Chapter 4: Establishing an Organic Export Sector

Successful Conversion of Conventional to Organic/Biodynamic: a Case Study

R.K. Pathak and R.A. Ram, Central Institute for Subtropical Horticulture, Lucknow, India

The indiscriminate use of chemical fertilizers, hybrid seeds and pesticides has resulted in various environmental and health hazards along with socio-economic problems. Agricultural production has continued to increase but productivity rate per unit area has started to decline. Present days' modern farming is not sustainable in terms of economics, ecology, equity, energy and socio-cultural dimensions. Nowadays an alternative sustainable farming system, which is ecologically sound, economically and socially true is needed. Sustainable agriculture is a unifying concept, which considers ecological, environmental, philosophical, ethical and social impacts, balanced with cost effectiveness. Among the various alternatives developed, organic farming is gaining acceptance throughout the globe as it can provide pragmatic solutions to mitigate the problems of conventional modern farming. In the recent past, there have been sporadic attempts at organic production in horticulture and in a few plantation crops like tea, coffee, cotton, rice and spices in certain areas in India. A sector of the elite community has preference for regular consumption of organic produced commodities. Since in organic production system, micronutrients are not taken care of, there is every doubt that in the long run, deficiencies may create problem and it may be a failure rather than sustainable alternatives developed world over. "Biodynamic agriculture" is recognized internationally as a sound approach based on interrelationships in existence, wherein the farm is viewed as a living identity, in which each farm activity affects the other. This approach builds on established methods of sustainable agriculture wherein soil and plants are treated with specially fermented herbal preparations and composts that enhance soil organic processes to produce toxin free, healthy plants and seeds. A few of these preparations also take care of the important macro and micronutrients. Thus, the use of chemical fertilizers, pesticides and herbicides is totally avoided in this system.

Demerits of chemical-based farming

- compaction of soil structure
- low organic matter content in the soil
- poor water holding capacity of the soil
- increase in salinity, sodicity and land submergence
- adverse effect on flora and fauna
- deterioration in quality of produce
- problem associated with residual toxicity
- increased out break of pest and disease including weeds
- varying degree of displacement of human settlement

Most of the horticultural crops are grown for fresh consumption and any contamination (chemical residue) may lead to various kinds of health hazards.

This has led the Government of India to consider seriously regarding the future of Indian agriculture and a Task Force to suggest alternatives to Modern Agriculture was constituted under the chairmanship of Dr Kunwarji Bhai Jadav, of Rajkot and Commissioner Agriculture GOI as member secretary. The Task Force gave the following observations:

- 'Organic farming' is being practised by thousand of farmers and institutions in the country though mostly in an unorganized way
- Success stories indicate the benefits of organic farming
- There is no awareness among people, in general, about the benefits of organic farming, as there is no state or Central Government support
- No markets have been developed in the country for the sale/promotion of organic produce

- The system of export of organic produce is also presently at a limited level and exact data are not available
- Huge subsidy is given per ton of production of chemical fertilizers; no subsidy or incentive is given for use of organic manures
- The Ministry of Commerce in the Government of India have set up standards for organic farming and defined the system of Certification and Accreditation only in April, 2000, which may facilitate further growth of organic farming in the country.

Biodynamic farming

Biodynamic agriculture is based on sound principles of soil biotechnology and microbiology. Indeed microscopic doses of few of the preparations have shown profound effects on growth, metabolism, crop yield and quality. It is interesting that these practices do not require sophisticated facilities and most of them can be done at farm level by simple training. These are components of biological agriculture, capable of affording long-term sustainability to agriculture and particularly to the ecosystem. This system is based on the principles of harnessing the synergy between Cosmos, Mother Earth, Cow and Plants. In present day, Biodynamic farming is becoming popular in several countries such as Germany, Australia, New Zealand, Switzerland and United States.

Objectives

- To restore soil fertility in the form of humus
- To establish, maintain and increase soil as living system
- Skilful application of the factors contributing to soil life and health
- Special emphasis on the importance of the use of agriculture calendar, crop rotation, green manuring, inter and cover crops

Biodynamic farming was founded by the late anthroposophist, Rudolf Steiner, and has grown and developed in popularity since 1922. The term *biodynamic* is taken from the Greek words *bios* meaning life and *dynamics* meaning energy. Hence biodynamic farming refers to "working with the energies which create and maintain life." By sidestepping the typical preconception that light makes chlorophyll plants grow, biodynamic farmers realize that other energies also contribute to a plant's growth. Because of the differences in these contributing energies, planting crop one day will be totally different than on another day.

Harnessing cosmic forces and planting calendar:

The light and cosmic forces of the sun, moon, planets and stars reach to the plants in regular rhythms. Each contributes to the life, growth and form of the plant. By understanding the gesture and effect of each rhythm, agricultural activities like soil preparation, sowing, intercultural operations and harvesting can be programmed.

Agricultural practices (field preparation, sowing, manuring harvesting etc.) performed according to constellation are more effective and beneficial. Every constellation has dominant elemental influences and affects four specific parts of the plants as shown in table 1.

Table 1 - Interaction of element and constellation on plant parts

Elements	Plant parts	Constellation
Earth	Root	Virgo, Capricorn, Taurus
Air	Flower	Gemini, Libra, Aquarius
Water	Leaf	Cancer, Scorpio, Pisces
Fire	Fruit/seeds	Sagittarius, Aries, Leo

Agricultural practices e.g. manuring, rooting, flowering, growth and fruiting/seed are to be done as per constellation.

Table 2 - Position of earth and moon for harnessing the cosmic forces

S.No.	Ascending Moon	Descending Moon
	The earth is breathing out - the development occurs in upper parts of the plant.	The earth is breathing in- the development of the plant occurs parts below the ground e.g. root.
	Cosmic energy works above the rhizosphere	Cosmic energy works below the rhizosphere
	Suitable for, For foliar applications Propagation activities Sowing	Suitable for, Root development Transplanting Manure application Harvesting of tuber crops

Biodynamic preparations
Basically there are two types of biodynamic preparations:
A- Biodynamic Compost Preparations (BD- 502-507).
B- Biodynamic Field Sprays (BD- 500-501)

Table - 3. Basic BD sets used in CPP, BD Compost, BD liquid manures and BD pesticides

Preparation	Related planets	Substances from which preparation is prepared	Role
BD-502	**Venus**	Fermented Flower heads of Yarrow (*Achillea millefolium*)	Rich in S, K & N
BD-503	Mars	Fermented Chamomile blossom (*Matricaria recutita*)	Rich in S, K & N
BD-504	Mercury	Whole shoot of Stinging Nettle with flower, fermented in the soil (*Urtica dioica*)	Rich in Fe
BD-505	Moon	Fermented Oak bark (*Quercus robur*)	Rich in Ca
BD-506	Jupiter	Fermented Flower heads of Dandelion (*Taraxacum officinale*)	Rich in K, Si
BD-507	Saturn	Valerian flower extract (*Valeriana officinalis*)	Rich in P

All these preparations are made in descending period of the moon except the BD-507, which is best prepared in the air/light day. The BD sets are used in the Cow Pat Pit (CPP), BD- compost, Biodynamic liquid manure, and Biodynamic liquid pesticides. These work to regulate the composting process and enable the different elements (calcium, nitrogen, phosphorus) needed for healthy plant growth to be present in a living way.

Cow Pat Pit (CPP)

It is a biodynamic field preparation also called as “soil shampoo.” Cow Pat Pit (CPP) is a strong soil conditioner. It enhances seed germination, promotes rooting in cutting and grafting, improvement in soil texture, provides resistance powers to the plants against pest and disease, replenishes and rectifies the trace element deficiency. CPP is used to improve soil fertility before sowing, seed treatment and foliar applications. The CPP may be prepared throughout the year.

Depending upon the weather and temperature, the preparation will be ready to use in approximately 75-90 days. Soaking 0.5-1.0 kg of CPP in 40-45 litres of water overnight and sprinkling on one acre of land before showing will improve the germination and health of the soil.

Biodynamic Compost Heap

Biodynamic compost is an effective soil conditioner and is an immediate source of nutrient for a crop. Biodynamic Compost Heap can be prepared by using green leaves and dry leaves. Green leaves (nitrogenous material) and dry leaves (carbonaceous material) are piled up in alternative layers of 15-25cm thick in the size of 5 x 2 x 1.5 meters. For enriching the compost with different nutrients as per the need, rock phosphate-P, slack lime- Ca, wood ash-K etc. can also be used. Composition of air, moisture and warmth is very important in the breakdown and decomposition of the material. One set of B.D. 502 – 507 are incorporated and the heap is plastered with mixtures of dung and clay. Enriched compost gets ready in 75-100 days depending upon the maintaining temperature.

Biodynamic liquid manure and pesticides

Liquid manures are prepared using different materials i.e. liquid fish manure, liquid seaweed manure, and liquid plant manure. Liquid manures are used for the different purposes based upon the quality and composition. On an average, preparation of liquid manure takes 8-12 weeks time. One litre of liquid manure dissolved in 4 litres of water is used on plant as foliar spray. Those are prepared with neem, *Pongamia* and *Caliotropis* leaves have insecticidal and fungicidal properties.

Biodynamic Field Sprays (BD 500-501)

These are the fundamental biodynamic field spray preparations. Cow horns filled with fresh cow dung from lactating cow are buried in fertile soil. Horns are buried in descending moon during autumn (october-november) for incubation whole during winter. It is taken out again in March-April during descending period and used or stored in earthen pots at dark and cool place.

For spraying, 25g of BD-500 is dissolved in 13.5 litres of water in plastic bucket by making vortex in clock and anti-clockwise for one hour in the evening and the solution is sprayed with the help of natural brush or with a tree twig. Spraying of BD-500 is done at the time of field preparation in descending period of the moon.

Microbial activity of BD-500 during stirring and very interesting response has been obtained from cosmos and earth (Table 5)

Table 4 - Microbial analysis of B.D.500

Stirring interval	Bacteria (cfu's/g)	Actinomycetes (cfu's/g)	Fungi (cfu's/g)
15 minutes	$26x10^3$	$22x10^3$	$10x10^3$
30 minutes	$35x10^3$	$35x10^3$	$14x10^3$
45 minutes	$58x10^3$	$60x10^3$	$12x10^3$
60 minutes	$66x10^3$	$88x10^3$	$35x10^3$

Source: Thimmaiah, 2001

BD-501 or Horn Silica Manure

Preparation 501 is prepared in ascending period of moon by filling cow horn with 'mealy' silica powder and buried in spring (March/April) after taking out BD-500. Within 6 months, the preparation is ready for use. The solution is prepared by dissolving one gram in 13.5 litres of water. BD 501 and sprayed on the leaves in the form of 'mist ' before sunrise and the best constellation is Moon opposite to Saturn.

BD 501 works on the photosynthesis process. It strengthens the quality of plant product and encourages the development of fruit and seeds. For maximum effect, the BD 501 should be applied once at the beginning of a plant's life (at the four-leaf stage) and again at the flowering stage or fruit maturation stage.

Due to the enhancement of photosynthesis, starch, sugars and cellulose synthesis are improved, which results in improvement of quality and storage life of produce.

Vermicompost

Vermiculture biotechnology is an aspect, which involves use of earthworms as versatile natural bioreactors for effective recycling of non-toxic organic wastes to the soil. Earthworms effectively harness the beneficial soil micro flora, destroy soil pathogens, and convert organic wastes into valuable products such as bio fertilizers, bio pesticides, vitamins, enzymes, antibiotics, growth hormones and portienous biomass.

Vermi-wash

Vermi-wash is prepared from heavy population of earthworms reared in earthen pots or plastic drums. Extract contains major, micronutrients, vitamins (such as B_{12}) and hormones (gibberellins) secreted by the earthworms. Earthworms produce bacteriostatic substances. The vermiwash can protect against bacterial infections. Vermiwash can be sprayed on crops and trees for better growth, yield and quality.

Nadep compost

Because of aerobic respiration, composting is very fast and nutritional status of the compost is better than the ordinary compost. In this method of composting, farm wastes (Cow dung, green/dry grasses, wheat/paddy straw and weeds and garden soil) are used. Compost can be enriched by addition of rock phosphate, wood ash, slacked lime, azotobacter and rhizobium in between the layers of organic wastes. Incorporation of two BD sets (BD 502-507) further improves the nutritive status of NADEP compost; Thimmaiah has named it as hybrid compost.

