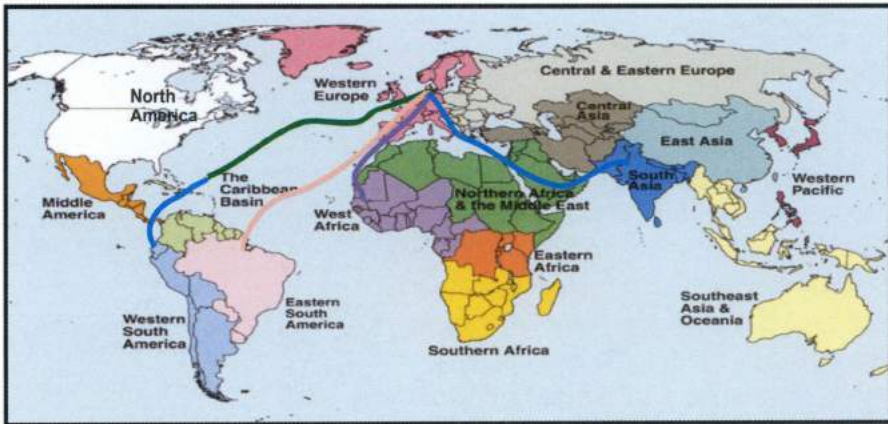
## European Organic Market: Trends and Perspectives

*Hugo Skoppek*

I shall give you an insight into the European organic market trends and perspectives and conclude with some of the direct trends in the European market.

The *supply chain* plays an important role and consists of six main processes:

- Agricultural production
- Harvesting
- Post-Harvest
- Storage
- Shipping
- Documentation



*Fig. 9: Graphical representation of International logistics for export to Northern Europe*

Quality is the next major issue. It consists of three main categories:

- Product quality, such as size and flavour.

- Ecological quality, which certifies the process in which the product is grown. This basically considers the environmental issues and the service to humankind at large.
- Sociological quality looks in the ethical practices followed by the marketing processes and the fair-trade practices to be followed in marketing in organic produce.

A combination of all these three offers a niche in the market. There is a very distinct market for product quality in the European market. This is the market that demands the most distinctive flavour, taste and richness.

*Consumer benefit* is the third major issue. Product quality leads to taste, vitality and health, disease prevention etc. Ecological quality leads to biodiversity, healthy soils, clean rivers and animal welfare. Sociological quality leads to factors such as rural development, fair trade and distribution of wealth.

## Organic Supply Chain Management: How It Fits Into The Organic Sector

Noelia Barquero Director Supply Chain Management, Klave Ltd UK

Supply chain management cuts across businesses to look at the entire cost and efficiencies,

from the initial source to the final consumer. Historically companies lived in isolation leading to significant inefficiencies. A lack of visibility causes significant levels of waste; hence integration is the key to supply chain improvements as inefficiencies are further reduced through increased collaboration and

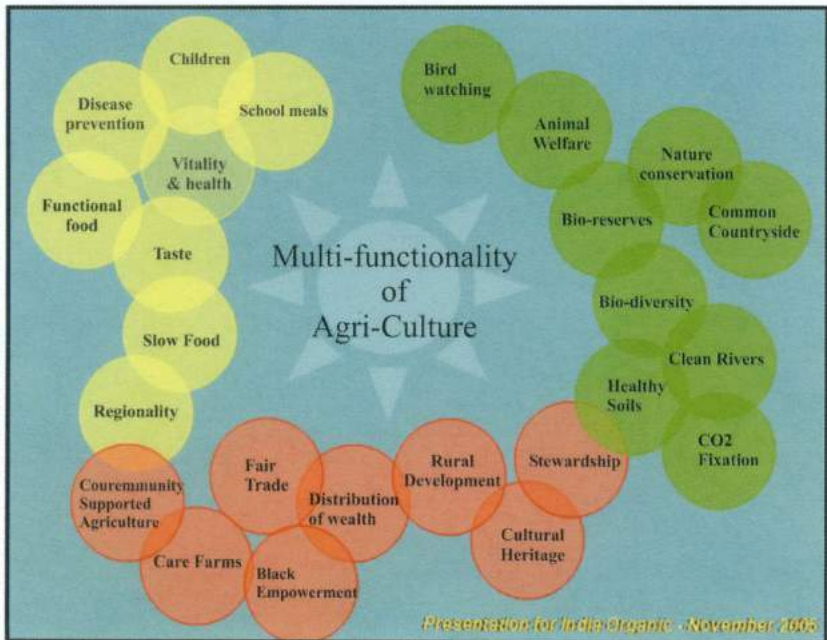


Fig. 10: Consumer Benefits; Multifunctionality of Agriculture

transparency. The organic sector is required to share information and build strong relationships thereby making it ideal to jump straight to collaborative supply chains.

Supply chain collaboration is built on three foundations:

- Process Integration
- Data Integration
- People Integration

This facilitates a number of other trends in the industry. For example, health is one of the major driving forces in the adoption of organic food. Consumer perceptions about health and other food quality benefits associated with food produced under organic production standards are known to be major reasons for the increase in demand for organic food from crop production systems. However, in the future, concerns about increased health risks associated with enteric pathogen transfer, contamination with noxious compounds such as mycotoxins or heavy metals, and organic production systems affecting consumer demand must be addressed.

In addition to these demand-side aspects there are supply-side factors. There are technological “bottlenecks” in organic crop production systems, which potentially affect the quality and safety of organic foods and cost of production.

*Consumer concerns about intensive conventional crop production*

Consumer concerns about intensive conventional crop production include the fear of negative health, biodiversity and environmental impacts of residues from chemosynthetic pesticides

The main targets of organic crop production standards are therefore to

- Minimize the use of chemosynthetic pesticides;

### Achieving an integrated supply chain

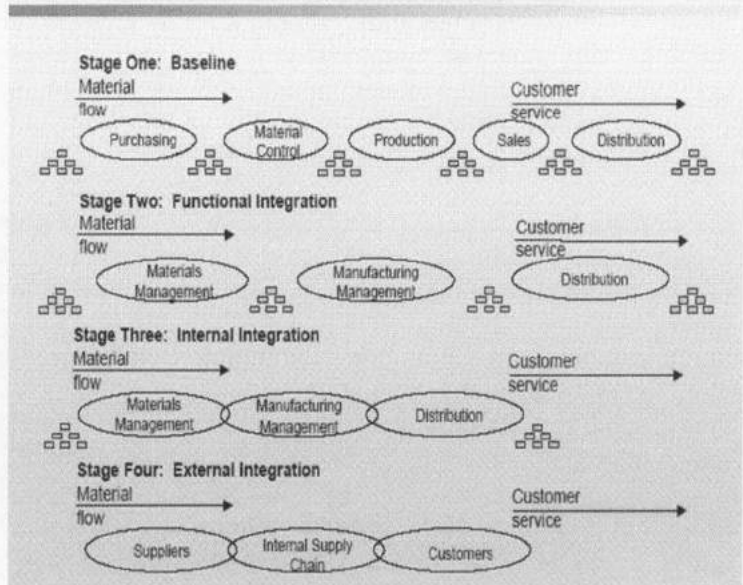


Fig. 11: Achieving an integrated supply chain



- Switch to pesticides with lower toxicity, persistence and greater selectivity and/or
- Use alternatives to chemosynthetic pesticides (such as biological control and plant-extract based crop protection treatments conforming to EU Regulation 2092/91).

*Consumer concerns about organic farming standards*

A range of alternative crop protection treatments that are permitted were shown to have negative side effects on the environment, or were non-beneficial, or were linked to potential health risks. A major reason for consumer and supermarket rejection of foods from organic production systems is the presence of visual spoilage and/or poor shelf life caused by disease and pest lesions.

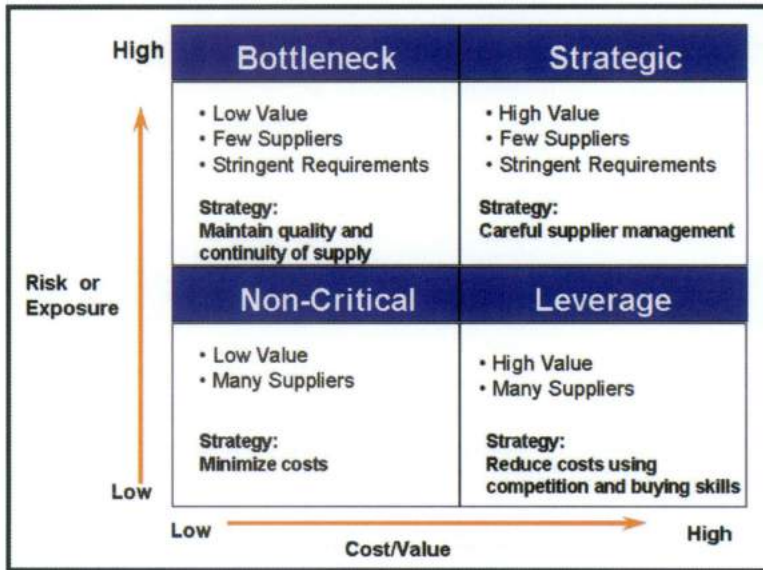


Fig. 12: Considerations to fit in Organic in today's supply chain

### Organic Market Perceptions And Potentials: A Nation Wide Consumer Survey

Tej Partap, Executive Director, ICCOA and  
Kishore Rao, GENUS

Organised food retailing in India, widely touted as the next sunrise sector, is expected to climb by around 30 per cent over the next five years, growing from the present level of under Rs 3000 crores to Rs 150,000 crores by 2015. Little wonder then that some of the big names on the corporate marquee are to set up food counters. Mukesh Ambani's reliance Industries has set aside \$ 750 million ( Rs 3382 crores) for its retail venture, which also



includes the organic portfolio. Reliance teams are busy identifying areas and farmers across the country with whom they can tie up for sourcing and building their organic supply chains for variety of commodities. Bharati is scouting for a partner among international retailers and its plans also include retailing organic food items. Godrej group's agri-arm has entered the food-retailing scene with its niche chain called Nature's Basket. It is obviously aimed at organic food retailing business too. Agrovet (GAVL) is already dabbling in organic fare. GAVL's rural initiative, Godrej Aadhar, is planning to set up at least 1000 supermarkets across rural India in the next five years and these will create much needed space for organic shelves, facilitating access to organic food by the "organic consumers in waiting" across the country.

ITC the original agro juggernaut is lining up a multi-pronged approach, which will include organic foods in the ready to cook and ready to eat segments.

Because of recent policy shifts processed foods and organic are being counted as hot sectors for investment. New entrants are eyeing at the entire value chain from the farm to the fridge at home. Such is the buzz that almost all top corporate bodies are setting up organic cells for examining the business possibilities in this sector. These developments indicate that organic farming, organic agribusiness enterprises and jobs in organic sector, will have tremendous growth opportunities.

#### *Market Survey By ICCOA*

Various estimates and guesstimates abound on the nature of the Organic foods market in India; some say Organic foods are the super rich man's foods and have negligible or no market in the country, while there are some making speculative calculations and arriving at mind boggling figures. ( For instance there is a widely circulated estimate by a well known investment bank which estimates the market for Organic foods comprising of 2- 3 million consumers which has been further projected and estimated which represents a market potential of Rs 96 billion based on a modest spending of Rs 4000 per month on groceries). These widely different estimates are not helpful to the Organic Industry just about finding its foothold in the marketplace and makes planning difficult. ICCOA conducted a pioneering study ( ICCOA, 2006) to find out the potential and nature of the market for Organic foods in the country.

The study was conducted in the top metros of India, covering SEC-A and SEC-B1 segments of the consumers, which comprise about 5.3 % of the households. Survey of over 2500 consumers among the target group has been conducted in the South, West, Northern and Eastern regions of India. The provisional market potential estimates are presented in Fig 13.

Top organic product categories: The most important indices was the consumers 'concern level' for Pesticides & Chemicals in the food and the loss of naturalness because of over processing. This determines the extent and earliness the product category may convert to Organic if the other marketing mix factors like price and availability are neutral.

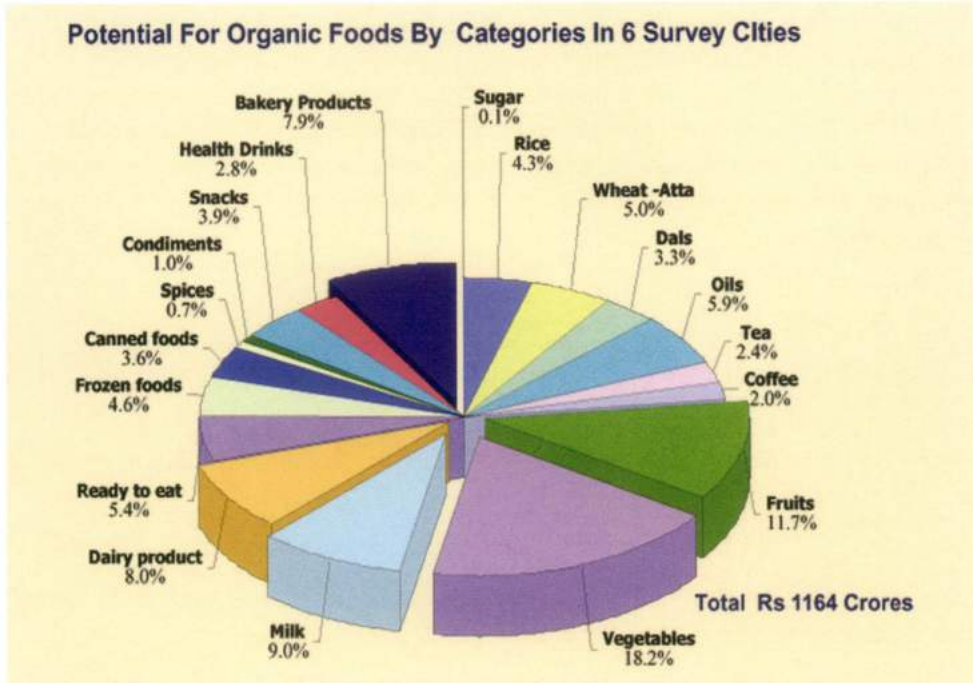


Fig. 13: Potential for Organic Food Retail in Indian cities (Source: ICCOA & Genus, 2006)

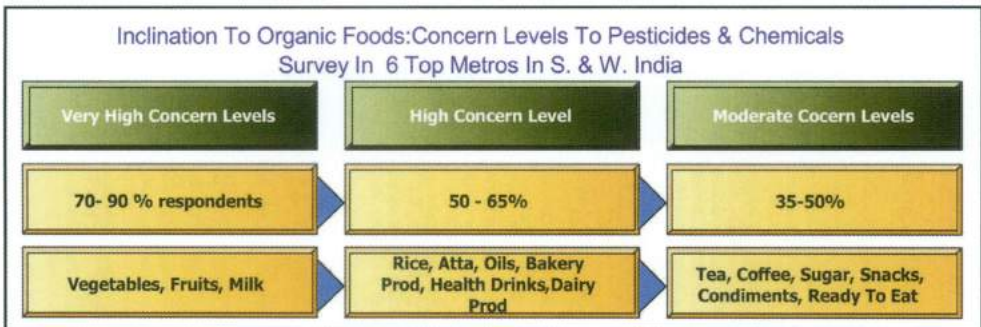


Fig. 14: Indian consumers concerns about unsafe food and inclination to go organic (Source; ICCOA & Genus, 2006)

## The Paradox Of Unbalanced Demand And Supply

*Rajasekhar Reddy Seelam, MD, Sreshta Natural, Bioproducts Pvt. Ltd., Hyderabad, India*

The time has come when organic food has to move from the drawing table to the dining table. Without this, the producers will never be able to sell their produce. Marketing is the key. Organic farming has to move from being a passion to a business proposition. To take the movement further we have to penetrate more at the level of businessman and farmer himself. The consumer is not able to express his concerns on health or on food habits so though there is a huge potential it is difficult to tap. The consumer needs are to be identified by creating awareness on the family food basket of rice, wheat, pulses, cereals, spices, fruits and vegetables.

### *The demand-supply imbalances*

Rice: The farmers themselves consume half of the cultivation. The characteristics of rice vary from state to state. For example Karnataka and Andhra prefers Sona Masoori while Tamil Nadu prefers White Ponni.

Wheat: Few varieties are cultivated are low. There will be much demand in the future leading to competition among brands.

Milletts: The advice for farmers is not to promote organic millets as the demand is nil.

Pulses: dal and beans: Although there is a large acreage of land under green gram, farmers were unable to meet the market demand for quality.

Edible Oils: The commodity market works at a low margin of 2 to 3% and these being daily consumption items lead to a problem in meeting demand against supply.

Spices: Quality is variable in the domestic market.

Sugar: Organic sugar is very price sensitive.

Tea and Coffee: There are more varieties and quality varies across regions.

Processed products: More varieties are required.

Fruits and vegetables: Not organized yet, still a long way to go.

Dairy: Issues exist with the co-operatives, management of supplies and associations.

### *Box. 3: The unbalanced demand supply paradox*

Field production, technology issues and economies of scale influence the demand-supply imbalances. Intensive irrigated organic farming rather than rain-fed should be encouraged. Logistics, transportation and storage remain major issues. While the price and quality have to be managed, we cannot change the mindset of value-conscious customers.

## Organic Medicinal Aromatic And Dye Plants And Nutraceuticals As Export Product

Merina Benny

India is considered as the botanical garden of the world and almost all the plants in the world are available in India. This rich biodiversity is our treasure house and we have to use it properly. President APJ Abdul Kalam said we would have to position ourselves as a world leader in herbal technology. Today modern medicine has identified more than 144,545 plants. The phytochemistry of many plants has been studied, chemicals were isolated and used in allopathic preparations and 25% of all allopathic drugs originate from plants. This little plant laboratory does not need electricity, atomic energy, or any other fuel, just water, sunshine and a place on planet earth to produce miraculous healing substances. The practical and realistic way to improve the current formidable position of 37% in volume and 23% in value of exports is value addition, through standardization, reconstitution, formulation and certified organic products.

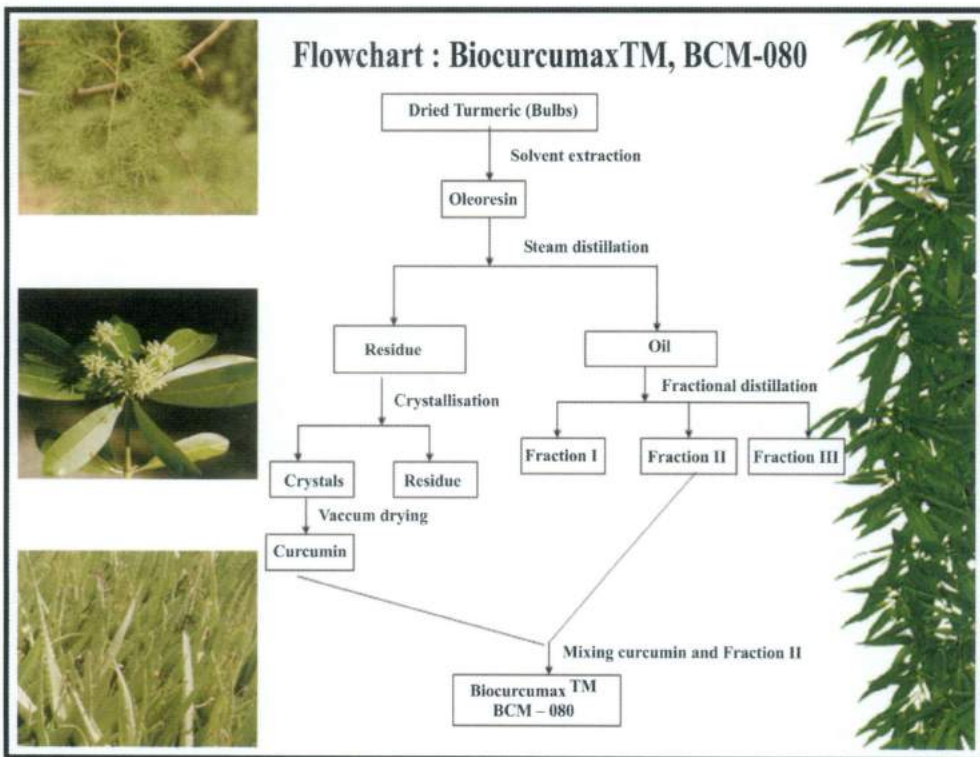


Fig. 15: Flow chart of steps in value addition from raw turmeric to a commercial product

### *Need For Standardization*

The nutritional and medicinal effectiveness of herbs and spices can vary considerably from one batch to the next due to variables such as the soil it is grown in, the time of harvest, climatic conditions, methods of drying and storage conditions.

### *Advantages Of Standardization*

Standardization is the process whereby strict and stringent quality is ensured to achieve consistency in all parameters, batch after batch, year after year. Standardization guarantees that the product is made from good quality unsubstituted species of plants with zero contaminants. Standardization guarantees a plant species' quality and purity. Standardized extracts combine science and nature to achieve optimum advantage

### *Conclusion*

The world is in need of Indian herbs and spices with sufficient value addition like standardization and organic certification, because it is estimated that by the year 2010 more than 60% of the population will suffer from one or more non-communicable diseases such as diabetes, arthritis and coronary heart disease. Enough herbs, spices, manpower, land and experts in the field of certification are available. Sufficient manufacturing capacity is available to utilize fresh and processed organic agricultural produce. What we require is awareness to facilitate value addition at all possible levels for increased productivity, yield, export and substantial contribution to our economy.

## **Fair Trade In Organic Agriculture**

*Ajay Rastogi*

**Core issues :** Economic benefits to farmers, Is the market price fair? What about their workers?

Is the wage rate fair? Issues of social justice? Occupational health and safety? What about workers in companies or subcontract production?

The organic farmer himself is not cash-rich. He himself works by cutting corners, then how does he pay wages to the workers? But what is the situation of the workers in companies? The rice you and I are not the direct result of the farmer's effort there is a rice mill which processes the rice, and surely the rice mill owner is in a better situation than the farmer, but what is the wage he pays to the workers? What are the hygiene standards that the rice mill owner follows in processing?

### *Farmers are poor*

- Profits have been on the decline over the past 20 years.
- A United Nations Conference on Trade and Development (UNCTAD) report 1980–2003 says that though the customer pays more for the rice the profits are not passed down to the farmer. The farmer gets an average 60-70% less, in cotton he gets only 33% while coffee is down 17%.
- The price index fell by 53%, reflecting the total number of processed or finished goods a farmer can buy. Suppose I produce 100 goods at the end I will be capable of buying only 53 goods today. The purchase power of the farmer has also gone down.
- In India, a Ministry of Agriculture study mentions rice farmers in West Bengal earned 28% less in 2003, compared with 1997. Sugarcane farmers in Uttar Pradesh earned 32% less, while sugarcane farmers in Maharashtra earned 40% less.

### *Key Principles Of Fair Trade*

- Creating opportunities for economically disadvantaged groups
- Allowing freedom of association and collective bargaining rights
- Promoting democracy, participation and transparency
- Encouraging capacity building and institutional growth
- Payment of a fair price, wage and premium
- Promoting ideal working conditions, including social security, health and safety disciplinary practices
- Compliance with standards set by International Federation for Alternative Trade (IFAT) and FairTrade Labeling Organizations International



## Joost Pierrot

- Social- and organisational psychology
- Coffee, tea and herbs buyer for 15 yrs
- Consultant for the organic industry (main activity: CBI)
- [JoostPierrot@hotmail.com](mailto:JoostPierrot@hotmail.com)

## What is CBI ?

- Agency (in Rotterdam) of the Dutch Government since 1971:

*To assist potential exporters from developing countries in their efforts to enter the EU*

Our mission is: **matchmaking**

## Organic products included

- Processed fruits
- Processed vegetables
- Edible nuts
- Grains, pulses and seeds
- Herbs and spices
- Coffee, tea and cocoa
- Honey, cane sugar and syrup
- Oils and fats
- Essential oils

## Conclusions

- Chances
  - EU and Government promotion
  - Eastern Europe
  - small market: good for small players
  - cosmetics
  - scandals in conventional food

## Conclusions

- Threats
  - stagnating growth
  - label confusion
  - oversupply; more competition
  - fraud
  - integrated farming systems (e.g. EurepGap)

## Conclusions:

Is the organic market growing?

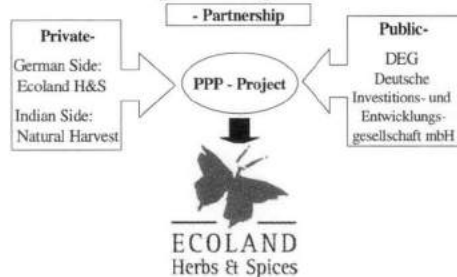
- **Yes:**
  - USA: 15-20%
  - Germany: 5-10%  
(Processors, packers, distrib.: x 2)
  - U.K.: 10-15%
  - Italy: (Processors, packers, distr.: x 4 !!)
  - France: 5%
- **No:**
  - hectares in EU: stagnation

„Cultivation and processing of certified organic spices in Kerala, India and marketing under Fair Trade conditions in Europe“



Presentation from  
**Rudolf H. Bühler**  
President  
ECOLAND Herbs & Spices GmbH

## Cooperation partners



## EHS as a part of the BESH group



## - project objectives

- Founding and implementation of a control and certification Institute for organic products according to VO EU 2092/91 (EU organic guidelines) in Kerala, India
- Selection and qualification of suitable farmers in the project area in Kerala, India
- Implementation of an organic production scheme according to Ecoland and VO EU 2092/91 requirements
- Foundation of a farmers producer group for cultivating herbs and spices according to the ECOLAND-Production Scheme
- Implementation of an extension service for providing the organic farmers assistance and information

## - project objectives

- Setting up processing centres for the processing of the organic spices under use of renewable energies
- Optimizing and certifying the production and processing according to VO EU 2092/91
- Ongoing training measures for the involved project farmers
- Organizing the logistics for export of certified organic spices according to the guidelines of fair and social trade to Germany
- Development of marketing structures for the organic spices produced within the project

## - project goals and achievements

- Transfer of added value by improving the income of the project farmers up to 50% .
- Improvement of the project farmers living situation.
- Preservation of the natural biodiversity.
- Support the organic movement in India.
- Sustainable income to the project farmers through the guaranteed export under Fair Trade conditions from EHS.



## Tradin Organic Agriculture B.V.

Tradin is a world-wide leading trader in certified organic raw materials for the food processing industry.

Providing the world market with a complete, continuous flow of reasonably priced certified organic raw materials.



## Some general conclusions

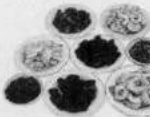
- Big world market (\$ 30,6 billion (2004))
- But still very low yearly per capita consumption: e.g. Spain \$ 10, Netherlands \$ 35, USA \$ 60, Switzerland \$ 130 (highest)
- And very low part of food bought is organic: e.g. Greece 0,2%, UK 1,8%, Denmark 2,8%
- SO STILL HUGE POTENTIAL!!
- USA the single biggest market



## Some general conclusions

World market:

- Very scattered over continents and countries
- And over specialty shops and supermarkets
- With the biggest segment being fresh (30%+), other segments dairy (15%+) and meat (12%)



## The organic world market, pre history

- Western market(s) started to develop since 1975
- With Europe taking the lead
- In specialized shops first
- With fresh being around 50% of turnover
- Real "alternative" market (approach)



## The organic world market, history

- European market started to boom since the EU law on organic 2092/91 (1992+)
- With supermarkets entering in the late '90s
- Making the business more professional
- And speeding up growth
- The same is observed in the USA (2000+)
- And Japan (2002+)
- Other countries will follow (China, Russia...)



## THE ORGANIC MARKET GROWS FROM NICHE INTO MAINSTREAM: COUNTRY BY COUNTRY



THE INNOVATOR WILL GRASP A (DECISIVE?) LEAD



## Retail Response

- Introduction
- Prologue
- Statistics
- Examples
- Summary
- Epilogue

- **EurepGap**
- **BRC ? British Retail Consortium**
- **IFS ? Int'l Food Safety**
- **HACCP ? Hazard Analysis Critical Control Points**
- **ISO ? Int'l Standard Organization**
- **in-house schemes**
- **ethical sourcing**
- **etc.**

## Organic Sales

European Market Composition

- Introduction
- Prologue
- Statistics
- Examples
- Summary
- Epilogue

Source: FEEL, Froik, 2003

## Changing Patterns

- Introduction
- Prologue
- Statistics
- Examples
- Summary
- Epilogue

<p><b>Old Reality</b></p> <p>Simple Product Tangible Familiar Timeless</p> <p><b>Blind Faith</b> <b>Anonymous</b></p>	<p><b>New Trends</b></p> <p>Complex Product Intangible Unknown Fast-evolving</p> <p><b>Inquisitive</b> <b>Transparent</b></p>
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Marketing Differences according to John Ward

## Demographics

- Introduction
- Prologue
- Statistics
- Examples
- Summary
- Epilogue

- **Europe** ↓  
decrease in population  
shrinking market ><<
- **India** ↑  
increase in population  
expanding market <<>

## Our Partners

**Eosta B.V.**  
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www.lebensbaum.de ? info@lebensbaum.de

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## Organic Supply Chain Management

- How supply chain management fits into the organic sector

Private & Confidential  
- For Internal Use by Klave Ltd - Special Access Provided for Participants of India Organic ONLY

## Organic Supply Chain Management

- Mature Supply Chain Models
- Where Does Organic Fit
- Key Issues in Organic Supply Chains
- Conclusion

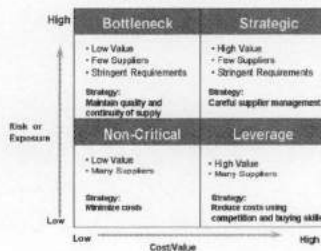
## What is collaboration?

- Alignment of business activity between members of the supply chain to achieve joint, shared benefits
- Recognises the need to share information in order to achieve operational excellence
- Supply chain collaboration is built on 3 foundations:
  - Process integration
  - Data integration
  - People integration

This facilitates a number of other trends in the industry

Segmentation allows us to understand where organic products fit in today's supply chain

Strategies should be driven by segmentation characteristics.



## Health is one of the major driving forces in the adoption of organic food

- Consumer perceptions about health and other food quality benefits associated with foods produced under organic production standards:
  - are known to be major reasons for the increase in demand for organic food from crop production systems.
- However, in the future, concerns about increased health risks associated with:
  - enteric pathogen transfer and
  - contamination with noxious compounds (e.g. mycotoxins or heavy metals)
  - in organic production systems may also affect consumer demand and therefore needs to be addressed.
- In addition to these demand-side aspects there are supply-side factors:
  - There are technological "bottlenecks" in organic crop production systems, which potentially affect quality and safety of organic foods and cost of production.

## The Organic Sector needs to take seriously the threat posed by health problems and evolve to compete in the future

- Organic Supply Chains will evolve as they become more main stream:
  - They will need to become more agile as they grow and compete with lower margins and increased customer demands
- To continue towards a mass market position safety in organic supply chains is the single most critical issue:
  - With conventional pressure groups waiting for the next food scare this presents a significant threat
  - We need to monitor and adopt the work of the European Union and others with haste to avoid these potentially damaging outcomes
- Development of agile supply chains will help the organic sector to adapt with minimal disruption if serious issues arise:
  - Ability to ramp up and down through organic and conventional channels very rapidly

## The paradox of unbalanced demand & supply situation

Rajashekar Reddy Seelam  
Sresta Natural Bioproducts Pvt. Ltd.  
Promoters of  
'24 Lettered Mantra' Organic Retail Chain stores  
Hydrabad, India  
Info@sresta.com

## The demand-supply imbalances

- Rice
  - Not enough
- Wheat
  - Time being O.K
- Millets.
  - Enough.
- Pulses – Dals & Beans.
  - Enough, but quality & consistency.
- Edible Oils.
  - Processing productivity.
- Spices.
  - Hold on.

## The demand-supply imbalances

- Sugar.
  - Required but at what price?
- Tea / Coffee.
  - Hold on.
- Processed products.
  - More variety.
- Fruits & Vegetables.
  - Way to go
- Dairy.
  - Required.

## The demand supply imbalances

- Field production.
- Technology issues.
- Issues of scale.

## So far

- Rain fed low input farming.
- Plantation farming.
- Production led.



## The new paradigm

- Encourage intensive irrigated Organic farming.
- Consumer led.
- Create domestic marketing scale.



**INDIGENOUS MEDICINAL PLANTS –  
Their Exports and Isolates as a  
value added export product**

**Dr. Merina Benny**  
AGM-QC/R&D  
Arjuna Natural Extracts Ltd.  
Aluva – 683 101  
Kerala.



**Need for Standardization**

The nutritional/medicinal effectiveness of herbs/spices can vary considerably from one batch to the next due to ...



• Variables such as the soil it is grown

• The time of harvest

• Climatic conditions



• The methods of drying

• Storage conditions etc.



**Advantages of standardization**

Standardization is the process whereby the **QUALITY** in its strict and stringent terms is ensured to achieve consistency in all the quality parameters, batch after batch, month after months, year after year.



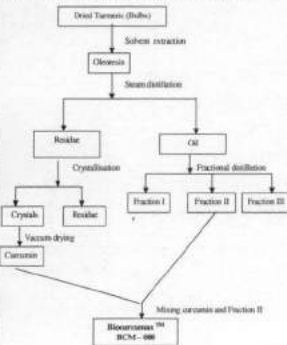
We have to remove 970 kgs of inactive ingredients from 1000 kgs of raw material powder to obtain 30 kgs of active ingredients. The resultant product will contain 92 - 96 % of curcumin as against the conventional 2 - 3% with raw turmeric.

This is the stage 1 of standardization as expressed in the flow chart.

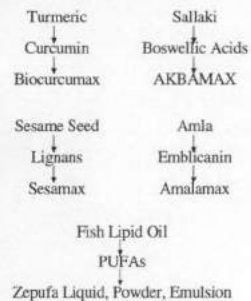
This standardization opens up a variety of application flexibilities in the form of capsules, tablets, soft gels, candies, functional foods, cosmetic preparations and many more.



**Flowchart : Biocurcumax™, BCM-080**



**RECONSTITUTION FOR  
VALUE ADDITION<sup>2</sup>**



## Fair Trade and Organic Agriculture

Ajay Rastogi  
FAO India, New Delhi

## why focus on fair trade in ORGANIC?

- consumer perception – ethics
- organic productions systems are based on specific standards which aim at achieving optimal agro-ecosystems which are ecologically, economically and socially sustainable.
- social justice and social rights are an integral part of organic agriculture and processing
- environmental – YES
- ecological – PARTLY
- economical – PARTIALLY
- social - NEGLIGIBLE

## the core issues?

- economic benefits to farmers
- is the market price fair?
- what about their workers?
- is the wage rate fair?
- issues of social justice?
- occupational health and safety?
  
- what about workers in companies or subcontract production?

## Farmers are poor

- profits on the decline over last 20 years
- UNCTAD report 1980 – 2003
- average 60-70% less
- cotton gets only 33%; coffee only 17%
- price index fell by 53%
- In India, MoA study mentions rice farmers in West Bengal earned 28% less ( in 2003vs 1997)
- Sugarcane in Uttar Pradesh 32%; Maharashtra 40%
- putting value for coarse cereals, oilseeds etc

## Farm workers are poorer

- Joint FAO/ILO report – 1.1 b people engaged in agric of which 40% workers
- over 70% of their earnings spent on food
- min wages – poverty line (2400 cal per head for 3 adults)
- In 1999, Rs. 350 – 400 per capita per month; av household size 4-5
- Min Rs.1400-2000 for food alone

## Key Principles of FAIR TRADE

- Creating opportunities for economically disadvantaged groups - freedom of association and collective bargaining rights
- Democracy, Participation and Transparency
- Capacity building and institutional growth
- Payment of a fair price/wage; premium
- Working conditions - social security, health and safety at work, disciplinary practices
- IFAT, FLO International



Chapter **V**

**Organic Production, Technologies  
And Extension Experiences**





### Introduction By The Session Chairman

- The first issue in organic agriculture is that productivity should be maintained in comparison to conventional farming. This is the most common apprehension for conversion to organic in a country like India whose population is still on the rise.
- The second issue is that whatever organic food is available at our disposal, including organic milk, vegetables etc., the nutrition level has to be maintained consistently.
- The third issue is whether the pest and insects can be effectively controlled both from the plant and human health point of view by integrated organic systems.
- The fourth issue is of quality. Is organic produce scientifically, qualitatively, statistically proven to be better in comparison to products from conventional farming?
- The fifth issue is to estimate the real environmental impact of organic agriculture over conventional farming from economic, societal and ecological perspectives.
- Lastly, is there a large enough domestic market? These are some of the questions to be addressed in this chapter.

### Potentials Of Organic Agriculture For Indian Farmers

*Frank Eyhorn, FIBL/NADEN, Switzerland*

*Can Organic Farming Help To Improve Rural Livelihoods?*

The diversity of farms is reflected in the diversity of crops. When we talk about organic farming we should keep in mind that this is a huge spectrum, and the produce from each agro-climatic zone in a country are very different. There is also a diversity of farmers:

- Individual farms;
- Farmer groups;
- Producer companies;
- Contract farmers; and
- NGOs;
- Estates

Each has different requirements, capabilities and assets.

### *Types Of Organic Farming*

There are different forms of organic farming, such as nature farming, Vedic Krishi, Homa farming, eco-farming and biodynamic farming. Despite the diversity, there are common principles of organic farming: Focus on soil fertility and ecological balance; Nutrient management based on organic manures; Preventive measures to maintain plant health include; no synthetic fertilizers, pesticides, growth promoters; no use of GM organisms; and Animal friendly husbandry.

### *What Is The Impact Of Organic Farming?*

When you try system comparison research between 60 organic and conventional cotton farms, production costs in organic cotton fields were 13-20% lower. They were lower especially in the areas of fertilizers and manures and pest management. When you look at yields, they were not lower, but even slightly higher, implying conventional and organic yields were almost similar.



*Fig. 16: Diversity of Indian Organic Produce*



Fig. 17: Diversity of Indian Organic Production systems and regions

### Supporting the Organic Agriculture Supply Chain

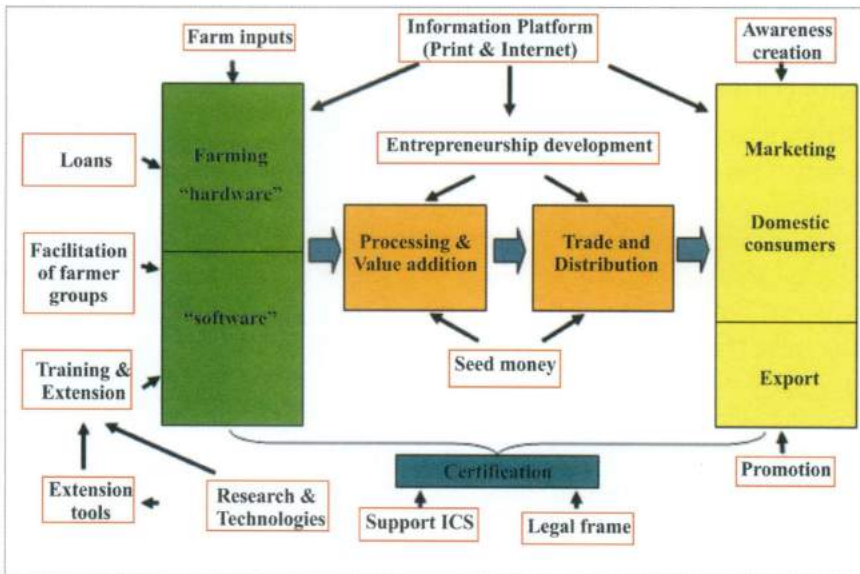


Fig. 18: The diverse members of the organic supply chain

### *Obstacles To Organic Farming*

- Organizations: Need for strong farmer organisations that build up organic culture and emotional ownership of projects, which prevents cheating in case of use of pesticides.
- Conversion period: Initial drop in yields and incomes are a serious problem for rural farmers. Lot of problems arise as they invest a lot and it goes waste due to conversion period problems. Something has to be done to overcome that.
- Training: A system-based understanding is required. It is important for farmers to understand the linkage between soil and different elements that form an organic farm.
- Certification: The need is not to produce more and more certification agencies but establish a functioning internal control system for group certification.
- Markets: Focus has shifted from purely export to domestic marketing, as people realize the potential of the domestic organic market

### **Biodynamic Farming As An Organic Tool; Perspectives And Potentials**

*David Hogg*

There is a tradition of knowledge in India and it can be seen in the formative forces of nature, which is required for biodynamic farming. This is a unique farming system, a unique organism but within the unique organism we are talking about processes, transport, production and marketing.

The strengths of biodynamic farming are in No. 1, with a structured farming process. We have all sorts of bio-fertilizers in enhancing soil fertilization. The synthetic activity is very strong in this area. When we go to the internal processes in this too the internal system is strong and the demand is very high. The internal systems in terms of environmental hazards are very strong so the productivity aspect is very strong. Biodynamic is also strong with reference to No. 3, where the main problem is with connecting to the customer. It is to be created by explaining to him about biodynamic farming deliverables, in terms of well-being, health and quality. Basically measurement is based from the farm sector. Profit is explicit. Wealth is to be generated. There is a misconception that biodynamic farming or organic farming is the cheapest system of farming. It is not necessarily so. We need to still work with the structure; we still need technology to improve this structure. What is the way forward? We have too few biodynamic farms consistently producing farm produce that the customers need. Without a "customer need" connect and without "consistent" quality, quantity and regularity of produce, it is of no surprise that we do not have a strong customer



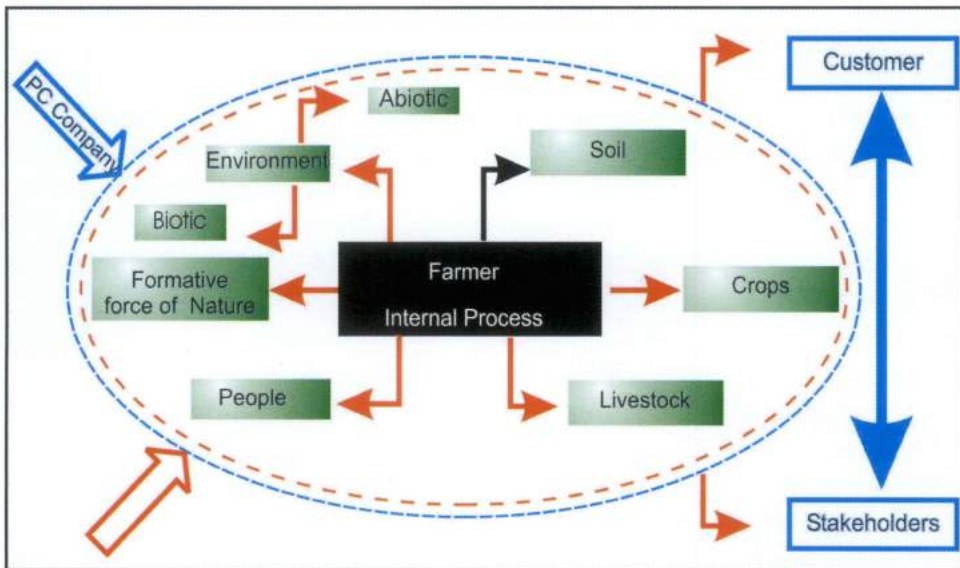
base. Therefore it is of no surprise once again that we have too few financially viable biodynamic farms in the country.

*Biodynamics In The Balanced Scorecard Context*

We are now poised to administer Demeter in India – the following are some important points to consider in the coming years. We recognise that Demeter is the world's oldest certification label. How do we breathe life into this label? How do we make Demeter a dynamic brand? Let us analyse how we can integrate this brand image into the Indian agricultural scene to catalyse change in production volumes and methods.

To successfully drive Biodynamic production in India, over the next five years we need to invest in all the four quadrants of the Balanced Scorecard. This is implied in our farm organism illustration (Fig. 17) but here we are looking at it from the brand perspective. Let us look at where we are presently and then see what the weak links are.

**The Biodynamic Farm – an integrated whole**



*Fig. 19: Farm Organization Illustration*

- *Quadrant 1: Organisation and Learning.* This is principally concerned with education and awareness about the production methods and concepts. This is the BDAI's strong point. Over the past decade we have been conducting standardised training courses on a regular basis in various parts of India. Resource material has been generated and standardised and hundreds of students have been imparted basic skills. This work is growing vigorously.

A movement such as ours has failed however in one significant count in this quadrant. It is the “holier than thou” or supercilious attitude that many of us take vis-a-vis the rest of the world. This specific attitude has resulted in the alienation of the movement, distancing of the movement from the real world to cloisters of the self-righteous.

The sooner we manage to realise that Biodynamics has in fact to be the main stream and that we need to understand and engage in dialogue with the customer, the sooner will we be able to build a successful movement. This element needs to be integrated into all our programmes.

- *Quadrant 2: Internal processes:* Biodynamics offers the farmer a very structured approach to managing his farm. It is easy to build and adapt the framework provided to suit the needs of any specific farm. However, while we have been able to develop the farm-related processes, we have failed to build processes for the customer and financial quadrants. This has resulted in the misalignment in many cases of the farm with what is required.

What is required with respect to this quadrant is the support processes needed to help the new Biodynamic Farmer through his first years of conversion. How do we help the farmer build communities of growers, distributors and farmers? How do we define the processes of establishing the PC entity? How do we establish a process of cultivation, networking and distribution to ensure that there is “the right quantity of BD produce of the desired quality available at the right place at the right time?” The movement’s success hinges on organising and building Communities.

We also need to examine this quadrant from the perspective that we are talking of intangibility. The tangible part is the physical product that needs to meet expected standards of quality, regularity and convenience of availability. The intangible aspect is of transcending the product (label) to an experience (brand). For this to happen we need to define processes to reach to the consumer and win commitment through a sharing of knowledge and through processes for participation and dialogue.

Defining these processes and the selection of quality advisors and certifiers is the work that lies ahead of us. This segment that focuses on “Consistency” is critical for credibility and transparency factors that foster consumer confidence, involvement and loyalty.

- *Quadrant 3: The customer:* A brand stands or falls on the strength of customer loyalty and identity. Needless to say, that if there is no produce available regularly of the expected quality standards, the question of brand loyalty does not arise at all.

BD produce needs to replace successfully in the senses of the customer conventionally grown produce. To replace, BD produce needs to displace which is often not easy. The customer needs to believe strongly enough that these replacements with BD produce are worth the change. In the processes in this quadrant we therefore need to develop ways to influence the customer to commit to this change.

Domestically much will hinge on how we retail biodynamic goods and at what price. The intangibility of experience can command a 20% premium but certainly not the 100-200% differentials that many of us in the movement try to work at. Yes, for the niched specialty produce there may be a small window of operation at these differentials. But movements are not created through niches. Using the almost magic 80:20 ratio, we need to identify that 20% cluster of products that account for 80% of consumption ie, for instance paddy, wheat, sugar and pulses. This to my mind is a critical part of our agenda in the next 5 years. If we can intelligently identify and harness capability to produce consistently this 20% we have sown the seeds to make Biodynamics a way of life.

Should we adhere to the current model of 'niches' it is all going to be upmarket and forever upmarket as in the case in Europe. In Europe Demeter chose separate retailing in upmarket specialised boutiques. It may be a clue as to why the brand has lost out to the organic label. To do that for our Indian market may therefore be a mistake. Integrating into the supermarket revolution may be the way forward. The key here is to link the customer to the products through identity with the brand experience- provided that we have done our homework with price acceptability.