Incorporation of any of these preparation and the following other associated activities will suffice the nutritive requirement for compost for production of horticultural crops, which can be summarized as below:

Package of practice for organic /biodynamic production for fruits crops

Nutrient Management

- Application of organic manures (10-20kg/tree) through NADEP, Vermi, Biodynamic Compost (BD) or Microbe Mediated Compost (MM compost) in descending moon period
- Growing of legumes for green manuring or as inter/cover crops as per requirement as per moon constellation
- Mulching after application of 100g CPP, spray of cow horn manure (BD 500) and release of earthworms in presence of proper moisture as per calendar
- Need based foliar spraying of biodynamic liquid manures/vermi wash/cow pat pit (CPP) in ascending moon phase

Pest Management

- Spraying of Biodynamic pesticides prepared from cow urine, neem, karanj (*Pongamia glabra*), *Caliotropis*, castor, *Thevtia nerrifolia, Vitex spp.* Leaves
- Nettle leaves extract sprays to control hard pests

Disease Management

- Two sprays of Cow Horn silica (BD-501) at flowering and fruit development stage
- Biodynamic tree paste/cow dung paste for the control of gummosis and dieback
- Spraying of horsetail (*Equisetum arvensis*)/casuarina leaves extract for the control of fungal diseases in ascending moon period

Package of practices for organic /biodynamic production for vegetables

- Green manuring with sunhemp/sesbania
- Soil preparation and application of (5-10 tonnes) organic manures through NADEP, Vermi, Biodynamic Compost (BD) or Microbe Mediated Compost (MM compost) in descending moon period
- Spraying of cow horn manure before sowing/transplanting during descending period of moon
- Sowing in ascending moon period (48 hours before the full moon) and on exact constellation based on the part of the crop is to be harvested
- Transplanting of seedlings during descending moon period and on exact constellation based on the part of the crop is to be harvested
- Soaking of seeds/seedlings in cow pat pit solution (1:7 ratio stirred for 30 minutes) prior to sowing
- Two sprays of biodynamic liquid manure prepared from Cow dung, Cow urine, leguminous leaves or Vermi-wash for the better growth and fruiting
- Intercultural operation/peppering/mulching for weed management and root development in soil
- Harvesting and storage as per constellation

Pest Management

- Spraying of biodynamic liquid pesticides prepared from cow urine, neem, karanj (*Pongamia glabra*), *Caliotropis*, dhatura, castor, *Thevtia nerrifolia, Vitex spp.* leaves
- Spraying of nettle leaves extract to control pests

Disease Management

- Two sprays of Cow Horn silica (BD-501) at two leaf stage and fruit development stage
- Need base spraying horsetail (*Equisetum arvensis*)/casuarina extract for control of fungal diseases
- Spraying of fresh cowdung/biodynamic liquid manures prepared from cow urine, neem and karanj (*Pongamia glabra*) for the control of bacterial diseases
- Spraying of BD neem base liquid pesticides for the control of mango bacterial disease
- Cow dung pasting to control *Lasiodiplodia theobromae* in mango

After the adoption of the above biodynamic package of practice for three years, the following changes were observed in chemical and biological properties of soil:

Table 5 - Changes in chemical and biological properties of the soil

Particular	**Initial**	**2nd year**	**3rd year**
Organic carbon (%)	0.535	0.80	1.003
P (ppm)	8.66	8.66	22.66
K (ppm)	140.00	142.50	202.50
Yeast and mould (cfu'/g)	$1.3x\ 10^4$	$5.8x10^4$	$8.5x10^4$
Bacteria (cfu's/g)	$3.7x10^6$	$4.8x10^6$	$8x10^6$

Research experiences with Biodynamic vs. organic vs. conventional production of horticultural crops

Experiments on different cultivars of aonla, mango, cauliflower and cabbage were laid out at converted farm. Results are as follows:

Aonla

Variety	Av. weight of fruit (g)	TSS (%)	Acidity (%)	Ascorbic acid (mg/100g fruit)
Conventional	35	7.40	2.21	377.54
Forest aonla	10	9.30	2.40	455.04
N.A. 10	45	9.20	2.14	408.16
N.A.-7	45	7.60	1.94	306.12
Chakayia	40	8.0	1.88	438.77
BSR-1	38	12.40	2.07	443.77
Krishna	55	9.40	2.21	418.36

Mango

Treatments	Yield per tree (Kg)	Acidity (%)	Total soluble solids (^{0}Brix)
Conventional production			
Dashehari (12 Yrs old)	56.54	0.20	17.25
Biodynamic production			
Mallika (12 Years old)	90.00	0.16	19.20
Amrapali (4 Years old)	35.00	0.11	21.60
Langra (12 years old)	80.00	0.18	19.20

Vegetables production

Crops	Package of practice	Yield (t/ha)
Cauliflower	Biodynamic package	42.58
	Recommended dose of FYM	23.00
Cabbage	Biodynamic package	56.16
	Recommended dose of FYM	22.83

Steps indicated for promotion of Biodynamic production

1. BD 500, BD 501, Cow Pat Pit (CPP), BD/Vermin/NADEP/Microbe Mediated Compost are prepared at the Institute for use and training
2. Large number trainings are provided to end-users
3. Appropriate literatures have been developed
4. National symposium on Organic farming in Horticulture for sustainable Production was organized
5. Technical know how and inputs are made available for organic cultivation in northeastern states of India
6. Two Bio villages are being developed from financial support of National Horticulture Board

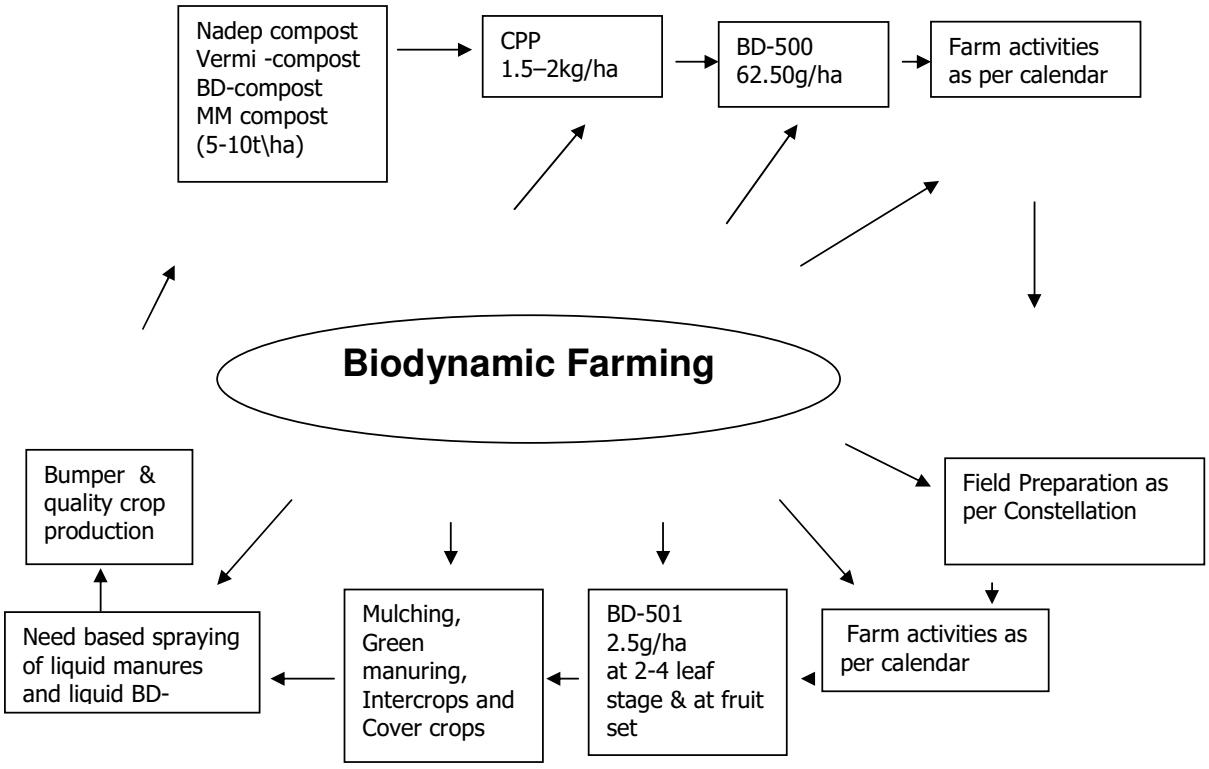
Impact of the work done on Biodynamic farming

- Biodynamic production of vegetables has emerged as one of the major activities in UP Diversified Agricultural Support Project (World Bank aided programme)
- With project support farmers have come forward and till date they have established 21 524 NADEP, 8 694 Vermi and 24 103 Cow Pat Pit
- Looking at the efforts of DASP Self Help Groups and farmers interest, it appears that technology is spreading fast
- Tree/cow dung paste has almost replaced the spray of copper oxychloride for the control of die back in mango rejuvenation of old mango orchards

Conclusion

- Biodynamic horticulture appears to be a sustainable, economic and eco-friendly
- There is minimum risk of residual toxicity
- There has been improvement in soil fertility and produce quality including shelf-life
- Micro quantities of CPP, BD 500 and BD 501 will only be effective provided soil is rich in organic matter content
- Organic matter content of the soil can be maintained by the addition of compost prepared from the farm wastes by NADEP, Vermi, BD or micro mediated (mm) compost
- It requires a systematic approach as summarized in figure 3

Fig. 3 - Schematic Presentation of Biodynamic farming in horticultural crops



Strategies

- Inventory of prevailing organic production systems and their validation for vegetable crops
- Various aspects of organic production of horticultural commodities need to be standardized
- Promotion of establishment of demonstration plots for preparation of biodynamic Compost, cow horn manure, cow horn silica, Cow Pat Pit (CPP), liquid manures and liquid biodynamic pesticides
- Promotion for field demonstrations for organic/biodynamic preparations
- Monitoring the soil; fertility, produce quality over a long duration
- Organizing intensive training to farmers, NGO representatives, entrepreneurs, and extension personnel of DoH for biodynamic preparations and their applications
- Scientific explanation for responses of the above materials with reference to soil physical, microbiological properties and produce quality
- Helping State Agriculture Universities (SAUs) to initiate few courses on 'biodynamic Agriculture'
- Facilitation for certification for 'biodynamic produce'
- Establish national standards governing the marketing of agricultural products as organically produced products
- Assure consumers that organically produced products meet a consistent standard
- Market promotion for organic/biodynamic produce

Conclusions

Biodynamic agriculture is based on sound principles of soil biotechnology and microbiology. It does not require sophisticated facilities and most of manures and biopesticides are prepared at farm. Biodynamic preparations are components of biological agriculture, capable of affording long-term sustainability to agriculture and particularly to the ecosystem. Basic principles of biodynamic farming are to restore the soil and the organic matter in the form of humus, increasing microbial population, skilful application of the factors contributing to soil life and health, treating manure and composts in biodynamic way. Genetic make up of variety and balanced nutrition are key factors for quality and high production. By understanding the effect of each rhythm, agricultural activities like soil preparation, sowing, intercultural operations and harvesting can be programmed to harness cosmic forces. Agricultural practices (field preparation, sowing, manuring, harvesting, etc.) performed as per constellation are more effective and beneficial. Every constellation has dominant elemental influence and affects four specific parts of the plants. Agricultural practices for better root activity (manuring, rooting), flowering, growth and fruiting/seed are to be done as per constellation. During ascending period, cosmic forces are active above the earth/ground and suitable for practices like spray and propagation, etc. In descending period, cosmic forces are active below the earth.. Therefore, agricultural practices such as field preparation, sowing, manuring, harvesting of root crops show better response when performed during this period. During full moon period plants are more prone to fungal diseases because of congenial humidity in the atmosphere and new moon period is suitable for sowing of tuber crops and harvesting of grain crops. Biodynamic compost preparations (BD-502-507) are called BD set. BD sets are used in the Cow Pat Pit (CPP), BD compost, BD liquid manure and biodynamic liquid pesticides. Biodynamic field sprays (BD-500-501) are applied in micro doses as per calendar for improvement in physical chemical and biological properties of soil, improving photosynthetic activities and defence to fungal infection.