<b>Export Vs Domestic Conundrum</b>	
<p>Some will argue that it is delusion to imagine that “exclusive” biodynamically grown products can hold their own in the Indian consumer market. “Export!” exhorts APEDA and others. But I believe they are dead wrong. We should not base our business strategies on the basis of the present.</p>	<p>Everybody in this world (given free choice) wants wholesome, nutritious products preferably produced in a responsible manner. The success of the Fair-trade brand in Europe testifies to this where the customer is offered a choice. Everyone from the Swiss yuppie opting for Demeter branded cotton socks and spaghetti to Sivakami the mother in Pethuparai village who buys modern bread for her 2 year old son. The latter buys the modern bread in the misinformed belief that the bread is better than traditional ragi or idli and dosai. There is also the convenience factor. This is the power of branding and packaging and availability. The success of Biodynamics or for</p>



<p>A discerning, health conscious consumer is emerging in India at an exhilarating rate. And it is a highly sophisticated consumer reinforced by traditional wisdom and values - and money. Indian customers know that naturally grown country guava or coffee is superior to the mass produced "duplicates" in the market. Offered the choice they will opt for quality even if it is marginally more costly.</p>	<p>that matter organic and its wider availability rests on these core elements: branding, packaging and availability. My contention is that Biodynamics is as relevant to the domestic scene as it is to the export market. Let me give a personal example. Seven years ago I began producing biodynamic coffee in the Palani Hills. My perception at the time was that the target customer was upmarket Europe. But I found to my dismay that the European buyer was very fickle. He wanted to base his price of my product on the world commodity price. Nothing doing I responded and looked to the domestic market. To my pleasant surprise I found a ready market and not just among yuppie cash rich customers – all levels of the middle class were customers. And so it was that my entire crop was sold domestically with demand outstripping supply. Quality sells in a savvy discerning market</p>
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- *Quadrant 4: Financial parameters:* Financial success will depend on whether we have successfully integrated all four segments so that products can be confidently produced in a dynamic demand driven atmosphere and at an acceptable price for consumer and producer.

Financial measures need to be developed to measure farm efficiency, Return on Capital Employed and growth. Financials are measures. They are indicators of where we are and which milestone we have passed with regard to whichever goal each unique farm has defined for itself. "To profit" is not merely desirable, it is essential and critical for every farm whatever is its purpose.

Only if we can invest into the three earlier quadrants, only then can we ensure that farms are profitable and therefore the movement can spread. Biodynamics needs to create "Wealth". Only if we can create Wealth in the hands of those who see beyond, then and only then can our movement gain momentum.

art technology in building and growing communities through networks. We need networks to provide In all this we have to remember that Biodynamic production is NOT a low cost solution as it is often projected to be. It needs infrastructural investment at the production level as well as the processing, transportation, infrastructure and marketing levels. We need to draw in state of the the consumer/farmer connect for it is only this connect that will

create accountability - farmer to consumer and vice versa. It is this connect that will create the label to product transformation. But implied in all this investment is quality, health and well-being. These factors are what will drive the success of the Demeter brand and ensure that it becomes a household experience both domestically and abroad.

## Homa Farming As An Organic Tool: Perspectives And Potentials

Karin Heschl

<p><b>AGNIHOTRA Materials</b></p>  <ul style="list-style-type: none"> <li>• Copper pyramid of fixed size</li> <li>• Ingredients (dried cow dung, cow's ghee, brown rice)</li> <li>• Mantra (vibrations)</li> <li>• Timesheet exact to the second of sunrise/sunset</li> </ul>	<p><b>AGNIHOTRA MANTRA</b> <i>at Sunrise</i></p> <p>Sooryáya Swáhá ★ Sooryáya Idam Na Mama Prajápataye Swáhá ★ Prajápataye Idam Na Mama</p> <p>★ Put brown rice mixed with ghee into the fire</p>
<p><b>AGNIHOTRA MANTRA</b> <i>at Sunset</i></p> <p>Agnaye Swáhá ★ Agnaye Idam Na Mama Prajápataye Swáhá ★ Prajápataye Idam Na Mama</p> <p>★ Put brown rice mixed with ghee into the fire</p>	<p><b>OM TRYAMBAKAM HOMA</b> <i>(4 hours daily)</i></p> <p>Om Tryambakam yajámahe Sugandhim puṣṭhi vardhanam Urvárukamiva bandhanán Mṛutyor mukṣheeya māmṛutát Swáhá ★</p> <p>★ Put one drop of ghee into the fire</p>

Fig. 20: Agnihotra ingredients and Mantras

Homa is the process of purification of the atmosphere through the agency of fire tuned to the specific biorhythm of sunrise and sunset. So homa therapy is not only for the soil or plant but also for the whole environment. The method of homa farming is easy to learn. Even an uneducated farmer can learn it and get its benefit. It is done through a method called *agnihotra* requiring the following ingredients:

- Copper pyramid of fixed size
- Dried cow dung, cow's ghee, brown rice
- Mantra (vibrations)
- Timesheet exact to the second of sunrise/sunset

During the exact time of sunrise or sunset you have to say the mantra and put in some rice into the flames. In South America, where homa therapy is followed we perform the Agnihotra to purify the environment at 05:48:29. Homa heals the atmosphere, soil, subsoil, water, plants, animals and human beings. The atmosphere also heals the soil, pH of the soil and water. The use of homa therapy in biodynamic farms in South America proves that it magnifies the impact. Approximately 100 days after planting beans and 3 months with homa therapy treatment, the harvest was 2,276 kg/hectare in dry conditions. Also, the appearance of a predator that reduced the population of white fly to the minimum was observed in the Homa atmosphere.



*Fig. 21: Coffee, Mango, Papaya and Wheat grown with Homa therapy*

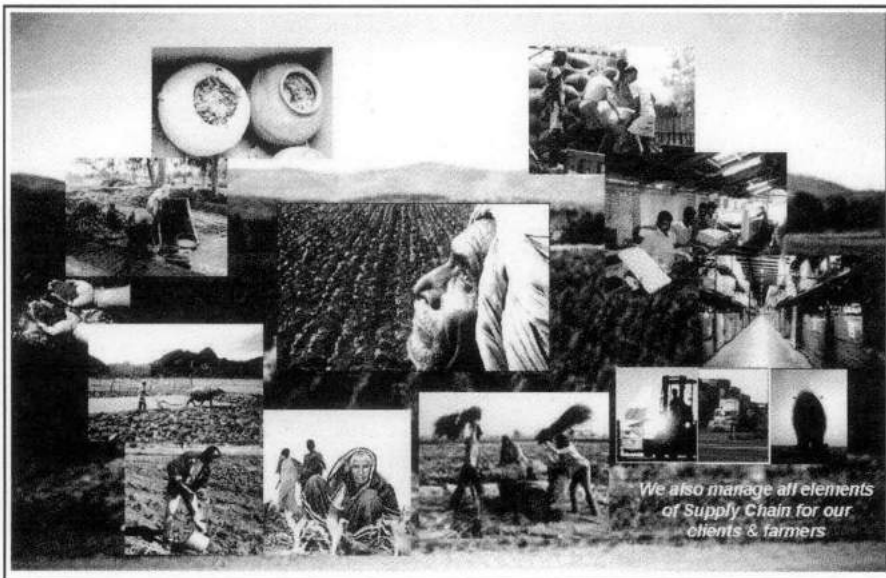
## **Bridging The Divide Between Farmers And Buyers**

*Simon Holland, Kamyab Agri Info Tech Pvt. Ltd.*

A large gap exists between farmers and agribusinesses. Communications, trust, relationships, organic compliance, certification, capabilities, quality, sanitation and hygiene and rewards are the keys in bridging the divide. These are the main issues that stop the farmer from getting a direct relationship with the business. To communicate with the farmers we must use the local language and the best way is to use pictorial forms. We use the pictorial representation to help them become aware of the environmental situation and the various issues regarding farming, leading to economic upliftment. The farmers enjoy the presentation as he becomes aware of various issues. The farmers have a lot of problems in dealing with the distant dealers due to communication gaps. The net result is buyer reluctance to deal with small farmers and associations, as it takes too long to respond to their clients.



A platform using information communications and technology (ICT) can be used to bring the numerous players in farming and agribusiness closer together. The ICT platform has various interfaces with the agricultural suppliers, buyers and services and knowledge centres for farmers. The farming community is benefited at large by this platform because very few farmers had access to the services and knowledge centres. The key to enhanced communications lies in entrepreneurs who have a strong bond and influence in their local community. Farmers want to hear about services that can help them to help themselves. It has also integrated many other sectors like banking and insurance and helping to know the current market prices, preparation of Vermicomposting and the inputs required. The cost of finance becomes a very significant for the farmers. The full suite of services increases sustainability for both farmers and kiosk entrepreneurs but what farmers really want are marketing linkages. The farmer wants commitment to his produce and a fair price. The consumer wants quality, reliability of supply and a fair price.



*Fig. 22: Pictorial description of the activities in Organic Agriculture focussed around the farmer*

Quality is paramount for organic produce and India has significant hurdles to address. Only Mexico suffers more rejections of exports than India from the US. In June 2005, 260 export consignments were rejected from Mexico. However, Mexico exports significantly more consignments to its neighbour than India does. Indians need to work hard to beat the actual and perceived threats from Indian produce. The European Union rejected 12 Indian food consignments in June 2005 on issues relating to sanitary and phytosanitary (SPS) grounds, and Indian exports to Europe are comparatively low compared with those to the US.

Quality assessment, procurement and farm management tools all aid in building relationships and reducing costs. The nature of these tools ensures that farmers continue to learn how to increase their earnings and hence improve quality. A farm diary is also the beginning of a traceability service, which covers the entire supply chain. Monitoring local prices and agreeing a simple framework with farmers adds certainty to procurement. Look into the pricing strategy. Earlier everything was based on the market price. The pricing of the rivals is monitored. In the organic sector, we have the global market and pricing, so India pricing for export should be done accordingly. We also have crops that take years to develop, so we price these accordingly. In organic farming managing the supply chain is very important.

### **A Promising Organic Research And Extension Model**

*N Selvaraj, Scientist, HRS, Ooty, TNAU*

The Nilgiris, the queen of hill stations, is highly fertile and can support agriculture successfully. The climatic conditions favour the cultivation of high value exotic vegetables, fruits, cutflowers and medicinal plants throughout the year. During the last three decades, agricultural scenario in the Nilgiris has drastically changed due to extensive and intensive cropping system with excess use of chemicals, which has led to the cessation of microbial activity in the soil system, paved way to the incidence of new pests and diseases, and led to the attainment of major status of the pests and diseases which were only of minor importance. Due to the continuous application of chemical fertilizers, the soil has become highly acidic (pH 3 to 4.5), with high deposition of salts and depletion of organic matter. Though the NPK status of the soil in the Nilgiris is high, due to the depletion of organic matter, the microbial activity in soil has slashed and thus the soil has become unproductive. The poor soil health has reflected in the decline in the yield of priority crops like potato, cabbage, carrot and beans. The high cost of chemical inputs, erratic rainfall and fluctuation in the market price of vegetables, have made agriculture a big gamble, especially in the Nilgiris. Besides, monocropping of the tea in Nilgiris has weakened the economic status of the farmers due to the very low price fixed for fresh green leaves, and the high costs incurred for chemical pesticides and synthetic fertilizers. It has been estimated that the farmers of the Nilgiris district are indebted to an unimaginable Rs. 28 crores to around 127 pesticide outlets in the district alone. The situation is so grave that it has become impossible for the pesticide companies to recover the debts from the farmers. In this context, it has become mandatory to go in for alternative crops, which can fetch fast and regular income to the growers without posing threat to the environment. This is possible with organic farming, specifically with high-value crops like exotic vegetables and cutflowers, which are of high demand in the domestic and international markets.

*Contract Developed By Horticultural Research Station, Ooty, For Marketing Of Organic Products Of Nilgiris*

At present more than 1000 farmers in Nilgiris have shifted to organic cultivation and the Horticultural Research Station has helped in identifying contracts for marketing of organic hill horticultural products in the metropolitan cities. An MoU has been signed between organic growers of Nilgiris and VITAN super market Chennai, in the presence of the District Collector and the Vice – Chancellor of Tamil Nadu Agricultural University for marketing of organic vegetables. The organic growers are presently supplying 5 MT of vegetables twice a week to the local market as well as markets in Bangalore, Coimbatore and Chennai. The prices have been fixed in the MoU (Table 1) and the farmers are able to fetch premium price for their products.

Table 1. Price List for Nilgiris Organic Vegetables fixed in the MoU

S.No.	Particulars	Price fixed		Per cent increase over market price
		Conventional Rs./kg	Organic Rs./kg	
1.	Bush beans	12	15	25.0
2.	Double beans	16	30	87.5
5.	Broccoli	14	40	185.7
6.	Cabbage	4	8	100.0
7.	Capsicum	16	25	56.3
8.	Carrot	8	20	150.0
9.	Brussels sprout	24	30	25.0
10.	Turnip	4	10	150.0
11.	Red cabbage	8	12	50.0
12.	Peas	22	35	59.1
13.	Paprika	23	50	117.4

*Establishment Of Organic Products Outlets In The Nilgiris*

Lately, a few organic outlets have been established in the Nilgiris district, which procure organically produced agricultural and horticultural crops from the organic growers for a premium price and distribute them to the consumers locally as well as in the neighbouring states. The price list fixed by the organic outlets during 2004 and 2005 for procuring the organic products from growers is given below (Table 2).

Table 2. Price fixed for organic products during 2004 – 2005 by organic products outlets in the Nilgiris District (NGO : The EARTH Trust)

Organic product	Market Price (Rs/kg)	Price fixed (Rs./kg)	Per cent increase over market price
French Beans	7	14	100.0
Beetroot	5	8	60.0
Broccoli	24	32	33.3
Cabbage	3	8	166.7
Chinese cabbage	9	12	33.3
Capsicum	15	18	20.0
Carrot	5	10	100.0
Cauliflower	11	15	36.3
Garlic	39	50	28.2
Palak	19	30	57.8
Pea	29	32	10.3
Potato	7	15	114.2
Radish	3	6	100.0

#### *Training And Extension Activities On Organic Farming*

The Horticultural Research Station, Ooty, has trained more than 8000 farmers in Nilgiris on the various aspects of organic farming, including production technology for vegetables, fruits, cutflowers, medicinal and aromatic plants and mushroom. High-tech training on post harvest processing and preservation has been provided to various women self help groups and the farmers of Nilgiris. Trainings were provided for farmers visiting the station from different parts of Tamil Nadu as well as Andhra Pradesh, Karnataka, Kerala and Rajasthan. Trainings have also been provided at international level for the students from Cornell University and officials from UNOPS, East Timor. Awareness campaigns, demonstrations and on-farm trials have been regularly conducted in the villages so as to encourage the farmers to take up organic farming. The unemployed youth have been trained on production of biofertilizers, biocontrol agents, vermicompost and organic mushroom cultivation which has motivated the participants to start their own production units. Government officials, Non-Government Organizations and students have also been trained on the various organic farming technologies developed. In collaboration with the state Department of Horticulture, the Horticultural Research Station, Ooty, is supplying tonnes of biofertilizers and biocontrol agents, which is distributed to the farmers of Nilgiris at a subsidized rate for the past two years.

#### *Success Of HRS, Ooty In Promoting Organic Farming In The Nilgiris District*

The Horticultural Research Station, Ooty has been imparting awareness programmes to the farmers of the Nilgiris district on the hazardous effects of synthetic fertilizers and

chemical pesticides on the soil and environment. The awareness programmes and trainings on organic farming have enabled the farmers to switch over to organic cultivation practices and consequently this has led to a gradual decline in the use of harmful inputs in agriculture. The impact of trainings on the trend of synthetic fertilizer use in the Nilgiris district is tabulated below (Table 3).

Table 3. Impact of organic farming training on synthetic fertilizer consumption from 1994-2004 in the Nilgiris district

<b>Year</b>	<b>Fertilizer consumption (tonnes)</b>	<b>Per cent decrease in consumption over base year</b>
<b>1994-1995</b>	96320	-
1998-1999	63290	34.3
1999-2000	60528	37.2
2000-2001	54885	43.0
2001-2002	52869	45.1
2002-2003	52348	45.7
<b>2003-2004</b>	<b>48654</b>	<b>49.4</b>

The use of synthetic fertilizers during 1994-1995 has been recorded as 96320MT. after almost a decade, the trend has been found to decline and during 2003-2004, the use has drastically reduced to 48654MT. A decrease of 49.4% in the use of synthetic fertilizers has been documented in the district.

#### *Organic Growers Association Of Nilgiris*

Under the technical guidance of the Horticultural Research Station, Ooty and with the support of the EARTH Trust (NGO), an association has been formed by the organic growers of Nilgiris. Scientists, Non-Government Organizations, Self Help Groups, Private entrepreneurs and farmers are currently the members of the association. It has also established 15 organic clubs in different villages involving the local farmers. The association is actively involved in the promotion of organic cultivation in Nilgiris by organizing seminars, campaigns and trainings. It is also supporting the organic growers by aiding in supply chain management and marketing.

#### *Constraints In Production And Marketing Of Organic Products*

Although the demand for organic products is very high, the production is meager and does not meet the existing demand. The requirement for organic vegetables is nearly 115 tonnes/



day in the southern states of India, while the average production is only up to 5 tonnes/day. Hence it is essential that we increase the production of organic crops to meet out the demand of local and domestic markets.

The market potential for organic horticultural products produced from Nilgiris for export and domestic market shows excellent scope. However there are several obstacles for successful production and marketing of organically grown produce. The major constraints faced by the farmers of Nilgiris in production and marketing include:

- Lack of information on organic production
- Irregular supply of organic inputs in the markets
- Inability to identify marketing networks for organic products
- Lack of co-ordination among the farmers
- Drastic reduction in cattle population
- Lack of infrastructure facilities like cold storage, vacuum packing units, processing units
- High certification cost
- Lack of support from the Government agencies and other relevant departments in the form of subsidy and financial assistance

#### *Suggestions To Overcome The Constraints*

Organic farming can be promoted and developed further in the years to come if the following suggestions could be implemented with the involvement and commitment of the organic growers, scientists, government agencies, NGOs and consumers.

- Intensive research on organic farming and networking of research information
- Increasing awareness and technical know-how through intensive training programmes
- Supply of organic inputs at subsidized rates
- Cluster farming to ensure regular supply
- Co-ordination with animal husbandry department to increase the local cattle population
- Reintroduction of mixed farming system with sheep, goat and poultry
- Establishment of organic hubs to serve as information centres and collection centres
- Creation of better infrastructure facilities like processing, packing and cold storage

- Better transportation facilities using refrigerated vehicles
- Improved credit facilities for organic farming through banks
- Simplifying certification procedures, reduced cost and encouraging group certification
- Implementing Government policies that support organic farming
- Facilitating contract farming with super markets and multinational companies
- Introduction of organic farming curriculum at school and college levels
- Introducing separate courses on organic farming in Agricultural Universities
- Increasing consumer awareness on the values of organic products
- Facilitation of export through Good Agricultural Practices

Since Nilgiris has an ideal climate for growing a range of horticulture crops like vegetables, fruits, medicinal and aromatic plants, plantation crops all round the year, there is enormous potential for ensured and continuous supply of organically cultivated products for local, domestic and international markets. Organic farming preached by Horticultural Research Station, Ooty will fulfil the vision of the environmentalists in healing the degraded soils and atmosphere of the Nilgiris district. As discussed earlier in this paper, the Station has been successful in promoting organic farming in the district which is evident from the declining trend in the consumption of chemical inputs in agriculture. We cannot compel everyone to adopt organic farming but we work for the common cause of sustaining the health and wealth of the varied biodiversity in the entire district, which would slowly but surely expand to the entire state and ultimately to the whole country.

### Potentials of Organic Agriculture for Indian Farmers



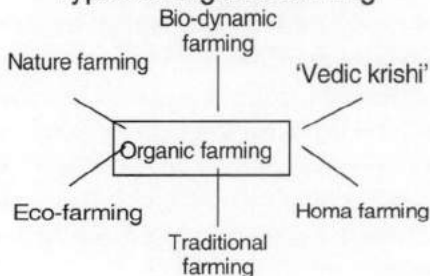
Frank Eyhorn  
FIBL / NADEL  
Switzerland



### Potentials of Organic Agriculture for Indian Farmers

1. The diversity of organic farming in India
- ↓
2. What is the impact on farmers' livelihoods?
- ↓
3. Obstacles in making use of the potential
- ↓
4. Success factors in developing organic farming in India

### Types of organic farming



### → Common principles of organic farming

- Focus on soil fertility and ecological balance
- Nutrient management based on organic manures
- Preventive measures to maintain plant health
- No synthetic fertilizers, pesticides, growth promoters etc.
- No use of GMO (genetically modified organisms)
- Animal friendly husbandry

### Hypotheses on the potential of OA for Indian farmers

#### Organic farming in India can lead to:

- |                    |   |
|--------------------|---|
| Ecology and health | <ul style="list-style-type: none"> <li>■ More sustainable use of natural resources (soil, water, bio-diversity)</li> <li>■ Better health for farmers and consumers</li> </ul> |
| Productivity       | <ul style="list-style-type: none"> <li>■ Satisfying and sustainable yields</li> <li>■ Increased productivity on marginal lands (semi-arid areas, mountain ranges)</li> </ul>  |
| Incomes            | <ul style="list-style-type: none"> <li>■ Lower production costs; lower input costs</li> <li>■ Better incomes, less vulnerability</li> </ul>                                   |
| Livelihoods        | <ul style="list-style-type: none"> <li>■ Strengthening of farming communities</li> <li>■ Overall improvement of farmers' livelihoods</li> </ul>                               |

### Obstacles in making use of this potential?

- **Organisations:** Need for strong farmer organisations (emotional project ownership!)
- **Conversion period:** Initial drop in yields and incomes
- **Training:** A system-based understanding instead of 'package of practice' approach
- **Extension:** Need for advice in organic farm management and production methods
- **Certification:** Establishing well-functioning internal control systems
- **Markets:** Domestic organic markets need development





## Homa Therapy

THE  
SUPERTECHNOLOGY  
OF THE FUTURE  
FOR  
TOTAL HEALING

## WHAT IS HOMA THERAPY?

It is the science of HEALING the  
ATMOSPHERE through  
PYRAMID FIRES to eliminate  
POLLUTION &  
CONTAMINATION.