Based on the above practices, 22 villages in U.P. (India) under UP Diversified Agriculture Support Project (UP DASP) were selected as Bio-villages during 1997-98. In these villages, after training, production of vegetables was undertaken with the use of NADEP/vermi/BD compost along with CPP. Spectacular responses with respect to yield and quality were obtained. In view of this experience, a 13.5-acre land has been used by an organic farm since 1999 at the Central Institute for Subtropical Horticulture, Lucknow (CISH) and cultivation of horticultural crops is being done organically. A few of the BD preparations and cow dung have shown spectacular response to pest and disease control.

R.K. Pathak
Director
Central Institute for Subtropical Horticulture, Rehmankhera, India
E-mail: director_cish@yahoo.co.in
Ph.D Horticulture (Pomology) IARI, New Delhi (1970)
M.Sc.Ag. Horticulture Govt. Agriculture College, Kanpur. (1965)

Experience: Research, Teaching, Administration

Organized Summer Institute on "Fruit Production and Utilization in Wasteland" from 2 to 18 July 1991, sponsored by ICAR and acted as Director. Organized five Training Programmes on various aspects of Fruit Cultivation on wasteland. Acted as Member in ICAR team for establishment of Zonal Research Station in Jammu and Kashmir 1991. Acted as member Secretary in QRT on Arid Fruits 1992-93. Acted as member QRT on Agro Forestry 1996. Acted as Consultant for Preparation of Horticulture component in UPDASP. Acted as Member in Appraisal Team of Horticulture component in UPDASP.

China's Market for Organic Fruits and Vegetables: Current Situation and Prospects

Zhou Zejiang Li Debo (OFDC-CHINA)

Abstract

Organic vegetable is the most prosperous segment in the Chinese organic market, while the organic fruit sector is still in its initial stage. About 80 percent of organic vegetables are for export, mostly for Japan, while organic fruit farms are mostly still in conversion status. Production of certified organic fruits will increase significantly within two years. Most existing organic fruit farms presently produce for the domestic market, but aim at international markets in the longer run. The newly-established organic vegetable farms produce mostly for the domestic market. The organic vegetable farms are mostly located in the eastern provinces and near Beijing. The best performing organic vegetable farms and processing companies are joint ventures.

The Chinese Government is encouraging the development of the organic industry. Local governments are implementing different incentive policies to support organic production. The international demand for China's organic vegetables and fruits is high. Farmland is available for development of organic fruit and vegetable in China. The potential for developing China's exports of organic fruit and vegetables is high. Hong Kong has a high market potential for organic vegetables and fruits produced by the Mainland.

However, lack of funds, technology and market are major obstacles to the development of organic vegetables and fruit production. Mutual recognition of certification is urgently needed. From 1 November 2003, the "National Regulation on Certification and Accreditation" will enter into force. Foreign organic certifiers wishing to continue their certification activities in China are asked to register. A clear understanding of the new Chinese regulation is needed. Most of the Chinese vegetable and fruit farmers are operating on a very small scale. The model of "Company + Farmers' Association + Farmers with the support and help of local government" should be encouraged. Most of the Chinese companies involved in organic vegetable and fruit marketing are not good at international communication. Organic market information networks are needed.

1. Current situation

1.1 In China, organic vegetables and fruits productions started in 1997 and 1999, respectively. Now vegetable has become the most prosperous section in organic market, while organic fruit is still in its initial development stage. The area for organic vegetables in 2002 has been estimated as 3 300 ha with the sales value of about US$30 million. The area for organic fruit (exclusive of fruit nuts and nut products such as walnut, almond, etc.) in 2002 has also been estimated as 800 ha with a sales value of about US$6 million.

1.2 So far, the organic vegetables produced in China are largely for exports (about 80 percent), of which about 70-80 percent are for the Japanese market, and the remainder for North America and European markets. As fruit farms need to have 36 months for organic conversion, most of the organic fruits are still in their "organic in conversion status". It is predicted that the supply of certified organic fruits will significantly increase within two years.

1.3 The development potential of organic vegetables and fruits production is strong in China and their production bases are developing rapidly these years. Most existing organic fruit farms are supplying "organic in conversion" fruits for domestic market, while the international market is actually the aim of most of the organic fruit companies. The new organic vegetable farms in China are mostly for satisfying the demand of domestic market.

1.4 The development and distribution of organic vegetable is uneven in different areas of China. The organic vegetable farms are mostly located in the eastern provinces (Shandong, Jiangsu, Zhejiang, Fujian, Guangdong) and Beijing.

1.5 The best running organic vegetable farms and processing companies are those operated under the control of joint ventures, as the difficulties on financial, technical and market issues can be overcome more easily in those companies than in the others.

2. Advantages

2.1 The Chinese Government is increasingly encouraging farmers to be engaged in organic production (include vegetables and fruits). Local governments are implementing different incentive policies to support organic production.

2.2 The international demand for China's organic vegetables and fruits is high. Recently, some EU company even expressed their interest in purchasing "organic in conversion" apples from an OFDC certified fruit farm (OFDC has been IFOAM accredited).

2.3 As grain shortage is no longer a problem in China, a large area of farmland is converting from conventional grain production into organic production. Farmland is available for development of organic fruit and vegetable bases in most areas of China. The potential for development of China's international organic fruit and vegetable market is pretty high.

2.4 Hong Kong has a high demand for safe food, especially organic vegetables and fruits. There is a high potential market for organic vegetables and fruits produced by the Mainland. The OFDC certified organic vegetables have already been sold in Hong Kong.

2.5 China is also a big market for organic vegetables and fruits. Along with economic development and the reform, many consumers (though small in proportion in terms of population) are interested in enjoying organic food, especially organic vegetables and fruits. The organic vegetables and fruits produced from other countries, particularly those that cannot be produced or could not be well grown in China are welcome by those consumers if prices are at a reasonable and acceptable level.

3. Obstacles and countermeasures

3.1 Chinese farmers are very experienced in vegetable and fruit production. However, funding, technology and market are the three major obstacles for the development of organic vegetables and fruits.

3.2 The main organic importing countries all have their regulations controlling the import of organic products. The products certified by Chinese certifiers are mostly not accepted. As a result, mutual recognition of certification is urgently needed for supporting the export of organic fruits and vegetables certified by Chinese certifiers. International accreditation of Chinese certifiers is important for realizing mutual recognition.

3.3 From 1 November 2003, the "National Regulation on Certification and Accreditation" issued by Wen Jiabao, the Prime Minister of China is gone into effect. Foreign organic certifiers hope to continue their certification operations in China are asked to register. Presently, the organic vegetables and fruits exported from China have mostly been certified by the foreign certifiers (JONA, OCIA, BCS, ECOCERT, IMO, OCIA-Japan etc.). It is in an urgent situation that the foreign certifiers operating in China must take measures to comply with the new requirements of the Chinese Government. A clear understanding of the new Chinese regulation is inevitably and firstly needed.

3.4 As most Chinese vegetable and fruit farmers are operating on a very small scale, it is difficult to organize them. If the small farmers cannot be well organized, the development of organic vegetables and fruits for international organic market will always be a problem. The model of "Company + Farmers' Association + Farmers with the support and help of local government" should be encouraged. Here, the reputation and the organizing ability of the company and the technical support they can get are the keys factors.

3.5 Largely owing to language barriers, most of the Chinese companies involved in organic vegetable and fruit marketing are not good at international communication. It is very difficult for them to timely and accurately get relevant market information. OFDC has frequently received letters from sellers and buyers requesting information on supply and demand on organic vegetables and fruits. As OFDC as an organic certifier is not supposed to be involved in business and does not have time and personnel to deal with the market issues, the information provided to the requestors is mostly incomplete and sometimes not very accurate.

3.6 An organic fruit market information network and an organic vegetable market information network are extremely needed for China to promote the development of international and domestic vegetable and fruit markets. Support from the Chinese Government, international organizations, NGOs or the importing countries would be of great help to the development of the network. How to establish, operate and maintain the network, and whether the network should be for profit or not for profit are the other topics that need to be further discussed. The experience of the importing countries is no doubt helpful to the Chinese organic market networks. Establishing linkages between the Chinese network and the networks of other countries would also be useful and beneficial to both sides.

Table 1 - Organic vegetables produced in China

No	Vegetable	No	Vegetable
1	Alfalfa	30	Horse bean
2	Aloe	31	Kohlrabi
3	Amaranth	32	Leaf lettuce
4	Bamboo shoot	33	Leek
5	Bitter melon	34	Lettuce
6	Broccoli	35	Long white onion
7	Burdock	36	Lotus root
8	Cabbage	37	Mustard leaf
9	Cabbage mustard	38	Okra
10	Caraway	39	Onion
11	Carrot	40	Pea pods
12	Cauliflower	41	Pimiento
13	Celery	42	Potato
14	Chinese cabbage	43	Potherb
15	Chinese toon	44	Radish
16	Chrysanthemum leaf	45	Spinach
17	Cowpea	46	Squash (pumpkin)
18	Crowndaisy chrysanthemum	47	Sweet corn
19	Cucumber	48	Sweet pea
20	Edible fungus	49	Sweet potato
21	Eggplant	50	Sweet potato leaf
22	Fresh peanut	51	Taro
23	Green asparagus	52	Tea bean
24	Green cabbage	53	Tomato
25	Green onion	54	Towel gourd
26	Green petioled cabbage (GPC)	55	Turnip (Japanese radish)
27	Green soybean	56	Vegetable mellow
28	Green sward bean	57	Water spinach
29	Haricot bean		

Table 2 - Organic fruits produced in China

No	*Fruit*	No	*Fruit*
1	Apple	13	Lychee
2	Apricot	14	Navel orange
3	Carambola	15	Orange
4	Cherry	16	Peach
5	Grape	17	Pear
6	Grapefruit	18	Pineapple
7	Guava	19	Pitaya
8	Green dates	20	Strawberry
9	Kiwi	21	Sweet melon
10	Lemon	22	Water melon
11	Longan	23	Waxberry
12	Loquat	24	

Note: The listing of the products in the tables does not mean that they are always available in the market. Some of the products were certified in the past and are no longer in the product list of the certifiers now. It does mean that those products can be produced in organic way as long as there is a need.

ZHOU Zejiang
OFDC
8 Jiang-Wang-Miao Street,
Nanjing, 210042 China
Tel: +86-25-5425370/13057599463
Fax: +86-25-5420606
Email: zejzhou@public1.ptt.js.cn

Graduated from Nanjing University in 1968, Mr Zhou worked in a geological prospecting team for 12 years in rural areas of China. He has worked for the Nanjing Institute of Environmental Sciences of the State environmental Protection Administration since 1980 and involved in research on environmental issues related to eco-farming, biodiversity and rural environment protection for years. He joined the first organic inspection in China in 1990 and became one of the first 2 organic inspectors of China in 1995. As one of the organic movement pioneers in China and the Senior Advisor of the Organic Food Development Centre of China SEPA, he has been actively involved in promoting the development of organic agriculture and organic food in China. Mr Zhou is chairing the Certification Committee of OFDC and is Vice Chairman of OFDC Standard Committee.

Organic Agriculture in Thailand

Vitoon Panyakul, General Secretary, EarthNet Foundation, Thailand

Background of organic agriculture in Thailand

Organic agriculture is not a recent phenomenon. Local Thai farmers have practiced traditional farming for hundred of years. Such practices have been developed and enriched through farmers' knowledge of local agro-ecology and environmentally sustainable ways of farming. Despite the imposition of modern agriculture, traditional farms continue to exist and local indigenous knowledge of sustainable farming remains. The survival of these farms is the source of the revitalization of modern organic agriculture in Thailand today.

The re-emergence of organic farming can be traced back to the collapse of modern agriculture in the early 1980s. As conventional farm production was geared towards cash-crop production with heavy reliance on agro-chemicals, farmers were exposed to market instability and health hazards. The dual cost-price squeeze drove farmers to the edge of bankruptcy when prices of agricultural products declined sharply while production costs rose steadily. Millions of small-scale farmers were driven to indebtedness and forced out of their farmlands.