AGNIHOTRA is the basic HOMA



## Benefits of HOMA THERAPY In Agriculture

### MORE PROFIT

- Increased production in quantity and quality
- Reduced cost for labor to apply agrochemicals
- The produce is like that of grandma's time in:
  - \*taste                      \*size
  - \*texture                  \*nutrition
- Prolongs the shelf life and makes them fitter for export
- Increased number of harvests during the year, i.e. productive cycle is shortened

## WHAT IS AGNIHOTRA?

- It is the process of purification of the atmosphere through the agency of fire tuned to the specific biorhythm of sunrise/sunset.
- It comes from the ancientmost Vedic sciences of *Bioenergy, Medicine, Agriculture and Climate Engineering.*



## What are the effects of Agnihotra?

- It heals:
  - the atmosphere
  - the soil
  - the subsoil
  - the water
  - the plants
  - the animals
  - the human beings



## AGNIHOTRA Materials



- Copper pyramid of fixed size
- Ingredients (dried cow dung, cow's ghee, brown rice)
- Mantra (vibrations)
- Timesheet exact to the second of sunrise/sunset

## Bridging The Agricultural Divide

- Mechanisms to Reduce Costs and Enhance Quality & Reliability

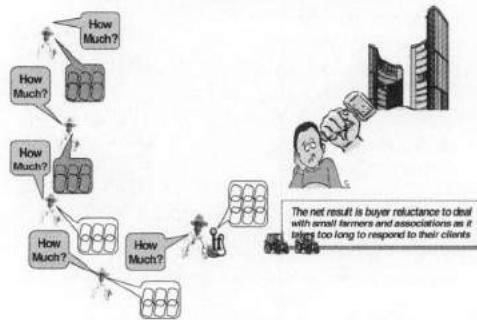
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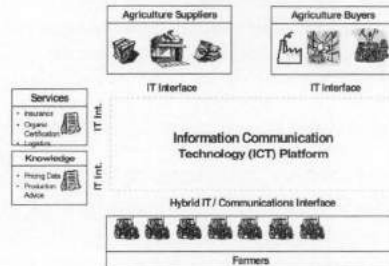
## A large gap exists between farmers and agri-businesses



## More serious communications issues exist between farmers and distant buyers



## An ICT platform can be used to bring the numerous players in farming & agri-business closer together



## Commitment, quality and a fair deal for all are the key barriers to stable marketing linkages

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Farmer wants:             <ul style="list-style-type: none"> <li>- Commitment</li> <li>- Fair Deal / Price                 <ul style="list-style-type: none"> <li>• This will go up and down with the market</li> </ul> </li> <li>• But want certain minimum value to ensure sustainability</li> <li>• Also want / demand organic premiums</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Buyer wants:             <ul style="list-style-type: none"> <li>- Quality</li> <li>- Commitment</li> <li>- Fair Deal / Price                 <ul style="list-style-type: none"> <li>• This will go up and down with the market</li> </ul> </li> <li>• Need some ceiling levels or become un-competitive internationally</li> </ul> </li> </ul> |
|--|---|

## Farm Diary is also the beginning of our traceability services which cover the entire supply chain



Chapter **VI**

**Organic Inputs, Quality Assurance  
And Certification Issues**



### Organic Inputs; Issues and Options

*P Bhattacharya, Director, National Centre for Organic Farming*

#### There is this Strong Inorganic Thinking and Norman Borlaug Leads It

Compared to 1951, fertilizer consumption has gone up at an increasing rate. Plants, being autotrophs, produce food for themselves and in addition produce it for animals. Such being the case, they need 17 essential nutrients, in an inorganic form. Hence attempting to separate organic and inorganic is difficult and that is why fertilizers are important as there is scientific evidence that plant uptake of nutrients is indeed in inorganic form. Norman Borlaug, the father of the Green Revolution, opines: "Organic agriculture cannot increase agricultural productivity. There is population problem "We can use all the organic that is available, but we are not going to feed six billion people with organic agriculture".

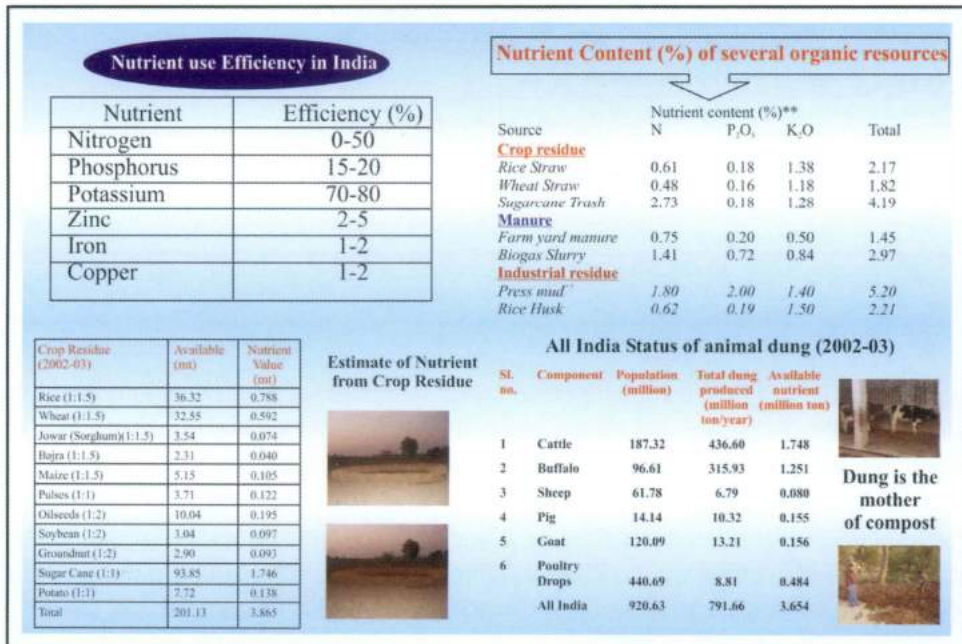


Fig. 23: An Overview of Organic inputs and their values



Excess and indiscriminate use of inorganic fertilizer has deteriorated soils producing a deficiency of macro- and micronutrients. Chemical fertilizers create pressure for subsidies and use up foreign exchange. Promotion of chemical fertilizer since its inception has been the brainchild only of the chemical fertilizer industry. On the other hand, by contradicting the promotion of chemical fertilizers we state that India is endowed with vast natural resources of organic inputs.



Fig. 24: Parameters influencing Soil Quality

### The Organic Thinking Line

Regular additions of organic material help in maintaining the tilth and productivity of the soil and reduce soil erosion run-off and leaching. Because of the nature of slow release of organic nutrients, nutrient loss is minimized, which has positive economic and environmental impacts. Conventional agriculture is based on the concept of “fertilizing the crop”, while in organic agriculture it is “fertilizing the soil”. If you go through the details all nitrogen fixation is biological fixation, totalling to 175 MT of nitrogen fixation, contributing to 67.3% of the total. Predominant biological nitrogen fixing organisms are: *Rhizobium*, *Azospirillum*, *Acetobacter diazotrophicus*. The next most important major nutrient is phosphorus. The main source of that is the earth. In India there is a large reserve of rock phosphate,

approximately 200 MT of which 15.3 MT is high grade. India's additional reserves are in Rajasthan: Jhamorkotra (Udaipur) 66.49 MT followed by Madhya Pradesh, Uttar Pradesh and West Bengal, where the phosphate reserves are in the form of carbon, fluora, hydroxy and sulpho apatite. If you have the little organism like phosphate surviving microorganism, *Bacillus* sp., *Pseudomonas* Spp., than we could enhance the availability of phosphorus to plants. The third major nutrient is potassium. All crop residues amended to the soil will introduce potassium. Moreover, more recent research has identified one *Eucheuma* species as containing 2.23% of potassium, while other sources are *Azolla*, *Trichoderma*, *Frateuria aurantia* and *Homaagni*.

### *Crop Residue*

The primary crop residue in the past 10 years has been fluctuating. There were crop residues is 201.13 MT available in 2002-03, of which one third was used as fuel and the balance nutrient value is 3.865 MT. Second is animal dung, whose total production is 791.66 MT, and the available nutrient is 3.654 MT. Thirdly the total biogas is 675,943 kilovolts of installed capacity, which produces 2.5-3 million MT of manure with 0.075 MT of available nutrient. Lastly there is blood, bone meal, forest litter etc., totalling 36.55 MT, giving a nutrient value of 0.908 MT.

In summary, estimates of organic inputs available is 12.228 MT which can cover an area of 259.08 MHa, but practically 6.114 MT is available nutrients and it can cover 129.5 MHa. The National Bio-fertilizer Development Centre in India conducted more than 2500 demonstration programmes with 1050 summarised publications, showing a minimum of 11% nutrient contribution both organically and biologically. The question is should we depend on the outside sources for chemical fertilizer or organic inputs? Do plants require fertilizer? There is also no reason in this world of competition, why in India there is a high inefficiency in fertilizer production, at the cost of the government and public exchequer? Based on experience it is clear to have on-farm generation of plant nutrients. Fertilizers have made an impact on food production, however indiscriminate usage has broken down natural biological processes essential for sustainable production. Any shift from one form to the other should therefore be gradual to ensure sustainability.

### *Food Security*

As far as food security is concerned, the Indian government and all 28 state governments, in total need to mobilize Rs138,000 crores in five years to add 53 MHa of irrigation. This will sustain the population projected to grow until 2050. Over the past six years, the central government invested only Rs1800 crores on irrigation. We have to find 138,000 crores for completing the 383 ongoing projects invested in minor irrigation in the eastern and northeastern sector, where rainfall is 1200 to 5000 mm per annum, and also implement the master plan of water harvesting, which costs Rs24500 crores. India has to look for

sustainable solutions to overcome food shortages in the future. Is part or complete conversion to organic a solution or a future myth like the Green Revolution is still an unanswered question?

## **Internal Control Systems for Small Farmer Groups**

*Mukesh Gupta, Morarka Foundation, Jaipur*

The certification agencies were interested in the data compilation and verifications from the ICT platform, making it accessible to save time and actually result in reduced cost of certification. We are looking at ICT as a tool to help farmers from production to marketing, and currently the ICT platform has been evolved to deliver:

- Management of operation's tools right from formation of groups to procurement;
- Knowledge management tools for quality control;
- Computerized records on-farm with on-line verification by certification agencies; and
- Management information systems (MIS) tools for inputs and service providers as linkage services.

This ICT platform is also in compliances with major international organic standards as well. It also covers the health and hygiene, Hazard Analysis and Critical Control Point (HACCP), EurepGap and International Organization for Standardization (ISO). It also covers futuristic standards like FairTrade, bug mites, climatic change, WTO and FAO systems, and labelling for gluten-free, vegetarian and non-vegetarian food.

Our organizational structure has a group committee, with multiple levels, with each level having particular predefined responsibilities. The first level is responsible for the headquarters operations, the second level interacts with the field level and the third level creates the database and maintains it. The verification of data is also on the basis of statistical methods, like for example if we have 56,000 farms, with 10 groups of 20 each, than 10 such group will form a cluster and 10 such clusters will form a block. This ensures district level data is maintained and verified according to statistical tools for certification. One is able to prepare the decision-making tools not only for certification but also for the implementation of the practices. This is basically the ICT technology where we initially use the mobile technology. It is possible to record all the interactions between the employee and the facilitators of the program. Computer files are available as records for verification and to arrive at the authenticity of the system. Once 100% compliance of this system is accepted than there is no interference or failures of the records maintained for verification. Under this program, records on thousands of hectares of organic and to be certified as organic are maintained. The benefits are it provides for entry and exit of members. A person can forward and become a member and after one year he no longer wishes to be a

member then he can exit the group. It allows grouping/s at many levels. If a farmer registers for a particular kind of plant produce, a size and colour, then it can group all the farmers with the same quality of produce. So we will be able to tell the seed details, the quality details and the expected output.

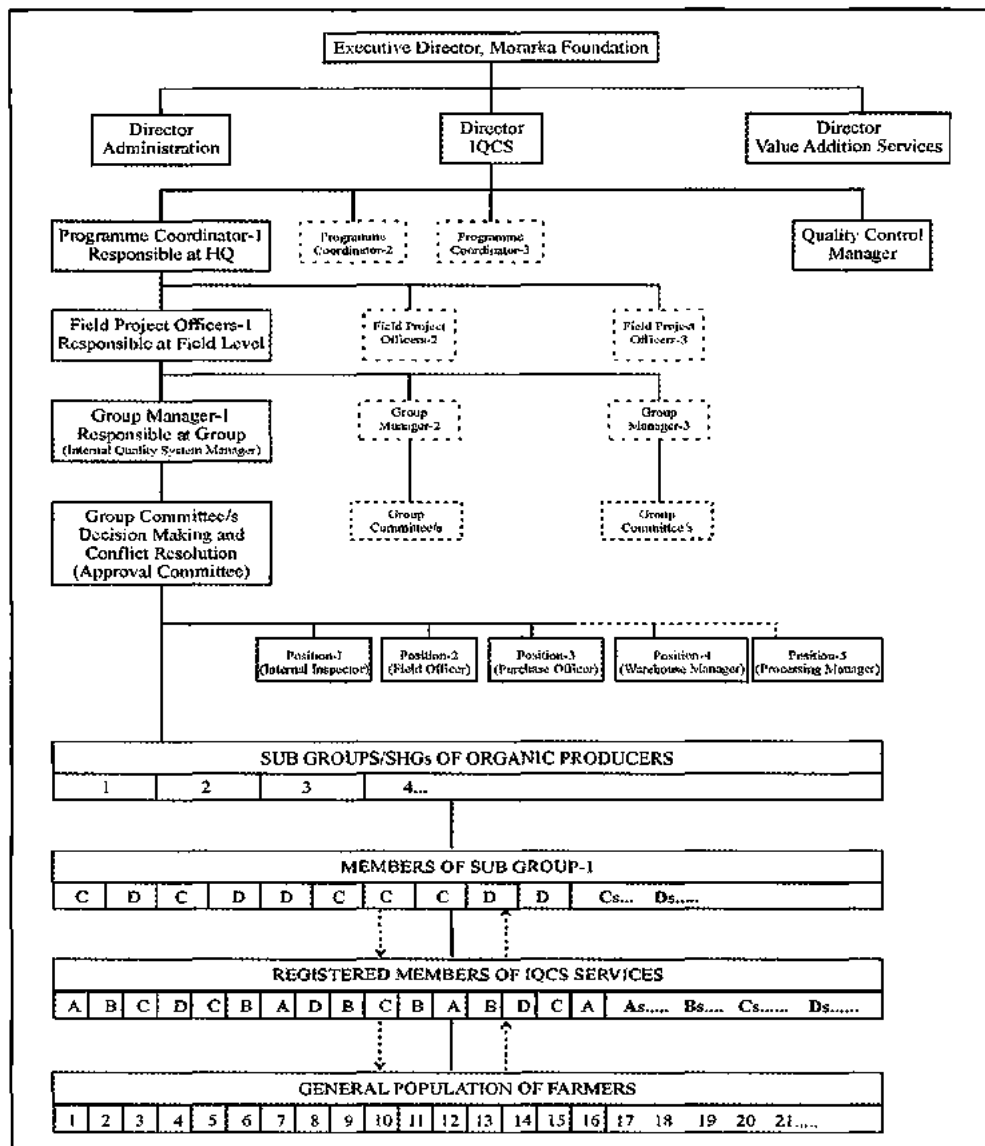


Fig. 25: Morarka Foundation's Scheme for ICS for Small farmer groups

## Advantages

- Creates a database for management of operations of any scale, size and diversity.
- Helps in delivering knowledge management inputs, while it establishes linkages with inputs and service providers.
- Delivers knowledge for all activities and establishes linkages as all activities, transactions and operations for each individual producer unit is recorded.
- Enables substantial reduction in the cost of certification, while being in compliances with national and international standards.
- Brings in new organized industry players into organic sector.

With this move lot of private sectors have come forward to join hands and get into this business.

## Nutrition Farming; Perspectives And Potentials

*Graeme Sait*

*What is Nutrition Farming?:* Nutrition farming involves production of nutrient-dense medicinal food with flavour and greatly extended shelf life. It involves “working with rather than against nature,” often utilizing a functional hybrid representing the best of both worlds. This is “intelligent agriculture”, where productivity, profitability and sustainability are seen as inseparable. Nutrition farming offers a profound marketing opportunity in a world filled with medicine and chemically tainted food.

*The Problem of Phosphate:* Phosphate has a triple negative charge which makes it strongly attracted to double and triple positively charged cations like calcium, iron and aluminium. Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO) suggests that there is US\$10 billion in “locked up” phosphate in Australian soils due to this attraction.

*How do we protect our phosphate investment?:* The answer is to combine soluble and slow release while stabilising and buffering the acid phosphate inputs. The ideal phosphate fertilizer would include DAP/MAP Guano and soluble humic acid.

The recent trend toward soil life testing has revealed a dramatic decline in *Mycorrhizal* fungi (VAM). What is responsible for the devastation of these precious creatures? Farm chemicals have played a role along with over-cultivation, but acid phosphates are also a major killer. When the ammonium ion breaks its weak bond with phosphoric acid in the soil the raw acid can sizzle up the fragile network of fungal filaments like taking a blowtorch to human hair.

The solution to this destructive acid burn is to reduce applications of acid phosphates and to buffer the burn with humic acid. Humic acid can soften the blow of any farm chemical

(such as anhydrous ammonia). When soluble humate granules are combined at a rate of 5% with acid phosphates the burning potential is buffered and the phosphate is stabilized via the formation of a phosphate humate.

Humates are derived from prehistoric plant matter, which has been compressed and reserved through the eons as brown coals called lignite and leonardite. Part of the tremendous soil response linked to humates comes from the 68% carbon found in these coals. Part comes from this dense mineralization and a significant kick comes from the humic acid and fulvic acid component. However, there is a theory that the intense vitality found in prehistoric plants has been somehow retained within the humates.

If a teaspoon of your soil contained several billion organisms comprising 20000 to 25000 different species in a single gram, then you would have no need to introduce a new workforce. Unfortunately, this biological utopia is rarely seen. Farm chemicals, harsh fertilizers, over-cultivation and poor mineral balance have combined to compromise soil life. In this context microbial inoculums are essential to replenish the life force. There are three distinct types of inoculums: Broad-spectrum inoculums with maximum biodiversity (i.e. compost and compost teas), Task-specific blends and single species inoculums.

## **Solution For Organic Farming from Vrikshayurveda**

*Ashok Shah*

The right way of organic farming will reduce the cost of agriculture practices, which is essential for small and marginal farmers who form 45% of Indian farmers. Farmers having less than 0.4 hectares of land constitute 15% of Indian farmers, while farmers having less than 1.4 hectares of land constitute 30% of Indian farmers. To understand and develop the best agricultural practices we must observe the flowering pattern of the crop in question. This gives a good idea about the rainfall, whether it is excessive rain or cyclone or drought or irregular rain. Based on the flowering pattern of plants, one can do farming and this is a time-tested approach for many years, with an accuracy of 96.7%. The next important factor on agriculture is the fertility of the soil. The neem, tamarind and Mahuva are the three most important for improving and maintaining the fertility of the soil. This is specified in traditional Indian literature 3000 years old and in Jainism, which is 2500 years old. Samrat Ashoka, after the Kalinga war, advised the farmers of Kalinga that the neem and Mahuva be used for agriculture. The neem as is known is used in around 250 products as a base. The neem is also used as a sulphur source because the flowers of the neem are very rich in sulphur. The neem is also very good pesticide for sandalwood. The sandalwood when planted between the neem stem and the canopy of the neem the sandal wood growth is always better. Therefore it will be a very good source of income for the farmers.

<b>THE NEEM AND NINE JEWELS</b>			
	<b>GUJARATI</b>	<b>LATIN</b>	<b>ENGLISH</b>
<b>(K)</b>	<b>Limdo</b>	<b>Azadirachta indica</b>	<b>Neem</b>
<b>1.</b>	<b>Ambali</b>	<b>Tamarindus indica</b>	<b>Tamarind</b>
<b>2.</b>	<b>Mahudo</b>	<b>Madhuca indica</b>	<b>Mahuva</b>
<b>3.</b>	<b>Arjun</b>	<b>Terminalia arjuna</b>	<b>Arjun</b>
<b>4.</b>	<b>Ambala</b>	<b>Phyllanthus emblica</b>	<b>Amala</b>
<b>5.</b>	<b>Bili</b>	<b>Aegle marmelos</b>	<b>Bael</b>
<b>6.</b>	<b>Galo</b>	<b>Tinospora cordifolia</b>	<b>Heart Leaves Moonseed</b>
<b>7.</b>	<b>Kunwar</b>	<b>Aloe vera</b>	<b>Aloes</b>
<b>8.</b>	<b>Bhrami</b>	<b>Centella asiatica</b>	<b>Indian penny wort</b>
<b>9.</b>	<b>Sukhad</b>	<b>Santalum album</b>	<b>Sandal wood</b>
<b>DR. ASHOK SHAH, PRASAD BIOTECH, GUNDLAV, VALSAD</b>			

*Fig. 26: The nine species of trees useful in Vrikshayurveda*

Tamarind is very useful in the agricultural practices, one tamarind for every 4 hectares of land helps maintain the microbial load in soil as it helps earthworm growth and development in soil. The pH of the soil will be maintained around 6.5 to 6.7, which is best for agriculture. Thus tamarind is also useful from the business point of view. The tamarind seed is crushed and eaten instead of tobacco, which is one of the finest practices of ancient times. Those who follow this practice are assured of reduced heart attack or stroke, because the blockage is avoided by the use of tamarind seed. We can eat tamarind seed after food.

Mahuva is known as an ingredient in alcohol, but it has never been registered that Mahuva is one of the finest growth promoters. It provides all the microbial inputs for the soil, it produces alcoholic extracts from sugar and protects the root. If you take the Mahuva plant and flower in a 10:6 ratio you will get the best of yields, as there is up to 20% improvement in soil fertility.

If you have 10 to 15 castor plants around your field just crush the seeds of castor oil and mix it with your biocompost or just throw it on the ground. The castor seeds are very good biocontrol agents. When you use castor oil at the rate of 2.5 litres per hectare, the quality and quantity improvement of the soil is excellent. Suppose for example you mix a castor oil while cultivating some vegetable, particularly brinjal, the crop quality is very good.

## The Organic Agri Inputs for Pest and Disease Control

*CMN Shastry, Phalada Agro Research Foundation*

Phalada is a company for which organic agriculture is a way of life, a passion, a mission and a commitment. Phalada specializes in plant care from root to fruit, and started its activities to produce quality certified organic six years ago. This is the first company in India to go for certification of organic agri inputs. Today Phalada has 30 certified organic agri inputs suitable for soil conditioning, plant nutrition management, plant pest and insect management and plant disease management. **Phalada's role in developing the Indian organic farming includes;** Providing technology to achieve higher yields at lower cost, form small farmers groups, set up ICS and arrange for certification, set up of post-harvest processing technology and market of quality produce internationally.

Using the latest biotechnology tools, one can take care of the plant from root to fruit in an organic way without surrendering for any chemical formulation. **Phalada**, during the last six years, has experienced that; Organic cultivation is not expensive and gives better yield than conventional, Organic cultivation can get farmer better price for his produce lastly by proper nutrient management, the resistance power of the plants increases. The immediate setting-up of standards is required for all organic agri input formulations in order to protect the innocent Indian farmer and bring awareness of availability and usage of benefits of the latest biotechnology to the farmer.

## HACCP system for quality assurance

*N Anandavally*

There was a declaration in 2002 reaffirming the rights of everyone to have access to safe and nutritious food, the fundamental importance of national production and distribution of food, and sustainable agriculture and rural development, fisheries and forestry, in achieving food security. Food is a big business and production must be science based, there must be quality transport over long distance, there should be worldwide access to variety of foods, an increase in food production and export and internationalization of food tastes and habits should occur. American food safety authorities have banned Indian pepper. The Indian pepper is the best in fibre content, flavour but it was banned because there were traces of mammalian excreta in the pepper. When the harvesting area was checked, it was shocking to see pepper being dried on dry cow dung. When the dried pepper was collected the cow dung went along with it to the USA. The definition given by the US Food and Drug Administration was "undigested plant fibres with inorganic earthy material," which is nothing but cow dung. A modern food industry exists in Mumbai, which, according to management, maintains standards matching international standards. Even in this industry there was a problem because during the packaging, the person was blowing air into the plastic wrapping to open it, thereby leading to health hazards and rejection of the food.