At the same time, the impacts of excessive use of agro-chemicals began to unfold. Increasingly frequent health incidents among farmers and consumers were reported. Widespread news of fresh-water fish diseases linked to agro-chemical residue pollution shocked the Thai general public. From 1971-81, the rate of intoxicated patients increased by 1 550 times (from 74 cases in 1971 to 2 170 cases in 1981) (Panyakul 1993).

Against these backgrounds, many farmers and local non-government organizations (NGOs) began to search for an alternative to conventional agriculture in order to break away from the vicious circle of debt and health risks. Alternative Agriculture Network (AAN) was established in 1984 as a national network of NGOs and farmer organizations to foster alternative agriculture activism in Thailand. The AAN provides main discussion forum of experience sharing and policy advocacy for sustainable agriculture, including organic farming.

As organic agriculture gains more and more momentum in recent years, several organizations specializing in organic agriculture have also emerged. Green Net (founded in 1993) is one of the key mover in organic agriculture movement in Thailand for its instrumental role in organic conversion, product development, and fair-trade marketing. Another important organization is the Organic Agriculture Certification Thailand or ACT (founded in 1995) which provides professional organic certification services for all farm production as well as processing and handling operations.

Government programme related to organic farming

The 8th National Economic and Social Development Plan (1997-2001) is the first institutional framework at national level that clearly describes sustainable agriculture, including organic farming. The 8th plan also sets an ambitious target of converting 20 percent of arable land to sustainable agriculture. The incorporation of sustainable agriculture in the 8th Plan was part of the result of policy advocacy by NGOs and farmer movements. Despite the favourable policy environment, the Thai Ministry of Agriculture and Cooperative failed to translate the Plan into any concrete activity. It was not until the Assembly of the Poor held a massive rally and force the government to finance the Sustainable Agriculture Pilot Project with over 30 000 farming families involved.

The main concrete efforts of government agencies have been to develop organic standards and certification programme. The Department of Agriculture and the Thailand Institute of Scientific and Technological Research had developed organic crop standards since 2001 and National Office of Agricultural Product and Food Standards developed a national organic agriculture criteria in 2002. Only the Department of Export Promotion had put up a trade promotion projects known as "Pilot Project on the Export of Organic Farm Products". The Project was initiated in 1999 with the main objective of promoting organic production and export of rice, banana, pineapple, asparagus and baby corn. The Project has a total budget of 10 million baht and aims to develop practical experiences in organic farming and to establish an inspection and certification system. The DEP financed the DOA and Thailand Institute of Scientific and Technological Research to develop the National Organic Standard Guideline for Crop Production. It also finances private companies to put up organic food exhibition in Thailand as well as overseas.

Besides the initiatives mentioned above, there is a couple of organic agriculture projects initiated by local government agencies. All of these initiatives are supporting composting, no-straw burning and usage of organic fertilizers (instead of chemical fertilizers), but none of them have gone as far as applying for organic certification.

No price support policy is available for organic farming.

Organic agriculture production

Thai organic agriculture is still at an infant stage although there is some sign that the movement may be on the take-off stage. The development so far is largely in the hand of farmers and private sector while government support is lagging behind. Its development has capitalized on the country's strengths by focusing on organic rice and vegetable production. The majority of organic producers are family farms organized under grower group programme or organic projects.

The predominant organic agriculture production in Thailand is crops, especially rice, vegetables and fruits. A couple of wild products like honey and herb tea operators exist. There is one organic shrimp production facility certified. No organic livestock production exists yet.

There are several producer groups that presently produce organic rice, mainly jasmine rice. Two producers are in Chiang Rai, one in Surin, three in Yasothorn and another in Khon Kaen. The organic rice is sold by 2 main traders, namely the Capital Rice Co. Ltd., and Green Net Cooperative. Most of the rice is exported (mainly to European markets) and only a small quantity is sold locally.

Vegetable production is the second most important organic crop. There are fresh vegetables and baby corn. The bulk of fresh vegetables is sold in Thailand while baby corns are all exported.

An estimated 3 993.02 hectares of farmland is presently under organic management. This represents around 0.019 percent of the total farmland.

Organic production 2002

	No. of farm	Acreage (ha)	Estimate production (tonnes)	Farmgate price (million TBT)
Rice and field crops	1 041	2 652.76	2 888.57	95.44
Herb, vegetables, fruits	112	1 068.27	10 436.86	625.24
Others	1	272.00	n.a.	n.a.
Total	1 154	3 993.02	13 325.43	720.68

Source: Green Net / Earth Net Foundation 2003

Market Demands

For domestic market in Thailand, no studies on the size of organic market have been conducted yet. The closest research was done by the Thai Farmers Research Center of the Thai Farmer Bank during 20-25 November 1996. The survey interviewed 780 consumers in Bangkok for their interest in health food and it putted an estimate of 2 300 million baht/year as health market in Thailand. See Box 1 for detailed information.

Box 1 - Thai Farmers Research Center's Health Food Market Survey 1996

- *62.3% or 486 out of 780 questioned consumers in Bangkok said they had some health food before.*
- *71.1% of the respondents believes that having health food would make them healthy, 18.1% is afraid of pollution in the food, and 8.8% believes that health food contribute to better environment.*
- *The main obstacles identified by respondents presently buying health food are the inconfidence in organic quality (61.2%), difficult to buy (30.5%) and too expensive (8.4%)*
- *69.2% purchases from supermarket, 21.0% from green shops, and 5.5% from wholesalers.*
- *For those who do not yet buy health products, 58.6% says it is difficult to find, 17.6% says it is not necessary and 13.8% says it is too expensive.*

Thailand is still under severe economic recession, domestic market is still shrinking. As a result, almost all certified organic products are currently exported with only a small amount is sold in domestic market. However, numbers of environmental-friendly and hygienic products are available in domestic market. Consumers often confused these as organic products because the labelling and advertisement presenting them as "health products". Currently, there are three channels where such products are sold, i.e. supermarket chain, specialized shops, and direct marketing (membership). It is important to note that there are several producer groups that also sale their organic produces locally as well as to consumer members but this is only very small scale.

In supermarkets, organic and/or "health" products are sold in the same way as conventional products, e.g. on the same product shelves. Only when there is product promotion or on special occasion, then organic and health products are displayed separately. Main products sold through supermarket channel are fresh fruits and vegetables and rice. None of these supermarkets makes explicit advertisement campaign on the availability of the organic and health products.

In specialized shops, organic and health foods are the main features of the shops. Due to the limited range of organic products, these shops have to carry many conventional health food items. Even organic products are still much more predominant but there lacks a clear identification or labelling to separate the different product quality. Consumers shopping in these shops often assume that all products are "green and/or healthy".

Direct marketing is another marketing channel for organic products. But directing marketing currently focuses only on fresh vegetables. There are two distinct concepts behind direct marketing, one based on community supported agriculture (CSA) and the other based on commercial experience in home delivery model. In practice, different logistic and management mechanisms are devised for each scheme, but, generally, customers will be delivered a pack of vegetables on a regular basis, normally once a week, at a designated location, often at home or office.

Guarantee system and certification

Organic certification is one of the key components that distinguish organic agriculture from other forms of sustainable agriculture. Organic certification is one of the production guarantee systems and is normally done by a third-party independent organization. Organic certification is production process certification, not final product certification. A certification is granted when production steps and its management comply with organic standards. Before a certification decision can be made, farm fields and processing facilities used in the production must be inspected and verified. Farm and processing management must be evaluated, and risk assessment is made through checking producer's motivation and his/her understanding of certification requirements. All the chain of custody, including packaging and handling of organic products to the point of retail sale is thoroughly evaluated. If certification is granted, then the products can be labelled with the mark of the certification body.

In Thailand, the Organic Agriculture Certification Thailand (ACT) is the first and the only Thai organic certification body that can offer internationally recognized organic certification services. Established in 1995, ACT is an independent certification body. Its members include producer organizations, consumer groups, NGOs, environmentalists, academic and media. ACT's standards include crop, wild product harvest, processing and handling but its current certification only covers organic rice, vegetables and bean products.

ACT has received IFOAM Accreditation from the International Organic Accreditation Service (IOAS) since 2001 and it was the first IFOAM accredited certification body in Asia. There are a couple of foreign certification body operating in Thailand, i.e. an Italian-based BioAgriCoop certifying organic rice, a German-based BSC certifying organic rice, and the British Soil Association certifying organic baby corn. These are three large-scale projects operated by Thai private companies. It should be mentioned also that SGS-Thailand has claimed to develop an organic inspection and certification service. But up to the moment, no further details are available and no operator is yet certified by SGS.

The Thai Government also initiated organic standards and certification service. The drafted organic crop standards were prepared by Thailand Institute for Scientific and Technological Research, Department of Export Promotion, Ministry of Commerce and Ministry of Agriculture and Cooperatives. The drafted standards were handed to the Department of Agriculture (DOA) on 17 September 1999. The DOA then internally reviewed the draft and organized a public meeting to ask for comments (on 11 May 2000). The final drafted was adopted on 18 October 2000 as the first national organic crop standards. It is however important to note that during the process of standard drafting, relevant organizations did not have opportunities to involve, especially those from producer and consumer organizations.

In 2002, the National Office of Agricultural Product and Food Standards (NOAPFS) completed national production and processing guidelines of organic crops, livestock, and shrimp production. The guidelines will be used for national organic accreditation. And the NOAPFS is currently planning to set up a national organic accreditation programme.

Comparative studies on socio-economic benefits of organic farming

The available comparative studies on organic and conventional farming only exist for jasmine rice and baby corn. From both studies, it is clear that organic farming reduces farm input costs while increasing farm labour costs (10.84 percent for rice and 12 percent for baby corn). The total production cost can be higher or lower than conventional farming. But with premium price, organic farming will raise gross and net farm income. The net income in both projects increases significantly as conventional farming have negative return to labour while organic farming have positive return. In short, it is possible to conclude that organic farming generates higher employment opportunities than conventional farming, at least for the family members, and it also improves family income.

Potential, limitation and challenges

The key challenges for Thai organic agriculture is how to sustain its expansion. It is clear that organic farming can generate more employment opportunities as well as improving farmer's net income. Competencies for conversion supports are critical and post-harvesting supports are also lacking.

The appropriate role of government is yet to be defined. It is now widely recognized that the government should only play a supportive role while farmers should be the centre of agricultural development. This is especially true for organic agriculture, as the experiences so far indicate that the driving force behind organic agriculture development worldwide has always been the farmers, consumers and the private sector. Technical and financial support as part of support system should be initiated by the government to supplement the already existing competencies of non-governmental organizations, farmer organizations and private sectors.

Developing a secondary processing industry is another challenge for the Thai organic movement, as secondary processed products would increase product value and create more employment opportunities in the country.

Consumer education is another critical area that needs further development. Consumer education needs to focus on the environmental and social benefits of organic agriculture as well as the importance of organic certification as a reliable private guarantee system.

The existing private initiative of Organic Agriculture Certification Thailand should be further supported. The government should help to strengthen ACT so that it can facilitate organic trade, both in Thailand and the export. It should avoid competing with ACT in organic inspection and certification as organic certification all over the world is mostly done by private sector and ACT is already recognized internationally. A private certification like ACT is more effective and flexible, enabling participation of all stakeholders, especially producers and consumers in standards setting and policy decision. A balanced participation of stakeholders also means that the private certification is much more independent. Beside, government body is fragmented, for instance the DOA only can inspect and certify crop production whereas organic farmers may grow crop, keep livestock, raise fish and do food processing. Within the existing government structure, such farmer must be inspected and certified 4 times by Department of agriculture (for crop), Department of Livestock (for animal), Department of Fishery (for fish) and Ministry of Public Health or Ministry of Industry (for food processing).

Policy recommendations

A strong political will and policy consistency is needed for organic agriculture. At present, there is little coherence among different government agencies for supporting organic agriculture. In fact, many agencies appear to initiate projects on their own account without seeking cooperation with existing organic projects already developed by farmers, NGO and the private sector.

The responsible authorities also seem to have little knowledge about organic agriculture and many of them continue to have serious doubts about the viability of organic farming. Before they can become effective promoters of organic agriculture, the authorities themselves need to undergo further training and education on the subject.

Government cooperation with NGOs and farmer's organizations is strategically important to create synergy in project implementation. The Alternative Agriculture Network (AAN) has accumulated invaluable experiences and lessons over 15 years of promoting sustainable agriculture at the community level. The network's input would be valuable for informed policy formulation as well as project implementation.