*Current food safety benchmarks*

<i>Business</i>	To make money
<i>Consumers</i>	Clear idea what to buy and where to buy.
<i>Food</i>	Sufficient, safe and meet nutrition year-round
<i>Regulator, processor</i>	Significant food safety;

*Is food safe today? Do Consumers Trust Food Quality?*

Food-borne diseases are on the increase. Available statistics on the incidence of food-borne diseases demonstrate that it is on the increase worldwide. With this increase, there is demand for agreed inspection and examination procedures and certification by governments of exporting countries for product and process compliance with their regulations of importing nations. The basic criteria are that the food should be safe and free from adulteration. Food should be also preserved in closed vessels and kept away from insects and flies. Food is adulterated if it bears or contains any poisonous or deleterious substances, is prepared and packed under unhygienic conditions which may prove injurious to health, or if the processor does not follow the standards and regulations

The solution is Hazard Analysis Critical Control Point – HACCP

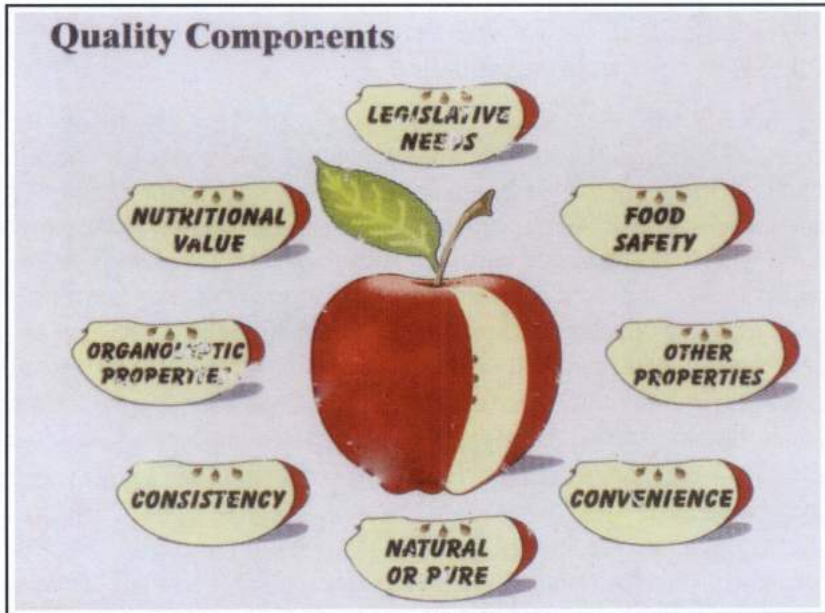


Fig. 27: Quality Components of Food

HACCP is: Product, Process, Location and Country specific

Hazard is a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect. There can be: Biological hazards, Chemical hazards and Physical hazards. Hazard analysis is the process of collecting and evaluating information on hazards and conditions leading to their presence to decide which are significant for food safety and therefore should be addressed in the HACCP plan.

There are 12 steps of HACCP:

1. Assemble the HACCP team
2. Describe the product
3. Identify intended use
4. Construct flow diagram
5. On-site verification of flow diagram
6. List all potential hazards conduct a hazard analysis.
7. Determine control measures
8. Determine CCP and describe the measures to control the hazards
9. Establish critical limit for the control measure at each CCP
10. Establish a monitoring system for each CCP
11. Establish corrective action for deviations that may occur
12. Establish verification process and establish record keeping and documentation.

There are also 12 major benefits:

1. Cost effectiveness
2. Reduced risk of food-borne diseases
3. Reduced public health costs
4. Increased awareness of basic hygiene
5. Reduction in production costs through reduced wastage and recall of food
6. Increased confidence in food supply
7. Increased market access
8. Mitigation of the business risks
9. Image enhancement of industry and country

10. Appointment of Food Safety and Quality Control Officers to supervise the safety and quality aspects of product by maintaining continuous surveillance
11. The keeping of detailed records of production procedures for inspection and evaluation by audit inspectors
12. Reducing end product inspection.

## **Biodynamic Preparations In Organic Crop Management**

*C Jayakaran*

Biodynamic agriculture evolved as a result of the concepts established by Rudolf Steiner in 1924. Steiner synthesized knowledge from different disciplines from the east and western schools of knowledge. Steiner, in his eight lectures on farming known as the Agriculture Course, clearly gives a holistic and cosmic dimension to agriculture processes. Biodynamic agriculture is the oldest form of modern organic agriculture, practiced in more than 40 countries. Biodynamic Agriculture believes what is happening in the cosmos affects life on earth as the preparations work with etheric (life forming forces) to rejuvenate the soil. Homoeopathy based herbal preparations and cow-manure-based preparations are also used to bring in the trace elements needed by plants to perform well.

### *The relevance*

1. There is a growing awareness among the public at large about the issues relating to quality/organic food, and the poisoning of our environment with Agri chemicals.
2. Steiner's contribution to the field of organic agriculture is very relevant for modern times because of the following:
  - The importance of the finer trace elements / particles for health and normal plant growth was pointed out by Steiner very early last century
  - He has given many practical solutions for the technical challenges in the farm faced by the practicing well-meaning organic farmer.
  - Chromatograms and other quality studies have shown the superior food quality of bio-dynamically grown food products, and the improvement it brings to the farm soils

### *Key assumptions for remedy preparation*

1. Using certain homeopathic principled medicines/preparations it is possible to revitalize the soil with the essential ingredients needed to sustain life and thus be able to grow healthy plants.
2. Planning of farm work in tune with planetary rhythms helps to produce superior quality food.

3. Working with energies that create and maintain life can truly nourish the food and bring these energies back to the soil.

BD 500 (Horn manure preparation) is made from good quality cow manure BD500 has a mixture of many soil beneficial fungi and bacteria. BD 501 (Horn silica preparations) is made from silica quartz crystals and activates the silica related forces associated with up taking of nutrients into the plant. BD 502–507 are six herbal compost preparations, primarily recommended for inoculating in compost heaps. BD 502 Yarrow (*Achillea millifolium*) brings in sulphur, potash and nitrogen. BD503 Chamomile (*Matricaria chamomilla*) brings in calcium and sulphur, and is a good fungicide and regulator of breakdown of proteins. BD504 Stinging Nettle (*Urtica dioica*) brings in important iron and potassium. BD505 Oak bark (*Quercus robur*) brings in calcium-fixing bacteria, and is a good anti fungal remedy. BD 506 Dandelion (*Taraxacum officinale*) brings in silica and strengthens cell walls. BD 507 Valerian (*Valeriana officinalis*) brings in phosphorus. BD compost is needed to maintain the humus content, bacterial and fungal life, and earthworm activity in the soil.

## **GMO Issues**

*Arpad Pusztai*

To show the presence of new toxins/allergens by chemical methods is, at best, difficult. In contrast, the consumption of unexpected but potent bioagents can have disproportionately large effects on health. Like all foods, GM food will first affect the alimentary tract. Consumption of GM food can have major effects on gut metabolism, digestive and immune/endocrine functions and bacterial flora. To test for the survival and biological effects of transgenic proteins and other metabolites of the genetic transformation new methods of toxicology, nutrition and patho physiology will have to be developed.

### *Statistical Evaluation*

- GM food is unsafe if its effects on rats are significantly different from that of the non-GM parental line control diet
- If the effects of feeding rats with parent line control diet are changed on spiking with the transgenic product, the transgenic is unsafe
- If effects of the GM plant, and the parent line control spiked with the gene product differ, the problem is likely due to transgenic insertion or position

### *Problems And Perspectives*

- Animal tests are but a first step
- Next step is long-term metabolic, immune and reproduction studies

- If these did not show harm, GM food safety must be further tested in double-blind, placebo-controlled clinical studies
- It can be expected that harmful effects will be more serious with the old, young and the diseased

#### *Safety Studies With Transgenic DNA*

- Fundamental studies with transgenic DNA in Tromso, Norway, in collaboration with Professor Terje Traavik's group
- Comprehensive short- and long-term animal experiments
- Lifelong studies

#### *Objectives Of Feeding Studies With Transgenic DNA And Foods*

- Whether sequences from DNA constructs containing the cauliflower mosaic virus promoter (CaMV 35S (which is used in most transgenic crops to activate foreign genes that have been artificially inserted into the host plant.) are taken up from the gut and have biological effects
- Whether transgenic DNA sequences from Bt-transgenic sweet maize are taken up and have biological effects
- Whether antibiotic resistance genes in the transgenic construct can transform alimentary tract bacteria
- Whether the CaMV 35s promoter is active in mammalian cells

#### *The Future Of GM Food: Is It Needed?*

- Currently GM foods are not needed to feed the world but if in future such need will arise their safety must be rigorously tested with biological methods
- We shall also need new and safer methods of gene-transfer
- Without proper, transparent and independent testing people are unlikely to accept any present-day or future GM foods

## Organic Agri. Inputs: The range and Effectiveness – Can they tackle all the problems?

By  
**Dr. P. Bhattacharya**  
 Additional Commissioner (INM)  
 Krishi Bhawan, New Delhi  
 Director  
 National Centre of Organic Farming, Ghaziabad

## School of Organics

1. Crop produced with chemicals not good for health, contains heavy metals, causes diseases due to excess  $\text{NO}_2$ ,  $\text{NO}_3$  pollutes environment. Organically produced food is more nutritious and healthier.  
 2. Excess and indiscriminate use of inorganic fertilizer has deteriorated soil badly with deficiency of macro and micro nutrient.  
 3. NPK ratio in some soils is excess over normal 4:2:1  
 Punjab = 37:10:1,  
 Haryana = 70:24:1,  
 All India = 7:3:1 (2001-02)  
 4. Chemical fertilizer creates pressure on subsidy and foreign exchange.  
 5. Promotion of chemical fertilizer is the bane of industry only.

6. On the other hand, India is endowed with vast natural resources of organic inputs.  
 7. Regular additions of organic materials help in maintaining the tilth and productivity of the soil and reduce soil erosion run-off and leaching.  
 8. Because of slow release, nutrient loss is less.  
 9. Organic manure improves soil physical environment.  
 10. Conventional agriculture based on concept of fertilizing the crop. In organic agriculture, it is "fertilizing the soil".

## Nutrient Content (%) of several organic resources

Source	Nutrient content (%)**			
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total
<b>Crop residue</b>				
Rice Straw	0.61	0.18	1.38	2.17
Wheat Straw	0.48	0.16	1.18	1.82
Sugarcane Trash	2.73	0.18	1.28	4.19
<b>Manure</b>				
Farm yard manure	0.75	0.20	0.50	1.45
Biogas Slurry	1.41	0.72	0.84	2.97
<b>Industrial residue</b>				
Press mud**	1.80	2.90	1.40	6.20
Rice mud*	0.62	0.19	1.50	2.21

\*Source: Tandon, 1997 \*\*Variable, depending on crop & substrate. - DAC.

## Estimates of Organic inputs

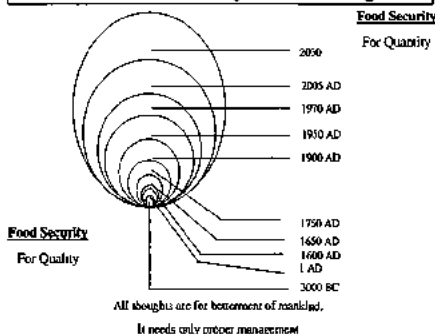
Components	Qty. Available Million ton	Nutrient available (mt)	Rate of application	Area to be covered Mha
Crop Residue	201.13	3.805	5 ton/ha	40.22
Animal Dung	791.66	3.854	5 ton/ha	158.33
Green Manure	44.68 lakh ha	0.223	-	4.46
City Compost	12.20	0.427	5 ton/ha	2.44
Rural Compost	184.3	2.581	5 ton/ha	36.86
Biofertiliser	0.0094	0.370	1 kg/ha	9.40
Other	38.55	0.908	5 ton/ha	7.31
<b>Total</b>		<b>12.226</b> (8% less) = 11.1		<b>259.06</b> (8% less) = 129.54

(Why 8% less? Residue + dung + compost interdependent. Separate estimate will be exaggerated)  
 GOVERNMENT AS FACILITATOR: A VARIETY OF COURSE, Training, Setting up of Unit etc.

## Could we not improve our soil?



## We cannot blame any school thoughts



India Organic 2005 on 5-7 November 2005, Bangalore  
India Positioning High in Organic Agribusiness  
International Seminars and Workshops

**Quality and Certification**  
**Internal Control Systems for Small Farmer's Groups**  
A tool not only for certification but also for quality assurance

Presentation by  
*Mukesh Gupta, Executive Director*  
**M.R. Morarka-GDC Rural Research Foundation**  
Vedha Road, Old Tank Road, Jabur - 503 905, Phone & Fax: +91-141-2771100, 2771101  
E-mail: [info@morarkagdc.org](mailto:info@morarkagdc.org) Web: [www.morarkgdc.org](http://www.morarkgdc.org)

Internal Control Systems for Small Farmer's Groups *By*  
**Mukesh Gupta**

Issues in Organic Farming  
How will it be possible for small farmers in India?  
Implementation and Management of IQCS

**Benefits...**

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**It has brought in new organized  
industry players into organic  
sector.**

## The Organic Agri Inputs for Pest and Disease Control

By  
**CMN Shastry**  
*Managing Director*


**Phalada Agro Research Foundations Pvt Ltd, Bangalore**  
at India Organic 2005

PLANT CARE  
CERTIFIED ORGANIC  
BIOTECH  
INPUTS  
FROM ROOT TO FRUIT

Today Phalada has 30 Certified Organic Agri Inputs suitable for

- ➔ Basic soil conditioning
- ➔ Plant Nutrition management
- ➔ Plant Pest/Insect management
- ➔ Plant Disease management




Plant Care ..... from root to fruit

## Phalada's inputs





Plant Care ..... from root to fruit



LESSER COST  
CULTIVATION  
AND  
CERTIFICATION  
HIGHER YIELD

### Phalada's Role

- ➔ Provide technology for Organic Cultivation to achieve higher yield at lower cost
- ➔ Form small farmer groups in different regions of Karnataka and out side
- ➔ Set up the Internal Control System and arrange for certification



Plant Care ..... from root to fruit



HIGH QUALITY  
PROCESSING  
&  
MARKETING  
OF PRODUCE  
TIMELY DELIVERY

### Phalada's Role

- ➔ Setting up of post-harvest and processing technology
- ➔ Marketing of produce in international arena
- ➔ Maintain quality to meet international standard



Plant Care ..... from root to fruit



HIGH QUALITY  
PROCESSING  
&  
MARKETING  
OF PRODUCE  
TIMELY DELIVERY

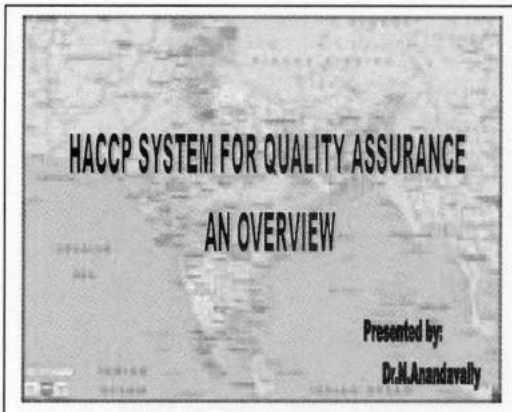
### Phalada's Strength

- ➔ Experience in export business for the past 2 decades in different product lines
- ➔ Exposure to the international requirement of quality and timely delivery



Plant Care ..... from root to fruit





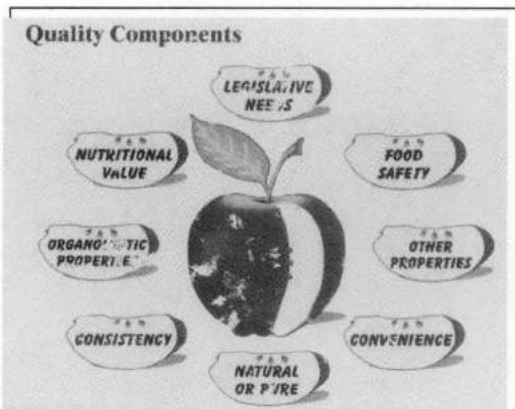
## India's strength

Produces foods  
for 1 Billion

Provide  
Employment for 200  
Million to  
Unskilled population

**Leads to Social Security**

Food Safety regulation passed on 21st Sep.2005



## FACING REALITY

- HACCP IS AN ESSENTIAL STRATEGY AIMING AT CONTROL FOOD HANDLING, PROCESSING AND MARKETING BOTH, FOR EXPORT AND DOMESTIC MARKETS
- TRAINING IS THE BACKBONE IN THE LEARNING PROCESS

## BENEFITS

- Cost effective
- Reduced risk of food borne diseases
- Reduced Public Health costs
- Increased awareness of basic hygiene
- Reduction in production costs through reduced wastage and recall of food
- Increased confidence in food supply
- Increased market access
- Mitigating the business risks
- Image-enhancement of industry & country

## BENEFITS

- The appointment of Food Safety and Quality Control Officers to supervise the safety and quality aspects of product by maintaining continuous surveillance
- The mandatory adoption by processors of food safety programmes including GHPs, GMPs and HACCP
- The keeping of detailed records of production procedures for inspection and evaluation by audit inspectors
- Reducing end product inspection (not in practice)
- Language of safety

## Organic farm inputs

*The biodynamic agriculture preparations in nutrition and disease management*

## BD Agriculture – Evolution

- BD agriculture evolved as a result of the concepts given by Rudolf Steiner in 1924.
- Rudolf Steiner synthesized knowledge from different disciplines from the east and western schools of knowledge.
- Steiner in his 8 lectures on farming known as the Agriculture Course, very clearly gives a holistic and cosmic dimension to agriculture processes.



## BD Agriculture –An introduction

1. BD Agriculture is the oldest form of modern organic agriculture.
2. It is practiced in over 40 countries.
3. BD believes what is happening in the cosmos affects life on earth.
4. Each farm is a unique entity/organism and BD preparations work with Etheric (life forming forces) to rejuvenate the soil.
5. Homeopathy based herbal preparations and cow manure based preparations are used to bring in the trace elements needed by plants to perform well.



## The relevance

1. There is a growing awareness among the public at large about the issues relating to quality/organic food, and the poisoning of our environment with Agri chemicals.
2. Rudolf Steiner's contribution to the field of organic agriculture is very relevant for modern times because of the following:
  - The importance of the finer trace elements / particles for health and normal plant growth was pointed out by Steiner very early last century
  - He has given many practical solutions for the technical challenges in the farm faced by the practicing well meaning organic farmer.
  - Chromatograms and other quality studies have shown the superior food quality of bio-dynamically grown food products, and the improvement it brings to the farm soils

## Availability of biodynamic preparations in India

- Peter Proctor's initiatives and programmes have allowed several people to become competent to make BD preparations in India.
- The making of Biodynamic herbal preparations is complicated and needs specialized knowledge and attention to detail.
- In India Kuringi farms caters to the BD needs of several projects.
- SUPA biotech run by Binita Shah in the Himalayan state of Uttaranchal also makes all the BD preparations and distributes it across India.



## Conclusion:

- As can be seen, these above mentioned preparations will help organic farming to work better
- This method of organic farming using the healing effect of the BD preparations can help reverse the downward trend in Indian agriculture

### **SUGGESTED PROTOCOL (1)**

- IDENTIFICATION OF AN APPROPRIATE GENE WHOSE PRODUCT HAS NO TOXIC EFFECTS FOR HUMANS OR ANIMALS
- AFTER CREATING THE GM PLANT ALL PRODUCTS RESULTING FROM THE GENE TRANSFER MUST BE ISOLATED FROM THE GM PLANT TO COMPARE THEIR CHEMICAL AND BIOLOGICAL PROPERTIES WITH THE ORIGINAL
- NO *E. coli* RECOMBINANT FORM OF THE GENE PRODUCT MUST BE USED

### **SUGGESTED PROTOCOL (2)**

- ALL GENE PRODUCT SAFETY STUDIES MUST BE DONE ON PRODUCTS ISOLATED FROM THE GM PLANT AND NOT ON *E. coli* RECOMBINANTS
- THE GENE PRODUCT'S STABILITY TO DIGESTION MUST BE ESTABLISHED IN THE GUT *in vivo* WITH THE ISOLATED PRODUCT AND NOT WITH AN *E. coli* RECOMBINANT FORM
- FOR ALLERGENICITY TESTING IN ADDITION TO THE DECISION-TREE APPROACH ANTI-GENE PRODUCT ANTIBODY TESTS (HUMANS AND ANIMALS) AND IMMUNIZATION STUDIES (BROWN NORWAY RATS, ETC) MUST BE DONE
- 

### **SUGGESTED PROTOCOL (3)**

- THE FIRST REQUIREMENT FOR THE ESTABLISHMENT OF "SUBSTANTIAL EQUIVALENCE" IS TO GROW GM AND PARENT LINES SIDE-BY-SIDE AND HARVEST THEM AT THE SAME TIME
- MAJOR/MINOR COMPONENTS IN LARGE NUMBERS OF GM AND NON-GM PLANTS NEED TO BE STUDIED AND MEASURED IN PARALLEL BY RELIABLE CLASSICAL AND NEW METHODS (PROTEOMICS, FINGER-PRINTING, METABOLOMICS!)

### **SUGGESTED PROTOCOL (4)**

- GM FOODS NEED TO BE EXAMINED IN NUTRITIONAL/TOXICOLOGICAL TESTS
- EFFECTS OF GM FOOD ON GROWTH, METABOLISM, ORGAN- DEVELOPMENT, IMMUNE AND ENDOCRINE FUNCTIONS, AND ON THE STRUCTURE, FUNCTION AND BACTERIAL FLORA OF THE GUT NEED TO BE FIRST INVESTIGATED IN LAB ANIMALS IN COMPARISON WITH APPROPRIATE NON-GM COUNTERPARTS

### **SUGGESTED PROTOCOL (5)**

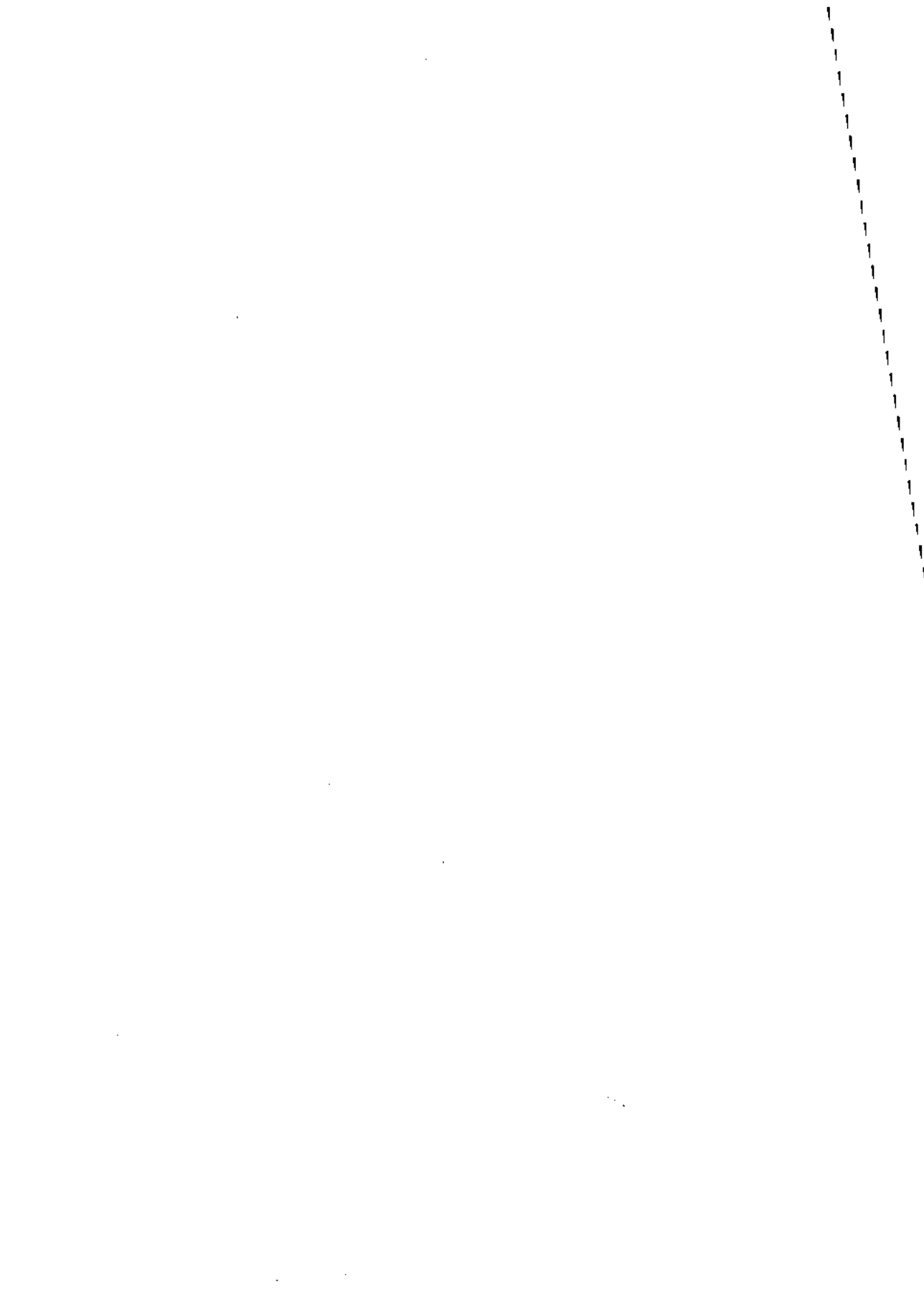
- AN ABSOLUTE REQUIREMENT FOR THE NUTRITIONAL TESTING IS THAT ALL DIETS MUST CONTAIN THE SAME AMOUNT OF PROTEIN AND ENERGY
- TWO CONTROL DIETS MUST BE USED
- 1. THE PARENT LINE GROWN AND HARVESTED THE SAME WAY AS THE GM
- 2. THE SAME CONTROL TO WHICH THE GENE PRODUCT ISOLATED FROM THE GM PLANT IS ADDED

### **SUGGESTED PROTOCOL (6)**

- GROWTH OF GROUPS OF PAIR-FED RATS IS MONITORED, AND SAMPLES OF URINE AND FAECES FOR N- AND DRY WEIGHT BALANCE AND BLOOD FOR IMMUNE- AND ENDOCRINE TESTS ARE TAKEN
- AT THE END OF FEEDING THE RATS ARE KILLED, DISSECTED AND THEIR GUT AND OTHER ORGANS ARE REMOVED FOR WEIGHING, HISTOLOGY, AND DNA AND ENZYME TESTS, ETC

Chapter **VII**

**Significance of Post Harvest and  
Value Addition in Organic**



### Organic Products And Quality Requirements Of The Market

*Mike Brooks, Organic Partners, UK*

Concentrate on less sophisticated elements of drying and shade drying, which for many reasons has lot of advantages. First of all on leafy crops, ultra-violet light can be damaging to green leaves and flowers. There is no control over temperature, quite a lot of labour is involved, and it's not making best use of space. The air can't really circulate where the stems of the plants are and you get lot of stuff falling on to the ground. If you are drying something open to all elements, you have fluctuations in temperature, humidity, which can potentially encourage bacteria, increase the drying time and gradually cause a deterioration of the crop. Improved shade drying can be better than drying in bundles. Probably one of the most important things before drying is to have a sense of what is your throughput of herbs. It's not just a question about the volume of the crop but also of how many different species, or batches you can get through a dryer in a year. It may well be that the cost of investment in a dryer can be mitigated by using it to dry a number of different crops. There is no point in spending a lot on drying, cutting, processing, post-harvest treatments, where your customer wants to buy material as cheaply as possible and have control over the post-harvest processes themselves. Having said that, the opportunities to study your crop would be limited. The two main elements that will control the drying process are movement of air and temperature. Temperature can be destructive to active components within plants. It decreases the time but can also decrease the quality of plants being dried. As a basic principle we work on around about 35 degrees Celsius for roots and for fruits the temperature can be higher.



*Fig. 28: The contract of good and bad processed birds eye chillies and clove buds*

The element that needs to be considered is what materials are available locally. If one is using an additional heat source and there is great flexibility in using electricity, a generator, wood or gas. Other criteria about the size of the dryer are how quickly the depth of herb that can be safely managed. In order to assess the size of the dryer, first you need to work out the throughput.

Depending on your source of air and heat, there will be facility to lay down the herbs on the ground. 8-12% moisture is required for the finished product after drying. Advantage of using a standard system such as a green house is that it is readily available and very cheap. It needs to be adapted by the use of the cover. The subsequent stage for basic herb processing is threshing, typically done after crop harvest. It can be done like bashing, thrashing, cleaning, all sorts of processes to ensure that the crop is clean or it is further processed and cut to required size.

Depending on the quality of the finished products, the percentage of seed being removed is reducing the crop. This is a valuable part of the process. You can't make a bad crop into good crop by processing it. What you can do is that you maintain the quality of the crop while it is being processed.

Ensure there are a number of containments between harvesting and sale of the crop. Ensure no metal like a staple or a nail or very odd metal strips from milling machines is found in the final product.

## **Organic Products And Agribusiness: The Potential**

*Seetharam Annadana, Consultant Organic, Brahmi Phytoconcepts*

There are two emerging technologies with a global potential that Indian processors of fresh fruits and vegetable must consider studying. The two areas are lactic fermentation and controlled moisture fire-roasted grilling (CMFRG). Both these are very interesting technologies for India to look into for processing of vegetables, in addition to the other existing processing of canning, pickling and desiccating.

### **Supercritical Fluid Extraction**

Now looking at the different potential sectors of organic agriculture, the organic medicinal, aromatic, and natural dye plants (MADP) sector is highly promising. Processing of MADP using supercritical fluid extraction using liquid CO<sub>2</sub> ensures a very high quality product without any trace of any extraction solvent. This technology would be very useful especially in nutraceutical sector, where you would like to have pure plant concentrates and extracts, with zero solvent trace. Supercritical fluid extraction, where CO<sub>2</sub> is pressurized, is gas converted to liquid so it is fluid, giving you 100% extract as CO<sub>2</sub> evaporates so the extract is there without any trace of solvent. Hence this is a very interesting for the production of alpha beta curcuminoids from turmeric, gingeberin from ginger and pipprecin from pepper. These techniques are also very useful in producing decaffeinated organic tea.



## Fruit And Vegetable Processing

Enzymatic hydrolysis is a very interesting method of producing total juices, instead of conventional grinding methods. We have freeze-drying and individual deep freeze for vegetables and fish. Osmotic dehydration is very interesting technology applied to bananas, pineapples and other fruits, as well as candied fruit processes for mixed dry fruits in different parts of the world.

For India, osmotic dehydrated pineapple would be a very good sector to look at. Currently we have pineapple candies as such, but they are not organic. So organic pineapple and osmotic dehydrated candies would be a very good sector for those who are growing pineapple and currently canning or producing juice. Lactic fermentation and CMFRG are technologies for processing that could be explored for vegetables.



Fig. 29: Vegetables processed by lactic Fermentation, CMFRG, Veg granules and Veg capsules

Brahmi Phyto Concepts is involved in consulting, creating and developing technology and products. The main areas of interest have been organic plant and animal production inputs. There other interests at Brahmi are:

- Organic traditional spice health mixes
- Organic traditional baby foods
- Organic traditional functional foods
- Organic traditional nutraceuticals
- Scientific validation of traditional knowledge

## Solar Drying For Organic Fruits And Vegetables

*C Palaniappan, CEO, Planters Energy Network*

This century is for renewable energy technologies (RET). When commercialization started 15 years ago, this technology was not well received. RET bridges the gap between mounting global energy demand and dwindling supply of finite conventional energy sources. When we get so much sunshine why are we not using it? Popular awakening on cleaner environment encourages RET in industrial and agro processing. For example 42 MT of food product



was wasted last year due to lack of post-harvest technology in developing countries. This is sufficient to feed 25% of the Indian population over the year. India produces 180 MT food per year, but 15% of food grains are lost, 25-45% of vegetables and fruits are lost, there is no availability of processing facilities for many crops, there is under-development of post-harvest technology, and many traditional food industries opting for fossil fuel dryers instead of using the sun.

Justification for solar drying of organic products:

- Organic and solar stress on quality products free from contamination
- Both are environmental friendly and sustainable

In developing countries, environments are polluted, so when you are doing open air drying you have the problem of dust and chemicals. When a product like fish is dried in the open you get contamination. So hygienic open drying is not practicable.

- Solar Air Heating System (SAHS) offers tremendous potential to reduce fossil fuel. There are two options:

Partial energy delivery system (PED), when the temperature requirement is above 100-150 degrees; or Full energy delivery system (FED) when the temperature requirement is low

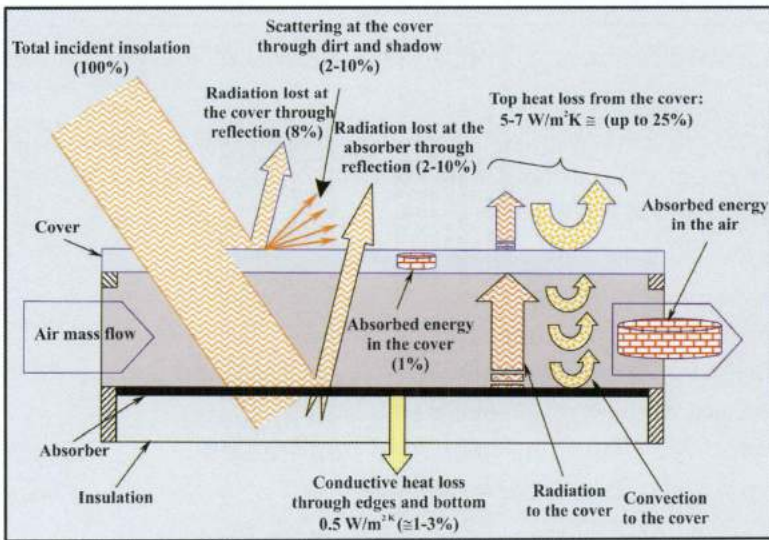


Fig. 30: The basic principle of SAHS

There are about 43 projects with a total installation of 8200 square metres of solar collectors, for products such as tea, coffee, spices, fruits, vegetables, fish, leather, pulse and salt. Under the SAHS, tea requires 20-30% less energy to dry. More than 10 tea-

processing factories have been converted like this in the Nilgiris. Cowsheds have been converted into heating unit for mangoes and bananas.

## **Organic Product Treatment For Post-Harvest Insect Management**

*Koen CJM,*

The company ECO<sub>2</sub>, is based in The Netherlands, specialising in fumigation without chemicals. There are a few major trends in the fumigation industry:

### *1. Phase-out of methyl bromide under the Montreal Protocol*

Ozone depletion by methyl bromide, No availability in industrialized nations from 2005, No availability in underdeveloped nations from 2015, Exemption for critical uses and quarantine applications, Increase in price because of smaller availability and increasing safety measures.

### *2. International Plant Protection Convention (IPPC) ISPM-15 guideline on treatment of wooden packaging material and agro products*

- Increase number of fumigations for containers containing untreated wooden packaging
- More world-wide regulations by IPPC for import and export of agro commodities

### *3. Food Safety: stricter demands for worker safety and residues*

- Customers demand containers without fumigant residues
- Consumers demand safe food without traces of chemicals (Ecological)
- Stricter conditions and rules for fumigations which lead to increasing prices

### *4. Phosphine resistance is a growing problem*

- Phosphine is losing effect. A growing resistance among insects to Phosphine
- Higher dosages, extended treatment times and extended times to ventilate
- Phosphine is prohibited on certified organic products

*ECO<sub>2</sub> Has Three Main Solutions*

**1. Heating System For Packaging Goods:** *You can heat packaging goods to get rid of insects. This wood is certified and can be used all over the world.*

**2. ECO<sub>2</sub> Container Terminal :** *It is a treatment for containers and can put untreated goods in it. It has a better combination of heat and low oxygen.*

**3. An Atmosphere Controlled Technique:** *in which commodities are kept in an airtight chamber. Air is being recycled through this chamber and as it is sucked out of this chamber, it goes to a burner. This burner burns the oxygen, and this burnt air with low oxygen again enters the chamber and after a few cycles, you have the room with very low oxygen content. We have worked on this for several years to see which kind of insect is*

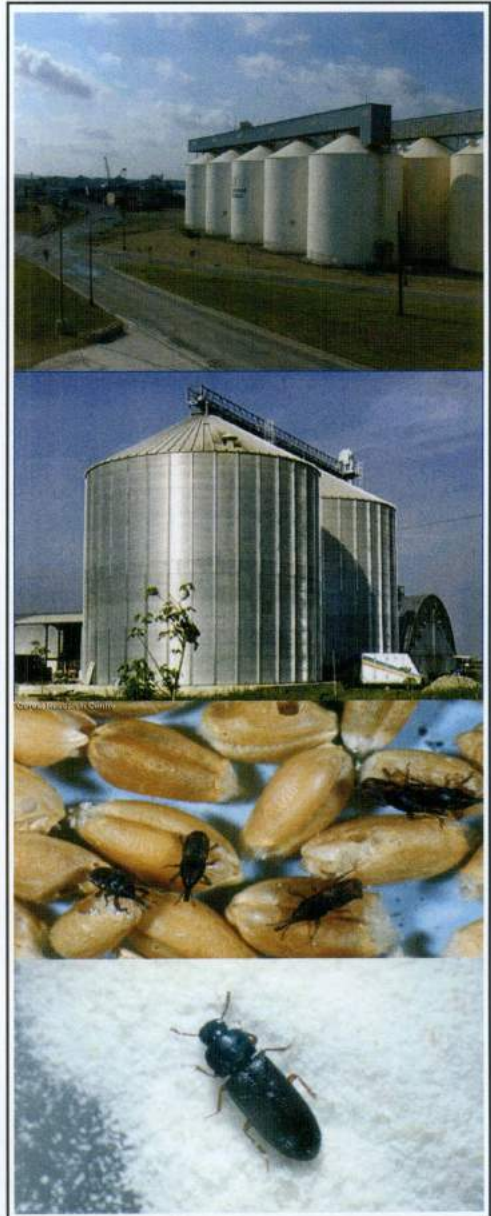
sensitive. We now have commodities and insects we can cure in three days to a maximum of nine days to beat the hardest of insects. We can also control the system remotely by the computer. We sell these machines to MNC and also service them. So a lot of those producers and traders are big enough to invest in this infrastructure but sometimes they have insects, then they can bring the goods to the terminal to be treated. And these terminals are installed in the Netherlands in all kinds of warehousing companies. What the company does is, they put the goods in the cell, close the cell, push on a button, and we control the whole system via telephone or Internet on a computer.

*The Key Advantages Speak For Themselves*

Environmental-friendly treatment, No residual chemicals, No resistance in pest population, Independent of atmospheric influences, Applicable in all kind of production process, Safe for people working with it, Accepted by SKAL International and the European Commission as an organic treatment.

*What Kind Of Insects Can We Kill?*

We can kill all insects, larvae and eggs. We also do test after treatment; we also give our customers 100% guarantee that it is insect free. We can also kill rats and mice. Eventually the insects die because of lack of oxygen or dehydration, which is caused by lack of oxygen. What we also do is combined low oxygen and cooling. We have an oxygen burner system and that is producing heat. In India you can't do much with heat but it is a waste of energy. So you can use this heat to cool silos or to cool your warehouses. So that you become very efficient with the use of the energy.



*Fig. 31: An overview of ECO2 structure and some major storage pests controlled by controlled atmosphere technology*

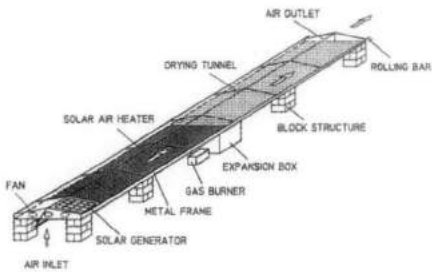
## Post Harvest Processing of Herbs & Spices

Mike Brook – Organic Partners

### Improved Shade Drying



### Solar Tunnel Drier with Integrated Solar Air Heater



### Threshing

This is the operation of removing some parts from the others. Most typically, this includes removal of leaves from stem-stalks, but can also include removal of bark, flowers of flower parts.

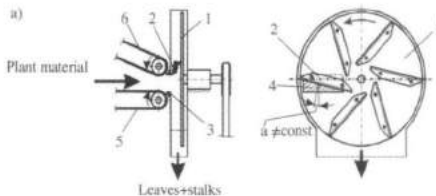
Threshing can be combined with other operations, e.g. grinding.

Threshing quality demands

- Fuffill removal
- Neglected impact on material quality (oil, colour, etc)
- Threshed material suitable for further processing

### Cutting

Exact Cut (controlled length)



### Processing

Sieving

Sieving is used for separation and classification of, mostly dry, material

Separation is possible only if the particle size of desirable and undesirable material are significant different.

Classification means sorting of plant material in classes according to particle size.

Dust removal is important part of sieving, sieve opening of 0,3 mm or less is mostly used.

Sieving can give final product or good raw material.

It is one of the most usable producers equipment.



Organic Agriculture to  
Organic products  
*The potential !!!*



INDIA ORGANIC 2005

By

Dr. Seetharam Annadana

**BRAHMI PHYTO CONCEPTS**

*Re-introducing traditional knowledge*

[www.brahmi.in](http://www.brahmi.in)

[info@brahmi.in](mailto:info@brahmi.in)

TECHNOLOGIES FOR ORGANIC PRODUCTS

Supercritical Fluid Extraction  
Enzymatic Hydrolysis

Freeze drying

IQF

Osmotic Dehydration

Lactic Fermentation

Controlled Moisture Fire Roasted Grilling

Vacuum Packing

Organic Traditional Spice Health Mixes

Brahmi has tested and formulated a three  
spice mix **TUCOC** to control Salmonella.

**Turmeric-Coriander-Cumin**

Turmeric reduces the gram positive bacteria

Coriander reduces Salmonella

Cumin strengthens the liver

Was much appreciated by French as a dressing  
for barbeque meat

Organic Traditional Baby Foods  
**RAGI-PULSE**

- ❖ Organic Ragi (Finger Millet) is sprouted and dried in shade. The germinated root is removed along with the seed coat.
- ❖ Germinated organic pulses sun dried are also added.
- ❖ Cereals and pulses are roasted till a aroma develops
- ❖ Resins, Cashew, Almonds and Dried dates are roasted in Organic Ghee (Clarified fat)
- ❖ The entire mixture is pulverised and micronised
- ❖ 2 tea spoons of the powder is cooked in a glass of milk and served to 4 to 12 month babies.

Organic Traditional Functional Foods

- Chawanprash Lehyam. 36 herb mix. 1.6 B market
- Kushmanda Rasayana.
- Triphaladi Churna. 3 herb mix.

SAVE THEM FROM INTERNATIONAL BAN  
BRING IN SCIENTIFIC VALIDATION  
ENSURE ZERO RESIDUAL HEAVY METAL  
PROMOTE ORGANIC PRODN. OF HERBS

Organic Traditional Nutraceuticals

- Organic Traditional Nutraceuticals –  
Asavas, aristas of different herbs and purified  
single herbal drugs

BRING IN SCIENTIFIC VALIDATION  
PROMOTE ORGANIC PRODN. OF HERBS

## Status & Potential for Solar Drying for Organic Fruits and Vegetables

By

DR.C.PALANIAPPAN  
Chief Executive  
Planters Energy Network  
No.5, Power house street, N.R.T Nagar,  
Theni-625531



## JUSTIFICATION FOR SOLAR DRYING TO ORGANIC PRODUCTS

- Organic and solar process stress for quality products free from contamination both chemical or airborne/ect
- Both are environmental friendly and sustainable

## 2. JUSTIFICATION

- ☞ "SAHS – Solar Air Heating System" offers tremendous potential to reduce fossil fuel consumption.
- ☞ It could be
  - i. Partial energy delivery system (PED)
    - When the temperature requirement is high.
  - ii. Full energy deliver system (FED) -
    - When the temperature requirement is low.

Contd.... **PEN**

- ☞ Replace or reduce fossil fuel consumption substantially
- ☞ Economically viable since system's pay-back period generally less than 3 years
- ☞ It ensures cleaner processing with a healthier environment.

**PEN**

## IMPACT OF "SAHS"

- Enhanced quality of dried fish proved by SAHS installed fish processing unit at Visakhapatnam.
- SAHS of total area 6,300 m<sup>2</sup> bring down fuel expenditure of Rs.22,62,750/- per year.
- SAHS so far reduced the use of 11,924 tonnes firewood or equivalent fuel and thus helps in the reduction of 21,702 tonnes CO<sub>2</sub>.

**PEN**

## CONCLUSION


- Solar process heat for food processing has been shown to replace or reduce fossil fuel used in the conventional system.
- It helps in the reliability of RET and paving way for clean energy development.
- The successful diffusion of the technology depends on creating awareness as well as providing incentives like capital subsidies and sanctioning a large number of demonstration projects at different parts of the country etc.

**PEN**

**EcO** ORGANIC IN A GLOBAL WORLD

The smart choice in pest control

by Drs. Koen C.J.M. Zuyderwijk



India Organic 2005, Bangalore, India


## Global trends; consequences for fumigations (1)

**Trend 1 – Montreal Protocol: phase out of Methyl Bromide**

- Ozone depletion by Methyl Bromide
- 2005: no availability in industrialised nations
- 2015: no availability in underdeveloped nations
- Exemption for critical uses and quarantine applications
- Increase in price because of smaller availability and increasing safety measures.

**Trend 2 – IPPC guideline (ISPM 15): treatment of wooden packaging material and agro products**

- Increase in the number of fumigations for containers containing untreated wooden packaging material
- More world-wide regulations by IPPC for import and export of agro commodities



## Global trends; consequences for fumigations (2)

**Trend 3 – Food Safety: stricter demands for worker safety and residues**

- Customers demand containers without fumigant residues
- Consumers demand safe food without traces of chemicals (Ecological)
- Stricter conditions and rules for fumigations which lead to increasing prices


**Trend 4 – Problems with Phosphine: insect resistance is a growing problem**

- Phosphine is losing its effect; growing resistance against Phosphine which will lead to decrease in popularity
- Higher dosage needed, extended treatment time and extended times to ventilate (especially, with low temperatures)
- Prohibited for Organic products



## The Controlled Atmosphere Technique: in practice

- Specially designed airtight rooms adjustable to:
  - the amount of products (facilities from 2,000 to 50,000 ton capacity)
  - type of products (mass of the product)
- And suitable for:
  - All type of packaging (except vacuum packed products)
  - All products (except fresh products such as flowers)
- Key Advantages Controlled Atmosphere Technique:
  - Environmental-friendly treatment
  - No residual chemicals
  - No resistance in pest population
  - Independent of atmospheric influences
  - Applicable in production process
  - Safe for people working with it
  - Accepted by IKA International and the European Commission as a organic treatment (confirm EEG regulation nr. 2002/91)




## Products treated

- Main products treated with the EcO2 technique world-wide:
  - **Grains:** Barley, Buckwheat, Cereals, Flour, Rice, Maize etc.
  - **Nuts:** Almonds, Ground nuts, Hazelnuts, Pistachio, Walnuts etc.
  - **Spices:** Pepper, Cinnamon, Coriander, Ginger, Marjoram etc.
  - **Dried Fruits:** Apples, Apricots, Raisins, Figs, Coconut etc.
  - **Seeds:** Sunflower seed, Grass seed, Radish seed, Sesame seed etc.
  - **Various:** Tobacco, coffee, cocoa beans, food additives, pet feed and more.