Other supporting policies are inseparable from a direct organic agriculture promotion policy. Equally important are favourable macro policies to support the private sector for post-harvest technological development and trade. Suggested policy tools are subsidies and tax policies.

Asian regional cooperation

Compared to other countries in the Asia and Pacific region, Thailand is well advanced in organic agriculture development. Therefore, Thailand could serve as a training ground for other countries in the region and a hub for sharing experiences and expertise, especially in organic conversion, certification and trade issues.

There are several possibilities for cooperation at the regional level where Thailand could play a significant role in such cooperation. For example, the Thailand-based certification organization ACT could service other Asian countries that have not yet established a certification body. Alternatively, ACT could also assist countries in their development of national inspection and certification competencies. ACT has conducted already developed an effective inspection and certification training programme as well as a model for setting up private certification body appropriate for Asian region. Competency of ACT has also been recognized worldwide through its certification.

Another possible regional cooperation is on training, where training exchange could be facilitated at regional level. Courses for organic conversion schemes could be developed and training at regional level can be carried out in order to share competencies within the region.

Lastly, the formation of a regional organic trade association is suggested. Such a body could be beneficial for all countries in the region, as inter-regional trade could be promoted and “ethical” or “fair” trading could be further developed in Asia.

Organic agriculture is not a recent phenomenon. Local Thai farmers have practiced traditional farming for hundreds of years. Such practices have been developed and enriched through farmers’ knowledge of local agro-ecology and environmentally sustainable ways of farming. Despite the imposition of modern agriculture, traditional farms continue to exist and local indigenous knowledge of sustainable farming remains. The survival of these farms is the source of the revitalization of modern organic agriculture in Thailand today.

The Thai organic agriculture is part of the larger sustainable agriculture movement, initiated by farmers and local non-government organizations (NGOs) since 1980s. The Alternative Agriculture Network (AAN) was established in 1984 as a national network and provides main discussion forum of experience sharing and policy advocacy for sustainable agriculture, including organic farming.

As organic agriculture gains more and more momentum in recent years, several organizations specializing in organic agriculture have also emerged. Many organic production projects have been initiated by producer organizations, private companies, exporters and even NGOs. Also, a national private certification body, the Organic Agriculture Certification Thailand or ACT (founded in 1995) was also set up to provide professional organic certification services for all farm production as well as processing and handling operations.

An estimate of 8 958 hectares of farmlands are now under organic management. This represents around 0.04 percent of the total farmlands. Thai organic agriculture is at early stage and productions are dominated by primary food products, e.g. rice and fresh vegetables. Several initiatives, either by private sector or by NGOs, have focused on diversification to new organic products like medicinal herb, tropical fruits, shrimp and even palm oils.

The government policies towards organic farming are generally favourable. Though no direct subsidy for organic farming is offered, the Thai government has focused its attention mainly on developing national standards, certification and accreditation.

Critical factors influencing the success of organic agriculture in Thailand would include building domestic markets, developing effective extension scheme to reach small-scale farmers, inventing appropriate post-harvest technology, and strengthening collaboration between the public and private sector.

Vitoon PANYAKUL
Green Net/Earth Net Foundation
Thailand
Email: vitoon@greennetorganic.com

Vitoon R. Panyakul has been working with the Thai organic movement since 1991. During his first few years, he worked as researcher for the Local Development Institute, responsible for developing a national organic agriculture programme. In 1994, Vitoon with his colleagues started Green Net, the first national organic food distributor in Thailand where he served as Executive Director. From 1995, Vitoon was involved with the establishment of the national Organic Agriculture Certification Thailand (ACT), the first local certification body in the country. He served as the ACT General Manager until December 1999. Vitoon is currently a member of the IOAS Board as well as accreditation committee.

IFOAM's Role in Supporting Organic Agriculture

Vaheesan Saminathan, IFOAM Asia Coordinator

A unique feature of the International Federation of Organic Agriculture Movements (IFOAM) is that it is the single movement which has been able to bring almost all the organic activists across the globe under one umbrella. Activists associated with IFOAM in the form of members and associates come from various corners in the world and represent different disciplines. During its thirty years of existence, it has been able to gain recognition from among small-scale organic farmers in the third world to international organizations such as the United Nations and FAO.

At its inception, the vision set out by IFOAM has been *diffusion and exchange of information on the principles and practices of organic agriculture.* Based on the achievement of worldwide networking, there is no doubt, IFOAM has been able to work towards its vision to a larger extend.

The mission of IFOAM - the worldwide adoption of organic agriculture - could be seen to seep through the vast influence made by the green revolution agriculture in Asia. In a broader sense, involvement of IFOAM is realized at various levels in developing countries. However, supporting and/or strengthening the organic movements active in national, sub-regional and regional levels need to become more visible in the developing countries, particularly in Asia and in Africa. This level of support has to be realized either directly or indirectly in the countries, where the growth of organic movement is observed to be sluggish. One of the contributing factors for this observation is lack of marketing opportunities for the organic produce of perishable nature. In this context, the seminar on export of organic fruits and vegetables becomes very pertinent and timely.

Implementation of identified projects and programmes by IFOAM (e.g. IFOAM 99, I-GO etc.) on identified specific subject areas and resulting output from such efforts have contributed to strengthen organic activists/groups in the third world and in Asia. Results of such projects have partly filled in the information gap, which often prevails at the level of agricultural policy/decision making bodies at national and regional levels. Support provided in having access to authoritative information, exchange of knowledge and information and its diffusion through conferences, trade fairs and publications, making available the IFOAM Basic standards (IBS) and its regular revision, efforts taken for harmonising the organic standards have brought in certain degree of impact. In all this efforts, there is little direct focus on marketing of organic of produce. Therefore, the seminar of this nature contributes to identify the potential role of IFOAM and its associates in the future.

Accreditation of certifying bodies and the benefits of organic produce marketing and related services of International Organic Accreditation Service (IOAS) reach smallholder organic farmers through the different service providers in the market chain of organic produce, specially, through the IFOAM accredited certification bodies. Hence, further active involvement of IFOAM in addressing the issue of marketing through its members and associates could contribute for the growth of market players that have the sense of corporate social responsibility in organic trade in ensuring social justice. This can help to achieve social and economic objectives of organic sector development by creation of sustainable markets for the produce that come from small and medium scale farmers in Asia. Looking at the potentials for export markets for tropical fruits and vegetables, we could certainly count on the current production levels, growth trends and potentials in Asia too.

In this line a question may arise whether the movement like IFOAM should become a marketing organization to contribute towards the development of domestic and export markets. The expectation here is that the work carried out by IFOAM need to be reflected at the national and regional level policy decisions with respect to Agriculture and trade.

In order to achieve this, IFOAM need to have its image at the level of governments and their regional groupings. Wide know-how about IFOAM requires to be built among the agricultural and trade related main stream organizations in Asia.

Marketing is associated with sustainability of the promotional programmes and projects on organic agriculture. Towards this end, the organic agriculture needs to demonstrate that it could meet the market demand while meeting the other objectives of social and ecological dimensions. In Asia, marketing remains one of the main issues in organic production and deems intervention for making it sustainable.

In the context of supporting marketing and export of organic fruits and vegetables the role of IFOAM would be of importance, particularly, in a growing trend for export and trade in Asia. The attractive price premium in the markets in Europe, United States and Japan has been contributing towards this trend. It is this aspect of export market potential, which has motivated even small scale farmers for aiming at export of organic fruits and vegetables.

As IFOAM could contribute and support in consolidating the development of organic sector as a whole at sub-national, national and regional levels, the leading role of IFOAM should not only be confined to the promotional activities but also to contribute towards the development and growth of stable organic markets. This calls IFOAM to become further active and involve in Asia and Africa through its members. Considering the trends in organic agriculture sector development, generally, in third world, particularly in Asia, the multifaceted efforts of IFOAM need to be further broadened to cover trade and marketing.

IFOAM, a unique worldwide movement in the organic sector through its structures (member associations, world board members, regional groups, working groups etc.) need to seek mechanisms to contribute to market development since the sustainability of the growth of the organic sector is very much influenced and determined by the development of sustainable markets.

The need for intervention mechanisms in marketing would articulate the existing initiatives on promotion of O/A and fulfil the aspirations and expectations of small farmers towards their economical and social development. The ecological benefits of O/A get reinforced only should there be markets available for produce from organic origin. The constant efforts and activities required for the promotion and development of holistic organic agriculture need to be extended to cover marketing. The export of organic fruits and vegetables are of no exception towards this end.

“Trade and marketing are similar to a war, competition is the enemy and we need strategy to win”

S. Vaheesan
Coordinator, IFOAM Asia
Programme Officer, Helvetas Sri Lanka
No. 21, Raymond Road
Nugegoda
Sri Lanka
e-mail: hslvaheesan@eureka.lk

Holds bachelors degree in Agriculture and Masters degree in Natural Resource Management.
Became associated with IFOAM, since 1994.
Elected Co-ordinator in 2001.
Chairperson, National Experts Committee on O/A, Convened by the Ministry of Environment and Natural Resources, Sri Lanka
Executive Committee member, Lanka Organic Agricultural Movement (LOAM), Sri Lanka.
Asst. Team Leader, WB project on watershed restoration in Sri Lanka.

Role of FAO in Supporting Asian Organic Agriculture

Hiroshi Hiraoka, Soil Management Specialist and Pieter Ypma, Marketing Consultant, FAO Regional Office for Asia and the Pacific

In recent years organic agriculture has developed rapidly and has become an attractive export opportunity to most developing countries. It has sustained an annual growth rate of 20-30 percent while at the same time offering a considerable price premium to producers of organic products. From the consumer perspective, this is driven by an increased awareness on environmental issues and food quality and a perception of increased food safety. While producers share these views, they also want to benefit from the price premium for organic products. These attractive conditions have focused the attention of many governments, producer organizations and other stakeholders on organic agriculture.

Due to the necessity of providing a guarantee to consumers that organic methods have been used in the complete organic food supply chain, the FAO/WHO Codex Alimentarius Commission has developed guidelines on Organically Produced Foods. FAO has included Organic Agriculture in its Medium Term Plan (2002-2007) as a cross sectoral issue. The objective is to enhance FAO support to all member countries in organic agriculture, especially to increase their capacity to effectively produce, store, process, inspect, certify and market organic foods and fibres. In this context it is, amongst others, undertaking commodity studies for specific organic products and improving the dissemination of organic information through meetings, conferences and posting of research findings on various websites. In order to facilitate access to international markets, the Organization is involved in defining options for harmonization and equivalence in organic agriculture: an International Task Force, composed of both public and private sector representatives, has been established for this purpose.

As most technical information on organic agriculture stems from temperate zones, much remains to be done to adapt organic agriculture practices to environmental and socio-economic conditions prevailing in tropical and arid areas. One of the important factors of sustainability is agro-biodiversity wherein the natural ecological balance is the main production “input” and organic farmers are expected to be both custodian and users of this multi-dimensional diversity. Particular emphasis is also given to resource-poor farmers and their ability to invest in long-term productive systems.

Various technical divisions of FAO have been involved in organic agriculture issues, each emphasizing the significance of the production (soil fertility management, plant protection, seed production, agro-forestry, harvesting of wild products, organic aquaculture), post-harvest procedures (storage, processing, packing) and marketing of organic products. Collection/dissemination of information, establishment of networks, workshops and seminars are the main activities which have resulted in a number of reports, papers, technical guidelines and manuals. Technical assistance to countries is undertaken through field projects.

In conclusion, FAO has advanced in delivering knowledge in the areas of marketing, global assessments, organic standards, harmonization and equivalency. On the other hand, the organization finds itself in need to make increased and concerted efforts in building up developing countries’ capacities for efficient and economically competitive systems in order to better contribute to sustainable agriculture and rural development through organic agriculture.