## Insects eliminated

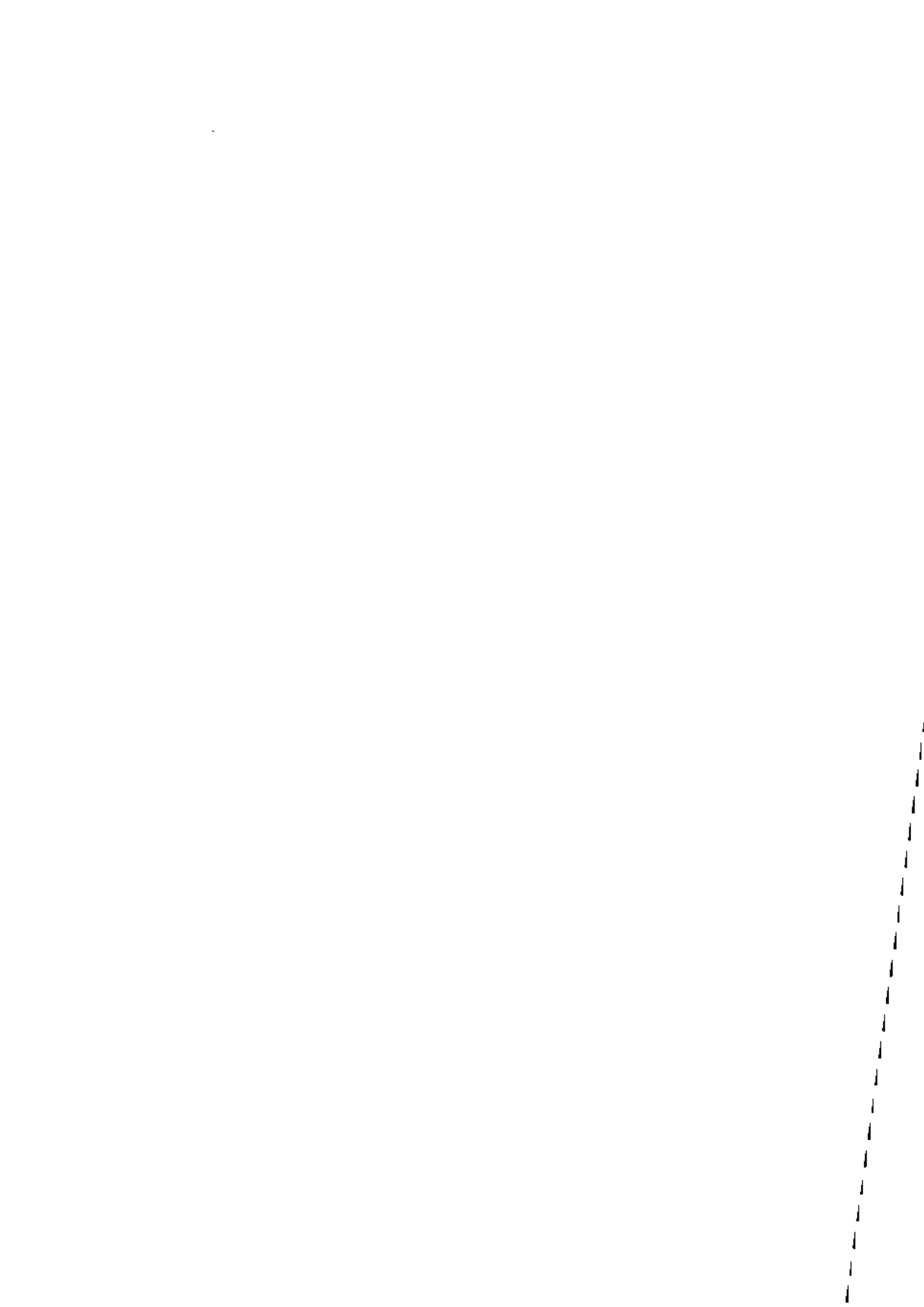
- Main insects treated with the Controlled Atmosphere Technique:
  - Tobacco beetle
  - Maize weevil
  - Flour mite
  - Grain beetle
  - Rice weevil
  - Indian Meal Moth
  - Granary weevil
  - etc.
- Insects in all stages of development will be eliminated (insect, larvae and egg)
- Organisms die because of dehydration and lack of oxygen
- Treatment time between 3 to 9 days depending on product/insect combination
- Already 8 years of treatment knowledge available



Chapter **VIII**

**Finance and Investment Options  
for Organic Agribusiness**





### Bank Finance For Organic Agribusiness

*R Prabha, GM, Canara Bank*

Canara Bank believes that Organic agriculture is something that has to be promoted in India by all the people who are concerned with the sustainable development of agriculture and agribusiness. The bank has been a pioneer in lending to the agriculture sector, which started before the bank became nationalized and today we can boast of a very good agriculture consultancy service started about 15 years ago. The consultancy service has done credit appraising for over 1000 projects, which is experience by itself.

#### *Agribusiness Consultancy Division*

This division is handling a large number of projects, which cover a broad range of activities.

The division undertakes project appraisals as well as the following:

- Detailed Project Reports take complex projects and break them down into various components
- Viability Studies define the missing links so that a project ultimately would become viable.
- Rehabilitation Packages are aimed at ailing units

Added to this there are a number of agribusiness projects asking for aggradations of facilities that will conform to the international standards like the EurepGap or the HACCP standards. There is sufficient expertise built into the agribusiness consultancy to advising the units who are coming forward for this.

There is a growing consciousness about organic farming. The bank is dealing with nearly 1.5 million agricultural borrowers and there is a growing appreciation among farmers to know the shift to organic farming. For example in Coorg in Karnataka in the past two years, a number of tea plantations are converting to organic tea as they are getting better prices. We all know that tea is one crop that uses the highest level of pesticides and fungicides, so the shift to organic has tremendous environmental and health benefits. The domestic market is slowly becoming aware of organic foods. There is a large consciousness developing within the educated middle class about the abuse of chemicals in the farming community, hence they have felt the need to use organic. This is something that we should capitalize on. The market is growing at a much faster rate than other food markets, this is

something that India with varied climatic conditions should capitalize upon. Now the organic farming starts with the seed stage by treating it with neem oil and microbes, giving banks an opportunity to finance organic farming. It needs a chain of supporting services starting from the seed companies, the organic bio-fertilizer producers, the bio-pesticide producers and they need a support chain, without which there cannot be a movement within the country. As a bank that is fully conscious about the importance of organic farming, about the importance of Indian agribusiness to be promoted for potential exports, we are totally committed in promoting organic farming within India. A whole range of credit facilities is available for agricultural organic farming, starting from land development, cultivation and post harvest management, including warehousing and processing.

Canara Bank has identified two major bottlenecks in organic farming promotion:

- Certification cost is high and accessibility for small farmers is an issue.
- Marketing is a weak link in the whole process.

The bank believes that the market for organic products could be huge if they are properly priced, packaged and marketed. In Bangalore there are two three shops run by Namdhari seeds, which follows the EurepGap standards and the fruits and vegetables sold are priced 20-25% higher than the market price, but it is sold on demand. So, demand is there but it has to be properly exploited, by developing the infrastructure value chain and management systems so that a larger number of people will get attracted into this and organic farming would prosper within India.

## **EXIM Bank Initiatives And Policies For Organic Agribusiness**

*T D Siva Kumar*

The objective of the Export-Import Bank of India (ExIm Bank) is to provide financial assistance to exporters and importers and functioning as the principal financial institution for coordinating the working of institutions engaged in financing export and import of goods and services with a view to promoting the country's international trade. Headquartered in Mumbai, ExIm Bank has nine domestic offices and five overseas offices in Washington, Budapest, Singapore, Milan and Johannesburg. ExIm Bank established a separate agribusiness group in December 2001 to enable, facilitate, promote and finance agribusinesses having export potential. The group looks for viable projects and export transactions in agriculture sector. We have a tripartite memorandum of understanding (MOU) signed with APEDA and the National Bank for Agriculture and Rural Development to synergize the efforts of these organizations to leverage their strengths and co-ordinate their working with a view to further augment exports of agricultural products from India. We have an agribusiness Web portal;

<http://www.eximbankagro.com>, wherein you can post queries and receive answers.

*Besides we have a bimonthly newsletter, Agri Export Advantage, to facilitate information dissemination in English, Hindi and 10 regional languages. We have signed MOUs with the Ministry of Food Processing Industries and CFTRI under which we produce a publication called Market. Other publications include Floriculture – A Sector Study, Agro and Processed Foods: A Sector Study, Potential for Export of Horticulture Products from Bihar and Jharkhand, Export Potential of Indian Medicinal Plants and Products, Export of Organic Products from India: Prospects and Challenges, Export Potential of Indian Medicinal Plants and Products, Export Potential of Indian Plantation Sector: Prospects and Challenges and Fresh Fruits, Vegetables and Dairy Products: India's Potential for Exports to Other Countries. We are able to disseminate information besides finance to the exporters so that they get to know what is happening in other markets besides India.*

## **Organic Contract Farming: A Commercially Viable Prospect**

*Biswaranjan, Biosourcing*

How the small farmers become commercial viable farmers through contract farming, and the advantages and disadvantages, are the subjects of this presentation.

Biosourcing.com are the exporters of spices, herbal extracts, nutraceuticals and botanical extracts. The contract farming system can increase the commercial viability of Indian agriculture and bring about a transformation of Indian agricultural technology. Indian agriculture has, over the past five decades, come a long way by achieving food security and a reasonable production rate. New technologies and cultural practices have provided a fresh momentum to the progress of the agriculture sector in India. Under the National Agricultural Policy of 2000, India wants to boost agriculture growth by strengthening rural infrastructure and promoting value addition. The 10<sup>th</sup> Five-Year Plan envisages a growth rate in excess of 4% per year in the agriculture sector. India has a unique advantage of diverse agro-climatic conditions this will ensure perennial supply of raw material. India is the world's largest producer of groundnuts, jute and millets and second largest producer of fruits, vegetables, rice and rapeseed (canola). The exploitative arrangements between farmer, trader and consumer can jeopardize agribusiness investment. Therefore, the contract farming system should be seen as a partnership between agribusiness and farmers. It requires long-term commitments from both parties. Only those projects based under sound economic and feasible technical realities will succeed.



## CANARA BANK

*Lifelong Banking*

*WELCOME*

TO THE PRESENTATION ON

### ORGANIC FOOD BUSINESS & BANK FINANCE

By

**Sri R PRABHA**  
General Manager  
Canara Bank, Priority Credit Wing  
Head Office, Bangalore



## CANARA BANK

*Lifelong Banking*

### Organic Agriculture

Safety, health and hygiene are the mantra of the day. World over, the awareness about health hazards of pesticides and chemical residues in agricultural products is on the rise.

India with its varied agro climatic conditions has tremendous potential in offering a variety of organic agricultural products especially fruits, vegetables, beverages etc.



## CANARA BANK

*Lifelong Banking*

### Agriculture Finance

- Organic Food Business

Canara Bank extends a whole range of credit facilities for agriculture sector starting from land development and cultivation to post harvest management including warehousing and agro-processing.



## CANARA BANK

*Lifelong Banking*

### Issues to be addressed ...

- The concept of Organic Agriculture production in the country is still in the nascent stage. More efforts are required to popularise its importance/significance.
- More clarity is required in terms of technology, production cost, price realisations etc to analyse the viability.
- The market for organic produce needs to be stabilised.



## CANARA BANK

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- The domestic market is at present in the developing stage only.
- The price of organic products has to be made affordable to the consumer to widen the domestic market.
- Better supply chain to be developed for the export market.
- Other issues like charges for certification, consultancy etc should become more investor friendly.



## CANARA BANK

*Lifelong Banking*

### Conclusion

- ☑ The road ahead offers a promising opportunity for Indian Agriculture.
- ☑ The role of banks is crucial in providing the much needed credit for capital investment.
- ☑ Canara Bank sees it as an emerging business opportunity and to be a proud partner in ushering in another era of excellence in agriculture production.

Bangalore, November 07, 2005

## Export-Import Bank of India An Overview

### Role in Agri Exports

- ◊ Considering the opportunities and need in the agri sector, Exim Bank established *Agri Business Group* in Dec 2001
- ◊ Objective: To enable, facilitate, promote and finance agri business having export potential
- ◊ The Group looks for viable projects and export transactions in agriculture sector
- ◊ Services offered
  - ◊ Export credit
  - ◊ Finance export oriented units
  - ◊ Advisory services

### Role in Agri Exports

- ◊ Increasing focus on Agri and allied sectors
- ◊ Tripartite MOU signed with APEDA & NABARD in Nov 2002 to synergise efforts of these organisations to leverage their strengths and co-ordinate their working with a view to further augment exports of agricultural products from India.
- ◊ Organic foods conference - New Delhi, Dec 2002
- ◊ Conference in Ratnagiri: Export of Alphonso mangoes - Jan 2003;
- ◊ Investor conferences: Mumbai, Kolkata, Bangalore

### Role in Agri Exports

- ◊ Alliances with international financial institutions, multilateral agencies, trade and investment promotion bodies, e.g. Rabo Bank, IFC Washington
- ◊ Agro-portal, [www.eximbankagro.com](http://www.eximbankagro.com), set-up in-house, which is an IT initiative to promote knowledge-based agriculture enterprise
- ◊ Bi-monthly newsletter '*Agri Export Advantage*' to facilitate information dissemination in English, Hindi and 10 regional languages
- ◊ MOU with Ministry of Food Processing Industries
- ◊ MOU with Central Food Technological Research Institute
  - ◊ Publication 'Market Maker' – French and Russian


### Role in Agri Exports

- ◊ Promoter member of SFAC
- ◊ Rep Office at Guwahati to focus on Agri Business
- ◊ National Seminars on "*Export of Agricultural Products: Prospects and Challenges*" held at Pune, Chennai & Guwahati in 2001-02
- ◊ Principal sponsor of Agro Tech 2002 in Chandigarh in Dec 2002

### Role in Agri Exports

- Published research studies on
- ◊ Floriculture – A Sector Study
  - ◊ Agro & Processed Foods: A Sector Study
  - ◊ Potential for Export of Horticulture Products from Bihar and Jharkhand
  - ◊ Export Potential of Indian Medicinal Plants and Products
  - ◊ Export of Organic Products from India: Prospects and Challenges
  - ◊ Export Potential of Indian Medicinal Plants and Products
  - ◊ Export Potential of Indian Plantation Sector: Prospects and Challenges
  - ◊ Fresh Fruits, Vegetables and Dairy Products: India's Potential for Exports to Other Countries
- Contributed to the Report of the Technical Group on Export Competition in Agriculture

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## CONTRACTING SUCCESS

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Indian agriculture has, over the last five decades, come along way, achieving food security and reasonable production rate.

New technologies and cultural practices have provided new momentum to the progress of the agricultural sector in the country.

The agricultural sector has been instrumental in the country's economic growth because this sector is now poised higher growth potential in the field of agri-exports.

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### Advantages for farmers

- Provision of Inputs.
  - Basic Inputs
  - Land preparation, field cultivation, harvesting, training, and extension.
  - Proper crop husbandry
  - It also help bulk ordering of inputs.
- Access to credit.
  - The majority of smallholder producers experience difficulties in obtaining credit for production inputs.
  - Contract farming usually allows farmers access to some form of credit to finance production inputs.

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Sourcing from Nature

### Advantages for sponsors

1. Political acceptability.
  - It can be more politically expedient for a sponsor to involve smallholder farmers in production rather than to operate plantations.
  - Contract farming, particularly when the farmer is not a tenant of the sponsor, is less likely to be subject to political criticism.
  - In recent years many countries have seen a move away from the plantation system of production to one where smaller-scale farmers grow crops under contract for processing and/or marketing.

Example:

- In Central America, multinational corporations have been slow to become plantation producers to purchasing surplus goods for contracted farmers with the argument that the technical inputs and marketing assistance they provide is not necessary, especially because the plantation model also provides subsistence for them and helps to see the growth of commercial farmers.

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### ESSENTIAL PRECONDITION

- How contract are framed and what specification are included.
- Project should plan scientifically, considering the market condition.
- It must help farmer and identify suitable land for farming, organise them in several working group, supply timely and good quality inputs and provide technical advice and other extension services.
- It must develop the farmers awareness level and evolve a mature risk transfer mechanism.
- This reduces risk, uncertainty and provides the producer with the opportunity to add value to his product.

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### CONCLUSION

- Explorative arrangements can jeopardize agri-business investment.
- Contract farming system should seen as a partnership between agri-business and farmers.
- It requires long term commitment from both parties.
- Decision to enter contract farming must be commercial one.
- Only those projects based on sound economic and feasible technical realities will succeed.

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Chapter **IX**

**Organic Cotton Workshop  
and Stakeholders Experiences**





## Chapter IX

# Organic Cotton Workshop and Stakeholders Experiences

Compiled by *Mahesh Ramakrishnan*

Today India produces approx. 11000 tonnes of organic cotton. A quarter of this is at least in conversion. There are about 13000 farming families who are doing organic cotton farming in 25000 acres of land in India.

The general trends are:

- The average Cotton holding area is 2 to 5 acres per farmer.
- Most of the cotton is under rain fed area.
- Intercrop production is most effectively done in these projects.
- There are various degrees of involvement throughout the supply chain.

The problems that are related to organic cotton farming are organic certification, extension, threat of GMOs, issue of quality inputs, evaluation of inputs; etc.

Objectives Of Meeting

- Sharing the research results and extension tools emerging from the Organic Cotton Research Project (see background information below).
- Exchange of experience among the stakeholders related to implementing organic cotton projects.
- Discussion of topics relevant for scaling up (training and extension, marketing of rotation crops etc.).
- Planning of joint future steps to foster the development of the organic cotton sector in India.

Participants Included

1. Organic cotton projects in India (farmer groups, NGOs, companies)
2. Leaders of farmer groups involved in organic cotton farming
3. Development cooperation agencies, NGOs
4. Cotton processing and trade industry
5. Agricultural departments and extension offices, research institutes
6. Policy makers, journalists (agriculture) etc.

### *Experiences Of Maikaal Organic Cotton Project In Madhya Pradesh*

Initially farmers with higher socio-economic status (caste affiliation, education, housing, land holding, agricultural production means etc.) started organic cotton farming as they had the capacity to bear the risk of conversion ('early adopters').

On the other hand, an increasing number of very poor farmers participated in the project. Many of them were heavily indebted and deprived of most resources when they decided to join the project. Adoption of organic farming enabled them to get out of the cycle of indebtedness, as organic farming allowed substituting external inputs through man power and getting a better price for the produced cotton.

### *Findings Of Study*

- Average labour availability and cattle holding were higher in organic farms. It is generally assumed that conversion to organic agriculture requires more labour (for compost preparation, home preparation of pest management items, maintenance of inspection documents etc.), and cattle dung plays a more important role in organic farms. Hence, this could be both a cause and an effect of conversion.
- Cropping patterns are similar in organic and conventional farms, with slightly higher proportions of soy bean and less chilli cultivation in organic farms. However, organic farms maintain a more diverse crop rotation in the cotton fields, and intercropping with pulses is more common. While an increasing number of conventional farmers cultivated genetically modified cotton varieties (Bt-cotton), these are not used in organic farms.
- On the average, more organic farmers prefer to continue the cotton crop in the winter season instead of uprooting it for cultivating wheat. This could partly be due to the organic price premium that is presently only paid for cotton. Marketing of the rotation crops with an organic price premium could thus contribute to maintain a diverse crop rotation, which is conducive to organic nutrient and pest management.

### *Economic Performance*

- Labour and material inputs: The total labour inputs were not significantly higher in organic cotton fields. While organic farmers invested more time for weeding, they required less time for pest management. Average application of organic manures was almost double in organic cotton fields. Overall inputs of nitrogen and phosphorus (of manures or natural mineral fertilizers) were about half compared to conventional cotton fields.
- Production costs: Variable production costs were 13-20% lower in organic cotton (Figure 2). This is due to 40% lower costs for inputs (seeds, manures, organic pest

management items). The requirement for taking up loans is thus far less in organic farms. If opportunity costs of farmers' own labour are included in the calculation, overall production costs were 15% lower in organic cotton fields.

- Yields: The average cotton yields in organic fields were not lower, but even 4-6% higher in the two years of observation, though this difference is statistically not significant. It can be excluded that the higher productivity is due to differences in the farm sample, such as better land, better access to irrigation or different production patterns.
- Gross margins in cotton: Due to slightly higher cotton yields, the 20% organic price premium and lower production costs, gross margins in organic cotton fields were 30-43% higher. Even without organic price premium organic cotton farming would have achieved higher gross margins in the two years of observation. However, the price premium is needed also to compensate for costs of conversion and for yield drops in rotation crops.
- Efficiencies: Per kg of seed cotton harvest, the organic farms in the study required slightly less labour and considerably less nitrogen (of manure) than conventional cotton farms. Input costs to produce 1 kg seed cotton were about half. However, in the average of the two years, organic farms required 6% more irrigation water per kg seed cotton (in total 3'400 litres/kg).
- Economic impact on the farm: Average yields as well as production costs of most rotation crops were slightly lower in organic farms. Nevertheless, the total gross margin from major crops of an average farm is about 15% higher in organic farming. If part of the rotation crops could be sold with an organic price premium, incomes of organic farms would further increase.
- Impact on natural resources: Most of the interviewed organic farmers stated that the capacity of their soils to absorb and retain water has increased after conversion to organic management. Farmers reported that they need less rounds of irrigation and that the crops can longer sustain periods of drought. However, the comparison of water retention capacity in soil samples of organic and conventional cotton fields has not shown a significant difference.
- Average irrigation water application was even slightly higher in organic cotton fields. This could be due to better access to irrigation, or due to more intense cropping.
- While most organic farmers observed that their soil has become softer and more fertile due to organic management, soil organic matter contents were only negligibly higher in organically managed cotton fields. Phosphorus and potassium contents were slightly lower in organic cotton fields, while levels of boron – an important

micro-nutrient – were significantly higher. Organically managed fields showed less soil salinity and acidity than conventional fields.

#### *Risk Aspects And Vulnerability*

- As organic cotton farming involves less production costs and generates higher incomes, farmers are less prone to become indebted. In addition, there are some indications that the risk of crop failure due to drought or pest damage is lower in organic cotton fields. Similar observations have been made in other studies, but to prove this further research would be needed.
- Vulnerability of cotton farms – both for organic as well as for conventional farms – is highest when it comes to changes in cotton world market prices. Organic cotton projects could reduce the effect of drops in cotton prices by guaranteeing minimum purchase prices, and by developing organic marketing options for the main rotation crops.

In the long term, conversion to organic farming could significantly reduce vulnerability of farm households as the additional income enables them to invest in better irrigation systems (e.g. drip irrigation) and to diversify their income sources (e.g. dairy farming or small-scale businesses).

#### *Problems Identified*

The biggest obstacle in converting to organic cotton farming seems to be the initial drop in yields, resulting in lower incomes during the first 1-3 years of conversion. To reduce yield declines, it is important to ensure sufficient application of organic manures.

While progress in organic production methods allowed achieving cotton yields that are on a par with those in conventional farms, yields of most rotation crops are still lower. This shows that efforts to improve production methods and extension services should be expanded to the rotation crops.

Farms that do not strictly adhere to the organic standards are a serious threat to the credibility and the economic stability of organic cotton projects. An analysis of the profiles of farms that were excluded from the Maikaal bioRe project due to the use of prohibited inputs shows that they are far wealthier than the average. A well-functioning internal control system and cultivating a spirit of coherence are crucial to prevent opportunistic behaviour.

#### *Inferences Drawn From The Study*

- Altogether, organic cotton farming significantly contributes to improving the livelihoods of smallholders. It generates higher incomes and involves less risk. At the same time, it allows a more sustainable management of natural resources.

- To further improve the performance of cotton based organic farming systems, efforts in developing production methods and in improving marketing options are needed, especially for the crops grown in rotation with cotton.
- The research results show that organic cotton farming, in the medium and long term, does have the potential to be an economically sound business proposition also for marginal farmers. There is need to find suitable approaches to enable poor farmers managing the hurdles of the conversion period. Training on farm management, technical advice during the conversion period and models for financing support for conversion are needed.

#### *Chetna, Initiatives In Organic Cotton Farming Promotion*

Chetna is a federation of various MACS-Mutually Aided co-operative Societies prevalent in Orissa and Andhra Pradesh. It's registered co-operative and its advantage is that there is no government intervention. It has representation of various farmer groups and it is run by farmers. And at upper level ETC works with Government of NL/ICCO. There are Solidaridad and ETC, NGOs from Netherlands, who are the sponsors. It has training & production, marketing, credit departments, and it is linked to both national and international banks.