Hiroshi Hiraoka
Soil Fertility Officer
FAO/RAPG, Maliwan Mansion, 39 Phra Athit Road,
Banglumpoo, Bangkok 10200 THAILAND
Tel. +66-2-697-4118 Fax. +66-2-697-4445
E-mail: hiroshi.hiraoka@fao.org

Holds Bachelors degree in Agriculture, Graduate Diploma in Agriculture Development Economics, and Masters degrees in Agriculture / Agricultural Development and Environment
Entered FAO in 2001
JICA Agriculture Expert in the Sultanate of Oman 1999 – 2000
Researcher at Sumitomo Chemical Company Limited 1993 – 1997

Pieter Ypma
Associate Professional Officer Marketing
FAO Regional Office for Asia and the pacific
Maliwan Mansion
39 Phra Atit Road
Bangkok 10200
Thailand
E-mail: pieter.ypma@fao.org

Holds a Bachelors degree in Tropical Agriculture, a Graduate Certificate in Environmental Technology & Business Hygiene, and a Masters degrees in Environment & Development. He has both experience on the production side as well as the marketing side of organic agriculture. In the Netherlands he has managed a small Bio-Dynamic market garden while in Zimbabwe and Swaziland Mr Ypma was involved in the certification of organic products. In Tanzania he worked as marketing advisor for Dgis the Dutch bilateral donor on a dairy project. Mr Ypma joined FAORAP in 2001 as APO agricultural marketing and has been involved with organic marketing in this context.

FAO's Support to the Development of Organic Agriculture in the World 1997 to 2003

Nadia Scialabba, Senior Environmental Officer, SDRN, FAO

1. Establishment of organic agriculture in FAO: building partnerships and a medium-term plan of work

Institutional launch. Organic agriculture has been on FAO's agenda since March 1999, when the Committee on Agriculture recommended that a cross-sectoral programme be developed on this subject. The IDWG/OA coordinates FAO's response to member countries as well as information exchange and cooperation with UN agencies (e.g. ESCAP, IFAD, ITC, UNCTAD), IFOAM and research institutions. Coordination with donors is ensured through the IDWG/OA Secretary participation to the annual GTZ round tables, which objective is to exchange information and establish partnerships among donors in the implementation of organic agriculture projects.

In July 2000, a website was launched on *Organic Agriculture at FAO* with a view to providing interactive access to worldwide organic agriculture information in the five official FAO languages. The website facilitates retrieval of FAO documents, search of world literature, and access to information on country data, projects, discussion fora, meetings and links relevant to all aspects of organic agriculture. The website is regularly updated and occasionally further developed. This website, maintained by SDRN, is the most popular site of the SD Department websites.

Programme development. The new market opportunities offered by organic agriculture and increasing concerns for the environment led into the establishment of a Priority Area for Inter Disciplinary Action on Organic Agriculture (PAIA/ORGA). This new cross-sectoral programme has been designed and is implemented by the IDWG/OA. It covers all stages of the food supply chain, from the farm to the table. The PAIA/ORGA aims to enhance FAO support to all member countries in organic agriculture, especially to increase their capacity to effectively produce, store, process, inspect, certify and market organic foods and fibres. The three main thrusts of the PAIA/ORGA, 2002-2007, are the following:

- *Creating the information base and strengthening networks on organic agriculture production, conservation, processing, labelling and marketing: the objective is to make available reliable, accessible and quality information for informed decision-making.*
- *Policy and technical decision-support tools for productive and efficient organic farming systems: the objective is to enhance the contribution of organic agriculture to environmental quality and food security, with a particular emphasis on poorly endowed and market-marginalized areas.*
- *Studies, technical assistance and policy advice on institutional and legal structures, certification and trade of certified organic agriculture products: the objective is to facilitate access to international markets, especially for smallholders and exporters from developing countries.*

2. Codex Alimentarius guidelines for Organically Produced Foods and regulatory frameworks

Codex Alimentarius Commission. The objectives of Codex texts are to protect the health of the consumers and to ensure fair practices in the food trade. The second objective is reflected in the large number of standards, guidelines and other texts that are intended to protect consumers against fraud and deception and ensure fair trade practices at the export and import stages. In view of the growing production and expanding market due to increasing consumer demand in organic foods, the Codex

Alimentarius Commission decided to develop *Guidelines for the Production, Processing, Marketing and Labelling of Organically Produced Foods* in order to provide a clear description of the "organic" claim and thereby ensure fair trade practices in this area. The need for international guidelines was recognized by member countries in order to facilitate the harmonization of national regulations and to reduce technical barriers to trade. In the elaboration process, the Committee took into account the regulations existing in several countries and the standards applied by producers' organizations. The participation of IFOAM in the standard-setting process and their technical input was particularly important, and there was also considerable participation of consumers' organizations.

The development of the Guidelines was initiated in 1993 in the Codex Committee on Food Labelling as it was related to the description of a labelling claim. The Guidelines were finalized in 1998 by the Committee and adopted in 1999 by the Codex Alimentarius Commission. It may be noted that the Guidelines apply only to organically produced food in conformity with the mandate of Codex and not to other agricultural commodities. However, the principles of organic agriculture described in the Guidelines and other sections (such as import and export, certification) have general relevance for an organic production system, and other agricultural products.

The Guidelines are a dynamic text that can be amended as new proposals are put forward in view of the experience gained by member countries, as the organic sector develops. The Guidelines adopted in 1999 covered all general aspects of the organic system and the provisions concerning products of vegetable origin. The additional sections on livestock and livestock products and beekeeping were adopted in 2001, as well as a limited amendment to the lists of permitted substances.

The revised Criteria for the inclusion of substances in the lists of permitted substances were developed between 2001 and 2003 and adopted by the Codex Alimentarius Commission in 2003. The revision of the Lists of Permitted Substances is also underway.

The aims of the Guidelines are:

- to protect consumers against deception and fraud in the market place and unsubstantiated product claims;
- to protect producers of organic produce against misrepresentation of other agricultural produce as being organic;
- to ensure that all stages of production, preparation, storage, transport and marketing are subject to inspection and comply with these guidelines;
- to harmonize provisions for the production, certification, identification, and labelling of organically grown produce;
- to provide international guidelines for organic food control systems in order to facilitate recognition of national systems as equivalent for the purposes of imports; and
- to maintain and enhance organic agricultural systems in each country so as to contribute to local and global preservation.

They include general sections describing the organic production concept and the scope of the text; description and definitions; labelling and claims (including labelling of products in transition/conversion to organic); rules of production and preparation, including criteria for the substances allowed in organic production; inspection and certification systems; import control; lists of substances authorized in an organic system; requirements for livestock and livestock products; and beekeeping and bee products.

The development of international recommendations is an important achievement in order to protect consumers against misleading claims, to ensure fair trade practices in the organic market and to provide a

reference for countries that are developing national standards on organic agriculture. This work is also an element of the activities of FAO concerning organic agriculture, especially in developing countries, and this is also the case for other Codex recommendations concerning inspection and certification. In recent years, many countries have been in the process of establishing national regulations/provisions on organic agriculture.

The Codex Alimentarius Commission also adopted a number of texts on import and export inspection and certification systems that are generally applicable to food inspection, and can be used for organic inspection and certification, such as the *Principles for Food Import and Export Inspection and Certification* (1995) and the *Guidelines for the Development of Equivalence Agreements Regarding Food Import and Export Inspection and Certification Systems* (1999). These texts are of importance to facilitate inspection and certification at the import and export stages. In addition to the differences in national regulations, the differences in inspection and certification requirements or procedures between countries may create barriers or difficulties in international trade, especially for developing countries at the export stage. The Codex texts in this area provide a reference in international trade and a basis for member countries when developing or updating their national regulations, with a view to establishing efficient import and export inspection systems.

The Commission has recently adopted the *Guidelines for the Judgement of Equivalence of Sanitary Measures Associated with Food Inspection and Certification Systems* (July 2003) that will provide an important reference at the international level and address the need for guidance expressed by member countries in the determination of equivalence, a question that is also under consideration in the WTO.

Regulations. The growth of organic agriculture trade and the proliferation of regulations and requirements to enter international markets confront countries with increasing difficulties and high compliance costs. FAO has a comparative advantage in providing a forum for public-private discussions that explore possible models of equivalency of organic standards, inspection, certification and accreditation in organic agriculture. FAO sponsored, together with UNCTAD and IFOAM, a Conference on International Harmonization and Equivalence in Organic Agriculture, Nuremberg, Germany, 17-19 February 2002. This Conference provided a unique forum for dialogue between public and private institutions on regulations that govern organic agriculture. FAO's role in the continuation of a process heading towards the harmonization of organic regulations is key factor to avoid potential trade barriers. A joint FAO/UNCTAD/IFOAM International Task Force on Harmonization and Equivalency in Organic Agriculture was established in 2003, with representatives from Ministries of Agriculture and Trade as well as from the private sector. This Task Force held its first planning meeting in Nuremberg in February 2003 and the next meeting is scheduled for October 2003, at UNCTAD Headquarters in Geneva. A project proposal for supporting the Task Force is being considered by SIDA for funding. FAO's Legal Office has included in FAOLEX, the FAO legislative database, 182 national and sub-national legal texts of organic production from more than 35 countries.

Certification. Considering that the Latin American Region has a decade-long tradition of exporting organic products, and in view of the stringent conditions to access international organic markets, the Regional Office for Latin America and the Caribbean, in collaboration with ECOCERT, has developed an organic food certification programme. In 2001, a meeting was held in Chile on this issue, as well as an e-conference on "Food Certification Oriented to Quality Seals in Latin America". In 2002, national workshops were held in Bolivia, Chile, Paraguay, Peru and Uruguay; results have been published in a Training Manual, in 2002.

The potential of adding value to wild products through quality seals is receiving increasing attention worldwide. FAO's Forest Products Division is reviewing certification and labelling schemes (i.e. forest stewardship, fair trade, ethical, organic) applied to non-wood forest products. Pilot case studies are being carried out in Bolivia, Ghana, Mali, Namibia and Vietnam to assess the impact of certification on the sustainable use of non-wood forest products. Collaboration is on-going with UNCTAD/Biotrade and with IFOAM and a workshop is foreseen in 2004 on wild gathered products.

Another untapped potential is the organic certification of natural ecosystems used for food production. FAO is exploring alternatives for organic certification in communal pasture systems in the Near East and North Africa. Guidelines are in preparation, in cooperation with the Governments of Jordan and Syria, on Organic Pasture Production in Arid and Semi-Arid Communal Rangelands in the Near East.

3. Networking and building the information base for informed decision-making

Dissemination of information. Basic information is needed to fully understand the magnitude and potential of the organic sector. In an environment of speculation on the pros and cons of organic agriculture, FAO has the responsibility to provide sound information to member countries, with a view to assisting them in their efforts to respond to farmer and consumer demand in this sector by directing research and extension efforts. FAO data and assessments, as well as reliable sources of information, have been made available through the FAO corporate website (www.fao.org/organicag) since July 2000.

Among the many FAO publications posted, three 2003 products provide basic information: the publication on *Organic Agriculture, Environment and Food Security* explores the prospects for a wider adoption of organic agriculture, building on a large number of empirical experiences and the collective knowledge of experts and research institutions; the publication on *World Agriculture: Towards 2015/2030* includes, for the first time, an analysis of the possible developments in demand for, and production of, organic agriculture in support of sustainable agriculture; and a *Public Awareness Folder on Organic Agriculture*, containing 18 fact sheets on the different facets of organic agriculture.

Currently, the Website domain "Country Data" is being developed in order to offer a new service: *Country Information Management System on Organic Agriculture* that will include both text narratives on the institutional and legal framework and a databank on organic production and trade. In order to validate and ensure future information updates, links are maintained with external networks and country institutions that would be linked to the system, such as the Steering Committee of the European Information System for Organic Markets and national institutions seeking to develop organic agriculture data management systems. The system is expected to be released in 2004.

Statistics. The total absence of official data on organic agriculture production and trade places FAO in a key position to develop appropriate standards and classification for data collection by countries and private organizations. Considering that FAO collects and analyses agricultural statistics as part of its normative activities, FAO annual questionnaires could include organic agriculture. In 2001, SDRN and ESSB developed a draft questionnaire on organic production and trade, which was tested in 2002 in selected countries. Based on the responses received, the virtual questionnaire is being finalized in order to systematically collect data from all FAO member countries. The final electronic questionnaire is seeking harmony with FAOSTAT2 and is expected to be distributed to all member countries in 2004.