ETC organic cotton program is being facilitated by Chetna with the idea that in next 3-5 years time ETC will hand it over to the farmers and move off. The objective is basically to improve the livelihood options of farming households involved in cotton cultivation. ETC is organizing and training farmers in setting up a company of their own and is working in two states in India, Andhra Pradesh and Maharashtra. Andhra Pradesh farmers are very progressive, and they like experimenting, they would like to try new technologies whether it's Bt or new pesticides. In the supply chain development we work with an international shadow label called MADE-BY. It's in Netherlands. The focus of ETC is also on fair trade. Organic is important but fair trade is more important.

#### *Agrocel Project On Organic Cotton In Kutch, Gujarat*

Agrocel was established in 1988, with the objective to make all possible agri-inputs and marketing support available to farmers at the right time and at a reasonable cost with all necessary technical assistance and guidance under one roof so that farmers' farm productivity and income increase along with the national productivity – all these through fair deals.

Agrocel provides all types of service, with main focus on land management, animal husbandry, guide and train farmers to produce compost from cow dung and cow urine, focus on integrated pest and nutrient management. All cotton projects are provided with irrigation facility, resulting in good quality cotton fibre, thanks to the Government of India and State Government subsidies for providing drip irrigation facilities to the cotton farmers of the State.

“Agrocel farmers select late variety of good quality medium staple cotton and also have certified seed bank, yarn bank & cotton fiber bank”.

Other environmental impacts include:

- Increase in natural control of pests & diseases
- Improvement in soil fertility
- Awareness in use of less water and less energy.
- Increased adoption of drip irrigation, water harvesting and conservation etc.
- Increase in awareness about natural cycles.

Expansion is always with us, as per market demand we will expand. We follow the Israeli guideline- First we think on marketing side and then on production side. We made long term relation with our overseas as well as domestic buyers.

#### *Organic Cotton Value Addition Experiences Of Prem Group Of Industries*

Prem Group of industries is working with a brand called SWITCHER. It was established in the year 1983. Prem Group stimulated by SWITCHER in a systematic way to concern about Quality Environment protection and Social Accountability which is earned by certification of ISO 9000, ISO 14000 and SA 8000.

#### *Lessons Learnt*

- Opportunity to link the supply chain from SEED to T-SHIRT
- Value addition to the products- customers look for new always
- Increase in the brand SOCIAL VALUE.
- Difficulties at different level of supply chain from farming to CMT
- To establish the sustainability in the business with a bigger challenge to encounter the competition

**“One cannot do today’s work with yesterday’s methods and still be in the business tomorrow!”** This is the experience and what Prem Group learnt.

#### *Organic Exchange Programme On Organic Cotton*

The Organic Exchange is a non-profit business organization focused on creating environmental and social benefits through the expansion of organic agriculture. Its focus is on transitioning 10% of the world’s demand for and supply of cotton to organic cotton within 10 years

Organic Exchange shared experiences related to farm development, to ensure fair prices, social and economic development for smallholder farmers.

### *Issues of farmers converting to organic*

Farmers in Benin tell how insecticide costs rose 86% between 1999 and 2000. They spent an average of US\$97 per hectare on insecticides in 2001 and many made losses. The high pesticide prices paid by farmers are a great source of extra profit for cotton companies; farmers receive a fraction of cotton market prices despite paying market prices for inputs

In Senegal, according to SODEFITEX, farmers producing less than one tonne/ha will not be able to repay debts. Average yields only once exceeded this figure in six years. In Benin where 90% of households were food secure in 1990 only 3% were by 2001, with 11% in serious difficulties. The average pesticide cost per hectare for cotton farmers interviewed has risen by 80% since 2000, while incomes have stagnated

### *Problems Encountered In Africa*

- According to medical staff in West Africa, areas with higher pesticides have higher malnutrition rates. Reports from farmers converted to organic cotton suggest that children born into organic farm families have higher school performance.
- Reduced ability to work, lower productivity and debt and lower incomes mean there is no cash to stimulate and develop local economies and investment.
- In cotton, at the same time, the costs of chemical fertilisers and pesticides is rising – and with peak oil on the horizon, those based on petroleum products will continue to increase.
- In retail markets, there is an increasing trend for price stagnation, discounting and cost-cutting, meaning that value in the supply chain is also stagnating or falling for those downstream.
- International donors and agencies also have a poor understanding of rural issues, especially of small farmer and their agricultural systems; i.e., many view small farmers as part of a social security system rather than as innovators, entrepreneurs and generators of rural economic development

### *The Results Of These Problems Were*

- While many countries have increased production up to 5 times, their incomes from exports have fallen in real terms- In Africa
- Liberalisation has decimated extension and training services and removed subsidies on inputs, driving up prices to farmers.



- Productivity problems are linked to intensive farming: degraded soils, increased insect pest resistance, polluted water and reduced agricultural biodiversity.

#### *Investments And Development That Organic Cotton Projects Have Enabled*

- The setting up of farmer associations able to take over project management
- The development of savings and credit schemes financed from organic cotton income that steer small loans towards the poorest farmers for production equipment
- The setting up of rural enterprises both linked to organic cotton such as local spinning and processing, as well as shops and other commercial operations.
- The building of schools and health centres by farm communities
- Sending children to secondary school, often the first from producing villages to go.
- Generally, farmer's knowledge and skills (technical and in marketing) have improved, as have profit margins,

Example of a farmer in Africa: Siogolo, the president of the Kassakou organic producer's group in Benin, had a sick family to care for, so could not afford fertilizer. Also, when farming conventionally, he always suffered from minor health problems, such as colds and lung problems. Last year, he says, he was able to generate enough surplus to iron roof his workshop and mill. Barriers, he says, are lack of access to ploughs, carts and livestock. However, they do not want this in the form of aid, but would like assistance setting up a common fund for these types of investment.

#### *Problems Faced By Turkey Farmers*

- However, big income gains are not possible everywhere at present, the organic cotton prices are affected by world market prices for conventional cotton.
- There remain many challenges in price setting and profit distribution,
- Developing market linkages between cotton producers and international buyers,
- Infrastructural issues such as access to market information, research materials and funds.

Liberalisation has badly affected the capacity of many actors in the cotton supply chain (loss of staff, loss of negotiating capacity, lack of research funds, rises in input prices, etc).

The problem of certification is another important thing to be addressed. It's very costly for small farmers and they have to depend on external agencies. The problem of price is also one of the key things to be looked into:

- Cotton prices in general need reviewing, not just organic prices. Farmers currently receive some 15 to 20 cents per pound in many countries; to enable farmers to

meet costs and invest both in farms and the future, they need prices, according to surveys, some 50 to 80% higher. In Senegal, the average price premium required was 50%.

- Current prices adjusted in dollars received by Senegalese farmers for their medium staple cotton are just 15 US cents per pound. The minimum price estimated by farmers for meeting their own investment needs is around 23 cents and the ideal is 25.

Organic Exchange has been looking at Costs for supporting farmer training, research and ICS range between 10 and \$30 per farmer, but the bigger a project grows, and the more productive farmers become, the lower these costs become. They represent around 1 US cent per kg.

- Supporting small farmers through training field agents and paying a fair price may well be cheap. When farmers are established in organic farming, these costs may well revert to the community. The benefits to a company's image can be huge.
- However, farmers will have to be supported through reliable, preferably ongoing, contracts over 3-5 years.
- These field agents together with elected members of producer groups offer easy interfaces for larger companies to work with small farmers

#### *Priority Considerations*

- Moving too fast: small farmers cannot adapt, structures do not develop at a 'developmental' pace to benefit poorest farmers in developing countries.
- What about development? Poverty can only be reduced with income retention and creation at the local community level.
- How do we encourage the development of locally owned enterprise linked to global supply chains?
- 'The gauntlet thrown down by poor women and men farmers in very poor countries is that economic development requires new investment patterns that incorporate social development, and actively involve producers in decision-making.' (John Wilson, 2003).

#### *Recommendations In Farm Development Program*

- Develop plans for rotation crops. This will help stabilise projects
- Help projects participate in trade shows
- Produce and share market price information, and work out prices in different regions;

- Develop connections between buyers and producers; need to bring both sides together to think about the market from livelihoods and market perspectives
- Make connection with organisations/foundations working on organisation of production, research, farmer exchanges...increase interest from ICAC, UNEP, FAO, UNCTAD
- Raise consumer awareness in producing countries, like India and Turkey;
- Lobby to change regional or international politics;
- Translate production data into environment and social benefits: soil fertility gains; water preserved; pesticides saved;
- Stimulate exchanges between examples of chains that work well and farmers of different regions;
- Have conferences for matching buyers; regional conferences every two years; take buyers to field
- Have debates and technical updates, like a current research monitor
- Be honest with consumers about costs of not buying organic
- Help develop certifications agencies in country; we need to lower costs of certification;
- Have a dialogue and debate between Fair-trade and organic sectors

#### *Other Activities Under Taken By Organic Exchange*

- Develop typologies of buyers and producers (production data, social and economic as well as environmental goals, key indicators of progress, growth potential and speed) to match ideal partners sharing similar goals and growth plans to the benefit of the farmers;
- Map supply chain options from farm to retail for groups in different production conditions and countries and at different production volumes;
- Evaluate growth potential and sales mix of different farm projects
- Help farm groups develop business plans and marketing tools to attract ideal buyers and investors.
- Map production costs, living costs and 'investment in the future' costs for projects and regions for integration into supply chain planning and business planning.
- Looking at strategies for marketing and developing rotation crops and other income generating potential for farmer groups; e.g., input supply, local markets; training and services;
- Look at and develop/support sustainable business models that integrate profit sharing mechanisms for farmers, joint ownership, and so on.

- Provide general information and support to and networking between producers groups worldwide and help farm groups develop business plans and marketing tools to attract ideal buyers and investors.
- Track and look at indicators for the added values of organic cotton such as carbon use and retention, soil fertility restoration, environmental and social goods and services; examine issues of sustainability in the projects including ensuring that organic is always sustainable, for example;

Organic farmers are providing many social benefits to their communities - increasing knowledge, capacity and skills. They are also providing free environmental services to their communities and the wider world: cleaner water, restored ecosystem health, increased biodiversity, etc. again, this suggests that a rethink is needed in how productivity is defined.

The current 'monocrop' view of yields needs to be replaced with productivity defined as 'whole farm output', i.e., the sum of all food and cash crop yields plus environmental goods and services produced.

#### ***Panel Discussion***

*Are the farmers being paid minimum support price and getting payments on time:*

*Panelists:*

- Mr. Simmon Ferringo, Organic Exchange
- Dr C.S. Pawar technical expert on organic cotton and integrated crop management, closely associated with Agrocel.
- Dr S.K.Goel, Commissioner of Agriculture, Maharashtra
- Mr. Rajeev Baruah, MD, Maikaal bioRe India Ltd.
- Dr. G. Xavier technical expert on spinning.

Depending on quality of cotton, farmer gets a price, which is the market price of the day. On top of that he gets a fixed premium. In case of cotton, Cotton Corporation of India is a designated agency by Government of India, to start buying if the prices fall down below the minimum support price. The minimum support price is declared for various grades of cotton. Since the minimum support price is declared every year, well before the crop arises, there would be a minimum price at which the procurement agency for organic cotton should say that this would be our purchase and our premium. Now that is a very fair way of doing it. In case the market price falls below the minimum support price, there is always a mechanism which is ideally suppose to work but in certain conditions, the procurement agencies take a long time to enter into the market when the prices are falling down. But if in case of organic cotton, you give an assurance saying that whatever is the minimum support price for a grade of cotton declared by Government, we will buy at that plus our premium will be so much. Then farmers would be very happy. If you are purchasing anything less than that, you are committing a crime. You are supposed to be prosecuted.

In contract farming a model is being worked out in TN, what we say is that if the MSP is lower than the market price then we will buy at the market price. But if the market price is lower than the MSP then we should buy at MSP. Contract farming is for conventional farming. In organic farming premium is there. Anyway we have to fix the basic MSP. If this formula is adopted it will boost up and support this program.

MSP is also linked with so many other parameters. It has many riders. Whenever we fix MSP it is coming with certain conditions, which is MSP along with riders. From first to last picking we are giving a guarantee that it will be bought back. That is the agreement we enter with the farmers.

Government of India has made a decision that agricultural produce a margin and acts will be amended throughout the country. Within that act there is a legal provision of contract farming, which was not there till this date. Now today, companies can enter into legal agreements with farmers, which would be written agreement, registered and there is a provision of arbitration also in case of disputes. Everything would be already decided and it would be a fair trade as far as farmers and companies are concerned.

This formula can be decided. It is a pre negotiated formula with the farmer. That is MSP or market price whichever is higher + premium. Farmer may or may not agree with the price formula. It can happen even before the cultivation takes place. So when you have started cultivation you can enter into a price agreement. And that would be fair agreement.

Second thing which is coming up is the forward market. It was so far non-transparent, non existing kind of situation. Now we have got national forward markets where you can also have a price situation of a particular month. The price is available at least three months in advance; cotton exchanges are willing to give you a price discovery mechanism. Under which you can decide what price you want to supply cotton in any month.

There is no fixed solution at the moment. MSP can lead to over production so you have to find a way around that. There is one radical solution to consider for organic cotton which is decoupling the price completely from the market price. And just have an Exchange which sets market prices. Another possibility is to price the cotton around the US system which is around 70 cents. It can be said that the market price can go low but never 10% below that. A formula can be worked out to calculate the back end of fair trade prices. Subsidies depreciate market price by about 15%. So it can be said that we will give 20% premium plus 15% for the subsidies or can share the profit, so we keep the price based on world market price.



*Fig. 32: Removing seed cotton*

## AGROCEL

### Organic Farming and Fair trade

Hasmukh G. Patel and C S Pawar

### Agrocel activities in general

Provide all types of services related to

- Land and Water Management
- Integrated Nutrient Management
- Integrated Pest management
- General Problem Management

Work for Value addition and Marketing

- Marketing support to all crops possible
- Marketing of local inputs – Compost etc
- Inter-center trading

Training and Education

- Compost making
- Local pest control recipes
- Animal husbandry and care
- Several others including emergencies/natural calamities

### Agrocel -Organic Farming

Direct ( Minor 20%) ↔ Indirect (Major 80%)

Chemical Farming

Organic Farming

Chemical Farming

ICM

Organic Farming

### I) Economic Impact

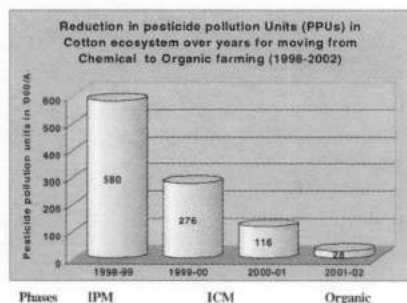
Table : Yield, Expenses, market rate, purchase price, and earnings from cotton grown in different phases of farming

Items	Year					
	Chemical Farming			Organic Farming		
	IPM	ICM	00/01	01/02	02/03	03/04
Farming Phases	98/99	99/00	00/01	01/02	02/03	03/04
Yield kg/Ac	1200	1180	1150	1050	1000	1100
Expenses (Rs/Ac)	12887	11732	11131	9332	9222	8900
Market Rs/kg	22.5	24	22	20	22	27
Purchase Price*	-	26	-	23	25	29
Gr.Earning Rs/Ac	27000	28320	25300	24150	25000	32076
N. Earning Rs/Ac	14133	16588	14169	14818	15778	23176

- Agrocel did not purchase the material

\* included in the purchase price is also a value some materials given free

### II) Environmental Impact




Social impact...

- Have become sensitive to environmental damage and human safety due to chemicals.
- Have become more innovative and participative in discussions and meetings.
- Have developed greater learning aptitude than before.
- Have gained hopes and interest in life.
- Women and children too have begun to take interest in agricultural, particularly in improving & maintenance of soil fertility and natural enemies of pests.
- Have become open to discuss all possible pros and cons of actions/operations in agriculture.
- Have stopped thinking of migrating to cities.


Research Institute of Organic Agriculture

Extension and Dissemination in Organic Cotton



Frank Eyhorn, FiBL  
Mahesh Ramakrishnan, ICCOA

A research project funded by:  
Swiss Agency for Development and Cooperation (SDC)  
World Wide Fund for Nature (WWF), Switzerland




## Crop Guide: Contents

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## Concept of the Crop Guide

- System approach
- Theory light
- Easy to read
- Many examples
- Illustrations
- Checklists



Depending on the farmer's conditions, the crop rotation will be modified. For example, in a region with a high level of rainfall, the rotation could be adapted to include a cover crop that is more resistant to waterlogging. The rotation could also include a crop that is more resistant to pests and diseases. The rotation could also include a crop that is more resistant to drought. The rotation could also include a crop that is more resistant to frost. The rotation could also include a crop that is more resistant to hail. The rotation could also include a crop that is more resistant to wind. The rotation could also include a crop that is more resistant to fire. The rotation could also include a crop that is more resistant to theft. The rotation could also include a crop that is more resistant to theft.

Rotation type	1st year	2nd year	3rd year
Rotation 1	Cotton	Cotton	Cotton
Rotation 2	Cotton	Cotton	Cotton
Rotation 3	Cotton	Cotton	Cotton
Rotation 4	Cotton	Cotton	Cotton
Rotation 5	Cotton	Cotton	Cotton
Rotation 6	Cotton	Cotton	Cotton
Rotation 7	Cotton	Cotton	Cotton
Rotation 8	Cotton	Cotton	Cotton
Rotation 9	Cotton	Cotton	Cotton
Rotation 10	Cotton	Cotton	Cotton

## Rich in photos...

### 5.4.2 Natural pesticides

There are a number of natural pesticides that can be used in organic cotton cultivation, and organic farmers certainly will try not to use any. But some scientific research has been done on the efficiency of some of the locally prepared formulations. Therefore, farmers are encouraged to do their own experiments, and decide for themselves which natural pesticides are most suitable for their areas. Below we list some of the natural pesticides used by farmers in India and Africa.

**Caution:** Many natural pesticides also affect beneficial insects, predators and their should be used with care.



Some plants such as botanical pesticides (pyrethrin, pyrethroids, neem oil, garlic, chili, etc.) are used as natural pesticides.

## Research objective

To analyse the impact of conversion to organic cotton farming on farmers' livelihoods.

→ Compare organic farms with conventional farms concerning:

- Profiles
- Input / output
- Production costs
- Yields
- Profits, incomes
- Impact on natural resources soil and water

## Risk aspects and vulnerability



- Lower production costs → less financial risk
- Less need for pre-financing inputs
- Less susceptible to drought thanks to improved water infiltration and water retention?
- Vulnerability to drops in cotton prices → minimum prices? crop diversification?
- Improved income from cotton enables farmers to invest in irrigation and to diversify their income sources



The Impact of Organic Cotton Farming on the Livelihoods of Smallholders

Evidence from the Maikasaal bioRe project in central India



Frank Eyhorn, FiBL

Mahesh Ramakrishnan,  
ICCOA

A research project funded by:  
Swiss Agency for Development and Cooperation  
(SDC)

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FiBL

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## Participatory technology development (PTD)

1. Identification of the main problems at field level
2. Collecting promising innovations / methods
3. Farmers conduct simple trials to check suitability
4. Farmers mutually visit their field trials
5. Discussion of the outcome
6. Planning of the next steps



## Promising innovations identified in this process

- Early application of castor cake (DOC) and rock phosphate; second application of DOC with vermi-compost at time of first picking.
- Application of asafetida against cutworm.
- Use of 'Top ten' for management of sucking pests.
- Buttermilk spray against sucking pests is effective and cost efficient.
- Application of 'Dipel' against bollworm is effective.



## Conclusions, and challenges ahead



- Organic cotton farming can substantially contribute to improving the livelihoods of smallholders.
- It produces similar yields at lower production costs.
- It generates higher incomes and involves less risk.
- Further improvements are needed especially in the rotation crops (production methods, marketing).
- Important to enable poor farmers overcoming the hurdles of the conversion period.





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- Small producers of organic cotton in developing countries face problems due to the cost of organic certification. Producers exporting to more than one country also have to meet multiple criteria (due to the requirements of national or regional regulations, e.g., EU, US, Japan). Small, often poor, producers in developing countries are forced to use overseas consultants and pay international rates. Entry to the EU market is impossible for small producers with cash income below US\$ 2,000.

- Cotton prices in general need reviewing, not just organic prices. Farmers currently receive some 15 to 20 cents per pound in many countries; to enable farmers to meet costs and invest both in farms and the future, they need prices, according to surveys, some 50 to 80% higher. In Senegal, the average price premium required was 50%.
- Current prices adjusted in dollars received by Senegalese farmers for their medium staple cotton are just 15 US cents per pound. The minimum price estimated by farmers for meeting their own investment needs is around 23 cents and the ideal is 25.

- Moving too fast: small farmers cannot adapt, structures do not develop at a 'developmental' pace to benefit poorest farmers in developing countries.
- What about development? Poverty can only be reduced with income retention and creation at the local community level.
- How do we encourage the development of locally owned enterprise linked to global supply chains?
- 'The gauntlet thrown down by poor women and men farmers in very poor countries is that economic development requires new investment patterns that incorporate social development, and actively involve producers in decision-making.' (John Wilson, 2003).

- Develop plans for rotation crops. This will help stabilise projects
- Help projects participate in trade shows
- Produce and share market price information, and work out prices in different regions;
- Develop connections between buyers and producers; need to bring both sides together to think about the market from livelihoods and market perspectives
- Make connection with organisations/foundations working on organisation of production, research, farmer exchanges...increase interest from ICAC, UNEP, FAO, UNCTAD
- Raise consumer awareness in producing countries, like India and Turkey;
- Lobby to change regional or international politics;

- Translate production data into environment and social benefits: soil fertility gains; water preserved; pesticides saved;
- Stimulate exchanges between examples of chains that work well and farmers of different regions;
- Have conferences for matching buyers; regional conferences every two years; take buyers to field
- Have debates and technical updates, like a current research monitor
- Be honest with consumers about costs of not buying organic
- Help develop certifications agencies in country; we need to lower costs of certification;
- Have a dialogue and debate between Fairtrade and organic sectors

## Welcome to Switcherland



SWITCHER – PREM BIO-COTTON PROJECT

### DIFFICULTIES FACED TO ESTABLISHED BIO FAIR TREAD(FT) CERTIFICATE

- ✓ Matching FT standard to Indian contest  
(ground realities)
- ✓ To convince the FLO and other stakeholder about  
prevailing practical difficulties
- ✓ Found to be a tough task to bring the awareness to the  
grass root level farmers

### ADVANTAGES & LESSON LEARNED

- ❖ New mail stone & improved brand image
- ❖ Credit of reduction in bad environmental impact
- ❖ Opportunity to link the supply chain from SEED  
to T-SHIRT
- ❖ Value addition to the products

- ❖ Increase in the brand SOCIAL VALUE
- ❖ Recognizing by the Swiss Govt to Switcher  
Chairman Mr.Robin as a Social Entrepreneurs of  
the year 2005
- ❖ Further strengthened Switcher-Prem partnership and  
CSR Values

- ❖ Opportunity for backwards integration in the supply  
chain
- ❖ To Experience the difficulties in the different level  
of supply chain from farming to CMT
- ❖ To establish the sustainability in the business with a  
bigger challenge to encounter the competition



**One cannot do today's work with  
yesterday's methods and still be in  
the business tomorrow !**

We are open and transparent.

Whoever you are, you will be hearty welcome in Tirupur.  
Come and visit us anytime to share our views and experience.



ICCOA works in  
Strategic Partnership with



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ICCOA works in  
Technical Partnership with



Research Institute of Organic Agriculture, Switzerland



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