FAO made a request to the Expert Group on International Economic and Social Classifications (New York, 15-17 November 1999) for the introduction of organic agriculture statistics into three global classification systems. The overall conclusions and recommendations of the meeting clearly indicate that: "Agriculture and fishing need to be further elaborated in ISIC, rev.3, and both ISIC and CPC need to be reviewed for their treatment of organic agriculture. The Expert Group expressed the view that organic farming, based on the inputs into process should be considered as a separate activity". The status is therefore as follows:

- The current version of the International Standard Industrial Classification (ISIC) is under review for organic agriculture and fishery commodities. A technical sub-group has been established,

under the chairmanship of EUROSTAT and a proposal is expected to be submitted to the UN Statistical Commission meeting in 2002.

- The revision of the new Central Product Classification System (CPC Version 1.0) will be amended in its next round of revision, which is in 2005. The ISIC Working Group will be preparing the technical work for this revision.
- The Harmonized System of the World Customs Organization is the most appropriate system to accommodate organic agriculture statistics. The next round of its revision is also in 2005.

Although FAO suggested the amendment to the above-mentioned classification systems, its involvement in their development is limited to technical advice, when required. Also, these systems are slow to develop and to implement.

Information fora. The FAO Regional Conference for Europe discussed in 2000 *Food Quality and Safety as Affected by Organic Farming*. The FAO Committee on Commodity Problems discussed, through its Inter-Governmental Groups, the market for organic and fair-trade bananas (1999 and 2001), organic meat and dairy products (2002) and organic citrus and citrus juices (2003). The Regional Office for Latin America and the Caribbean is sponsoring a Meso-American Conference on Organic Agriculture Farmers and Researchers, Costa Rica, 25-28 August 2003, and the Regional Office for the Near East is sponsoring an Arab Conference on Organic Agriculture, Tunis, 27-28 September 2003, organized by the Arab Organization for Agricultural Development and the League of Arab States. At the national level, FAO/ECOPORT is supporting the Foundation for Revitalization of Local Health Tradition, Bangalore, India, through regular production and electronic dissemination of newsletters on *Organic Production of Medicinal, Aromatic and Natural Dye Plants.*

Support to networks. Following a paper commissioned by FAO on *Research, Perspectives, Status and Requirements for Organic Agriculture* and an Expert Roundtable held in Braunschweig, Germany, in June 1997, network collaboration started under the European System of Cooperative Research Networks in Agriculture (ESCORENA). Since 1998, FAO's Regional Office for Europe coordinates the ESCORENA *Working Group on Organic Farming Research*. The Network held technical workshops on research methodologies unique to organic agriculture; one in Frick, Switzerland, in October 1998 and one in Bari, Italy, in September 1999. Efforts led to collaboration with major EU-financed initiatives, regional training seminars and the development of open-information fora. The Regional Office for Europe continues to coordinate the ESCORENA working group on Organic Farming Research, which now focuses on participatory research and works closely with the International Society for Agriculture Research (ISOFAR) launched in 2003. Research on organic production and marketing has been included in several other ESCORENA networks (e.g. sheep and goats, and pasture and fodder crops networks).

FAO, in cooperation with the Agricultural Research Centre of Finland, and as part of the ESCORENA *Network on Trace Elements, Natural Antioxidants and Contaminants* held a workshop in October 2001 and June 2002. The network is expected to prepare a large research proposal for consideration by the European Union, in support of policy, regulatory and inspection services and risk assessment and launch a new programme on *Comparison of Nutritional and Toxicological Quality of Organically and Conventionally Produced Foods* (2003-2006).

4. Market analysis for specific organic commodities

Global market studies. The primary interest of member countries in organic agriculture is to tap new market opportunities. In response to demand, FAO has been involved in a number of organic market studies for specific commodities, namely horticulture products and to a lesser extent, coffee, tea, meat and dairy products and sugar. Target groups include governments and their agencies, farmer groups, organic movements, trade associations, exporters, importers, research and training institutions, development agencies and projects. The aim is to better inform target groups on market opportunities for organic products and on constraints to market access and thus, to allow informed decision-making

for investments and export. Besides internal cooperation, external partners include inter-governmental organizations (CTA, CTE, IFAD, IICA, ITC, UNCTAD, World Bank, International Sugar Organization) and international NGOs (CAB International, ETI, FLO, IFOAM, IOAS, SAI, SAN).

A major market study of nineteen countries was published by FAO, in cooperation with ITC and CTA, in 2001, in English, French and Spanish: *World Markets for Organic Fruit and Vegetables* and presented at a conference on *Supporting the Diversification of Exports in the Caribbean/Latin American Region through the Development of Organic Horticulture*, in Port-of-Spain, Trinidad and Tobago, 8-10 October 2001 (proceedings are available in English and Spanish). FAO, IFOAM and EarthNet organized a similar conference for the Asia/Pacific Region, Bangkok, Thailand, 3-5 November 2003.

Organic commodities studies and meetings. Issue papers or parallel meetings on specific organic commodities are prepared in conjunction with regular inter-governmental commodity groups. A symposium was held on *Organic Markets for Meat and Dairy Products: Trade Opportunities for Developing Countries*, Rome, 29 August 2002. Three papers on the market for organic and fair trade **bananas** were produced in 1999, 2001 and 2003. Two notes were published in 2001 and 2003, in the Banana Information Note, on the international trade in organic bananas (in English, French and Spanish). Papers on *Economic and Financial Comparison of Organic and Conventional* ***Citrus*** *Growing Systems in Spain* in 2001 and on the *World Markets for Organic Citrus Fruits and Citrus Juices* were prepared for the 2003 meeting of the Inter-governmental Group on Citrus Fruits. Studies have been carried-out on the costs and benefits of sustainable production, which include (among others) organic **coffee** and citrus. The Regional Office for Asia and the Pacific and the Royal Project Foundation, held in Chiang Mai, Thailand, in February 2001, the *First Asian Round-Table on Sustainable, Organic and Specialty Coffee Production, Processing and Marketing*. The feasibility of organic **tea** production in China and India is being assessed. The FAO/Mozambique Third International Sugar Conference, held in 2002, included a presentation, by the International Sugar Organization, on organic **sugar**. FAO/RUTA, IFAD and CATIE jointly organized a *Conference on Organic Agriculture for Smallholders in Central America*, Costa Rica, 19-21 May 2003.

Impact on the economy. In response to the recommendation of the Ninth Session of the Commission on Genetic Resources for Food and Agriculture, the IDWG/OA plans to assess, in 2003-2004, the impact of organic agriculture on the economy de developing countries. A conceptual framework is under development and field assessments will be carried out in 2004.

5. Assessment of the environmental impact of organic agriculture systems

Sustainable development. The sustainability of organic systems is often debated, with divergent views regarding its feasibility and productivity potential in resource-poor areas. Most information available originates from temperate countries and the technological needs in low-potential areas are not sufficiently addressed. With a view to identify strengths and weaknesses of organic systems, assessments in different agro-ecological areas are needed. In collaboration with the Kenya Institute of Organic Farming, FAO has developed a draft *Methodology for Comparative Studies of Organic, Conventional and Traditional Farming Systems in Low Potential Areas*. The draft methodology is currently being tested by the Deccan Development Society in India; this tool will be completed in 2003. Resources permitting, the aim of the methodology is to guide future farm assessments in different regions of the world. A state-of-the-art publication on Organic Agriculture, Environment and Food Security was published in 2002, including several case studies and country experiences.

Biodiversity. Organic management relies on optimizing competition for food and space between different plant and animal species. As organic farmers may not use synthetic inputs (such as mineral fertilisers, synthetic pesticides, pharmaceuticals and genetically modified seeds and breeds), they must restore the natural ecological balance because ecosystem functions and adapted biodiversity are their main production “input”, a major aspect also corroborated by FAO’s International Pollinator Initiative. Recent concerns of organic farmers to source and maintain GMO-free seeds and breeds further

developed farmers' and local communities' efforts to conserve on-farm species and to establish community-based gene banks. Organic farmers are therefore both custodians and users of biodiversity at all levels:

- Gene level: locally adapted and under-utilized seeds and breeds are maintained and recovered for distinctive properties such as greater resistance to disease and resilience to climatic stress;
- Species level: ecological principles and diverse combinations of plants and animals are applied in order to optimize nutrient and energy cycling, and hence soil fertility and agro-ecosystem health. Reliance on natural control methods maintains species diversity and avoids the selection of pest species resistant to chemical control methods;
- Ecosystem level: maintenance of diverse farming systems, of natural areas within and around organic fields and the absence of chemical inputs create productive landscapes and suitable habitats for wild crop relatives, non-domesticated biota (such as pollinators) and wildlife (such as migratory birds).

In 2002, FAO commissioned five case studies and reviewed 38 published case studies (in arid/semi-arid, humid/sub-humid and mountain areas in Africa, Asia and Latin America) in order to evaluate opportunities and constraints of organic agriculture on biological diversity from three different perspectives. The papers on *Organic Agriculture and Genetic Resources for Food and Agriculture* and *Ecological Management in Agriculture* draw lessons from case studies on agro-biodiversity and the application of the ecosystem approach in organic systems; these papers were presented at the Satellite Event on Biodiversity, held on the occasion of the Ninth Session of the Commission on Genetic Resources for Food and Agriculture, Rome, October 2002. The interesting findings of these papers led to the Commission's recommendation that FAO "further studies the competitiveness of organic agriculture". A third paper on *Organic Agriculture in Protected Areas and Buffer Zones* explored the potential of organic agriculture in reconciling food production and nature conservation: it was presented at the UN Thematic Group Workshop on Biodiversity and Organic Agriculture in Ankara, 15-16 April 2003.

The findings of these studies suggest that organic systems both increase farmers' income opportunities and contribute to *in situ* conservation and sustainable use of genetic resources. Currently, the opportunity and adjustments required to enhance organic agriculture in protected areas is further explored in order to develop an issue paper on *Ecological Agriculture for Effective Management of Protected Areas*, to be presented at the Convention on Biological Diversity SBSTTA in November 2003. Collaboration with IUCN and WWF is starting to address the impact of organic agriculture on wild natural resources and connectivity of protected areas. Inputs are provided the UK Soil Association in setting standards for sustainable water use by organic agriculture.

6. Improving knowledge on technical practices for efficient organic agriculture production and processing

Soil fertility. In support of Integrated Plant Nutrition Systems, FAO has worked on organic inputs, which are also useful to organic agriculture. A database on *Commercially Available Organic Fertilizers and Water-Retaining Products* was initiated October 2001: it contains information on various products as submitted by manufacturers/dealers. The database is regularly updated. The objective of this database is to inform decision-makers, extension services and farmers, particularly in developing countries, of the range of products that are available in the international market and their salient features.

FAO prepared a review document on *Organic Recycling: On-Farm Composting Methods*, which was used as a background document of an electronic conference on this theme, from May 2002 to April 2003. The objective of the conference was to provide an open platform that enables a wide range of stakeholders to exchange views and experiences on on-farm composting methods, especially rapid composting. Based on the E-conference contributions, the review document will be updated and published at the end of 2003. This publication will foster wide-scale adoption of efficient and rapid

composting technologies and help improving soil productivity and protecting the environment from degradation, especially for small farmers in developing countries.

FAO has prepared a document on the *Direct Use of Local Phosphate Rocks as Source of Phosphorus in Sustainable Agriculture*. Extensive research has been carried out in Africa, Asia and Latin America on the agronomic potential and effectiveness of phosphate rocks. Numerous but scattered information exists and the aim was to develop a comprehensive publication containing guidelines on the direct application of phosphate rocks to acid soils of the tropics and subtropics. The publication will be released in December 2003.

Participatory research for crop protection. The Integrated Pest Management' Farmer Field Schools approach is a good model to organic agriculture on-farm or farmer research as the latter is highly location specific. IPM uses biological control to pest management and several IPM projects have reached zero pesticides input. IPM trainers and farmer groups in Asia and some countries in Africa have been experimenting with soil management practices (in addition to pest management) and farmer groups have shifted to organic production. The first Technical Cooperation Projects on organic agriculture (i.e. Tunisia and Croatia) will, among others, adapt the FFS approach to the needs of organic agriculture. The Global Integrated Pest Management Facility initiative, called *Agricultural Conversion 2015: Detoxing Pest Management*, is surveying Organic Pest Management (OPM) and various non/low toxic pest management products. This will eventually lead to a publication which will include information on OPM products.

Seeds. The availability of quality seeds for organic agriculture is an emerging concern. Germplasm adapted to low input conditions (i.e. resistant to specific climatic conditions or local pests/diseases) and GM-free require targeted efforts for collection, breeding and exchange of genetic resources appropriate to organic management and labelling. In order to address these issues, FAO will organize an Organic Seeds Conference in July 2004, together with IFOAM and the International Seed Federation.

Horticulture production. With a view to assisting developing countries in establishing successful organic horticulture production systems, an expert meeting was held by FAO in Kuala Lumpur, 22-26 July 2002, to identify needs. FAO, in collaboration with the Tropical Fruits Network (TFNet), established expert groups to develop technical guidelines for organic tropical fruits production. The general framework for tropical fruits production will be finalized at the end of 2003 as well as the guidelines specific to organic pineapple, citrus and mango.

Post-harvest techniques. In cooperation with the New Zealand Institute for Crop and Food Research, FAO produced in 2002 guidelines on *Handling and Processing of Organic Fruits and Vegetables in Developing Countries*. Regional workshops in five different regions analysed new market opportunities for organic commodities (e.g. cut flowers, orphan crops). The results of the regional workshops will be discussed at an international expert consultation. FAO has produced a technical manual on *Handling and Preservation of Fruits and Vegetables by Combined Methods for Rural Areas*; although the manual covers conventional foods, it contains several post-harvest methods allowed in organic agriculture. Other FAO activities on hygiene and food safety along the food supply chain have components applicable in organic handling, such as a compendium on tropical fruits and a study on preservation of aromatic herbs and spices.

Valorization of grasslands. FAO sponsored the *International Occasional Symposium of the European Grassland Federation on Organic Grassland Farming*, Witzenhaussen, Germany, 10-12 July 2001. A book is being prepared on organic grasslands, including alternatives for certification in communal pasture systems for the Near East and North Africa. Guidelines are in preparation, in cooperation with the Governments of Jordan and Syria, on *Organic Pasture Production in Arid and Semi-Arid Communal Rangelands*.

Capacity-building. One of the main constraints of organic agriculture is the lack of formal and informal training on production methods. Occasionally FAO staff contributes to launching graduate and post-graduate trainings in organic agriculture. FAO participates in the Steering Committee that developed the Master Course of the International Centre for Mediterranean Agronomic Studies (CIHEAM) on Organic Agriculture in the Mediterranean (based in Bari, Italy). Lectures on organic agriculture have also been given to the Tuscia University (Viterbo), as part of the pan-European curriculum on organic agriculture (comprising the ten main agricultural universities in Europe) as well as the post-graduate courses of the Federico II University (Naples). The Regional Office for Latin America is developing, in cooperation with Cuba, a training manual on organic agriculture in Latin America and the Caribbean. A distance learning course will be offered, via Internet, in 2003.

Food security. The contribution of organic agriculture to food security is debated and subject to divergent views, especially as information is scattered and sometimes speculative. FAO's global assessments on the potential of organic agriculture include, among others, preliminary overviews on this theme. Evidence analyzed indicates that organic agriculture systems, even if not certified as such, offer promises in resource-poor areas, at household and local levels. The in-depth investigation of FAO of the food security component of organic agriculture remains a challenge, especially in the absence of funds to undertake field studies. The International Fund for Agricultural Development and the Economic and Social Commission for Asia and the Pacific have undertook evaluations of the contribution of organic agriculture to poverty, respectively, in Latin America and Asia. Discussions are on-going with these institutions for potential joint efforts, in cooperation with national and regional NGO networks.

7. Responding to country requests for assistance in organic

Investment Centre. Since 2002, FAO has assisted the Colombian Ministry of Agriculture and Rural Development through a project on Regulatory Framework for the Implementation of an Incentive System for Organic Agriculture Production. This project, funded by the World Bank, is implemented in collaboration with the Institute Alexander von Humboldt.
Technical Cooperation Projects. After three years of formulation, the first two TCPs in organic agriculture were approved and launched through national seminars in July 2003: 1) Organic Agriculture in Tunisia and 2) Diversified Value-Added Production and Certification in Croatia, which includes organic and other specialty products.

Trust funds. A project proposal on Organic Production of Medicinal, Aromatic and Natural Dye Plants for Sustainable Rural Livelihoods in Southern Asia (Bhutan, India, Nepal, Sri Lanka) is funded by several donor institutions; the project is expected to become operational in the second half of 2003. A South Asian stakeholders meeting on Organic Production of Medicinal, Aromatic and Dye Plants was held in India, 10-12 January 2003 to assess and prioritize needs. The project will address the biodiversity conservation issue within sustainable livelihood development in marginal lands, forests and protected areas.

Common Fund. The Common Fund for Commodities endorsed in January 2003 the feasibility study for organic tea in China and India and the project is expected to start soon.

Others. FAO, in cooperation with FiBL, is undertaking a *Needs Assessment for Information, Communication and Capacity-Building in the National Agriculture Research Systems* of Bulgaria, Romania and the Federal Republic of Yugoslavia, with particular emphasis on ecological and organic agricultural production. The assessment results will be used to design and implement projects in the East European Region.

Role of the International Trade Centre

Rudy Kortbech-Olesen, Senior Market Development Adviser, ITC

The International Trade Centre UNCTAD/WTO, or ITC, is the focal point in the United Nations system for technical cooperation with developing countries in trade promotion. It is sponsored jointly by the World Trade Organization (WTO) and by the United Nations Conference on Trade and development (UNCTAD). ITC's mission is to support developing and transition economies, and particularly their business sector, in their efforts to realize their full potential for developing exports and improving import operations with the ultimate goal of achieving sustainable development. For further information on ITC visit www.intracen.org.

Since ITC became involved in organic trade, it has carried out a series of market surveys, including *Organic food and beverages: world supply and major European markets*; *World markets for organic fruit and vegetables* (jointly with FAO and CTA); and the latest, *The United States Market for Organic Food and Beverages*. It has also organized export seminars in almost 20 developing countries, mainly LDCs. It is currently involved in various country and regional export development projects, including one in Africa, which focuses mainly on spices, herbs and essential oils. ITC has also just started research on the Canadian market for organic products, which is expected to be published early 2004. It is also planned to publish an exporters guide/manual on organic spices, herbs and essential oils. Visit the ITC Web site on organic products www.intracen.org/mds.

Rudy Kortbech-Olesen
Senior Market Development Adviser
International Trade Centre UNCTAD/WTO (ITC)
Palais des Nations
CH-1211 Geneva 10
Switzerland
E-mail: kortbech@intracen.org

Rudy Kortbech-Olesen is responsible for ITC's trade promotion and development activities in organic products. He was the coordinator and principal author of the ITC study Organic food and beverages: world supply and major European markets and coordinated ITC's inputs to the joint FAO/ITC/CTA study World markets for organic fruit and vegetable. He also wrote The United States market for organic food and beverages.

Challenges to International Harmonization of Organic Standards and Conformity Assessment Systems

Ong Kung Wai, IFOAM, Malaysia

When leading pioneers such as Rudolf Steiner, Robert Rodale, Sir Albert Howard and Lady Balfour propounded their thoughts on agriculture in the 1920s to 1940s, they advocated a holistic approach to agriculture as well as a way of life. Could they have foreseen the entangling web of technical standards, regulations and conformity systems that we weave for the organic sector today?

Based on a commitment to a philosophy, organic standards and certification schemes arose within the private sector in the early 1970s. They were primarily developed by non-government associations of farmers and consumers based in Europe and the United States. Recognition as an organic producer in the early years was based simply on becoming a member of an organic association. A self declaration was sufficient. Later, informal peer reviews took place and loose guidelines were set. The world of organic standards and conformity assessment has come a long way since.

The number of private organic certification schemes has greatly increased. Many today are professional bodies operating under third party independent inspection and certification norms. In the last 15 years particularly in recent years, an expanding number of governmental organic regulations have developed worldwide in parallel with private systems. Today, there are more than 360 organic certification bodies based in 57 countries working worldwide. Whilst some maintain their own proprietary standards, many certify to set regulations.

Whilst the purpose of certification is to foster confidence of consumers and to enhance trade in organic products, the plethora of certification requirements and regulations today is becoming a major obstacle to the development of the organic sector, especially for operators in developing countries.

Problems and Challenges

Some of the systemic problems and challenges that have resulted from this labyrinth of standards and conformity assessment systems are as follows:

- Import discrimination whereby compliance is required with standards not always suitable to the agro-ecological conditions of exporting countries;
- Multiple accreditation of certification bodies in order to access international markets, namely Europe, Japan and United States
- Need of multiple certifications by organic operators in order to access international markets, namely Europe, Japan and United States
- Difficulties faced by operators, due to different interpretations of rules by certification bodies;
- Enormous workload (and delays) for authorities in negotiating recognition agreements;
- Limitation of the effectiveness of bilateral agreements in cases of products with ingredients sourced from around the globe;
- Lack of recognition by national regulations of private multi-lateral agreements such as the one between IFOAM Accredited certification bodies.
- Lack of clarity on the respective roles that should be fulfilled by the private sector and the government sector relative to organic standards and conformity assessment.

Harmonization

There is undoubtedly a need for harmonization of organic guarantee systems in the private as well as public sectors to sustain and further enhance trade in organic products. What are the elements that make up this entangled web of standards, regulations, certification and accreditation systems? How can we untangle this Entangling Web that is choking development of the organic sector?

Better collaboration between the private and government sector is critical. A better understanding of the appropriate roles of government and private bodies in standard setting, certification and accreditation is required. An international mechanism for equivalency determination between regulations and private standards is necessary. One that respects diversity in organic agricultural systems and allow for variations in standards where appropriate.

The presentation will review the historical development in organic standards and conformity assessment systems; discuss current initiatives in harmonization; examine the core challenges and explore possible approaches.

Ong Kung Wai
Humus Consultancy
7, Jalan Nunn
10350 Penang
Malaysia
Tel: +604-2265 480
Fax: +604-2265 479
Email: kungwai@tm.net.my

Ong Kung Wai is CEO of Humus consultancy, a partner organization of Grolink, an international consultancy service specializing in organic agriculture development. He studied Biodynamic Agriculture and Rural Development in the United Kingdom, travelled and participated in community and development work in Asia, Europe and United States, before settling back in Malaysia (1993). He was Sustainable Agriculture Programme Officer for Pesticide Action Network, Asia and the Pacific, for four years before moving to consultancy work. His involvement in the organic sector includes being Board member of the International Organic Accreditation Service (IOAS), IFOAM Norms Management Committee member, Management Committee member of ACT Control (a regional inspection service based in Bangkok), chairperson of Organic Alliance Malaysia (a membership based sector association) and Steering Committee member of the Malaysian organic certification programme. Besides organic agriculture interests, Kung Wai is proprietor of Taska Nania, a Rudolf Steiner pre-school education programme, based in Penang, Malaysia.

Chapter 5: Conclusions and Recommendations

Strategies And Technology For Improving Production Of Organic Fruit And Vegetables In Asia

Round Table 1

Summary by Paul Pilkauskas, Senior Commodity Specialist, FAO and Subhash Mehta, Consultant, FAO India

During the last four decades, a substantial increase in the production of food grains was achieved through the use of high yielding and hybrid varieties of crops and higher inputs of fertilizers and plant protection chemicals. But, it has now been realized that the increase in production was achieved at the cost of soil health, environmental pollution, loss of indigenous crop diversity and poorer health among rural people. These agricultural practices have caused irreparable damage to soil fertility, structure and water holding capacity in many parts of India. Indiscriminate killing of useful insects, micro organisms and predators has limited the former natural check on pests.

Chemical pollution has not only endangered the health of the farmers and the workers in the fields, but also left food with toxic residues. In temperate countries, it has taken many years to see the ill effects of chemical farming, whereas in tropical countries the benefits were short lived and the effects more damaging. In addition, the modern farming methods have become very costly, especially for resource poor farmers, due to the requirement of higher quantities of chemicals in order to achieve satisfactory yields of marketable produce. Concerns about environmental safety and sustainability of land productivity are growing among small farmers. The sustainability of the strategy adopted during the green revolution era is questionable. A new strategy of living with nature and nurturing it for sustainable high productivity should be evolved. Organic farming is one such option, where the natural resources can be effectively utilized for the benefits of mankind.

The gravity of environmental degradation has drawn the attention of scientists and planners towards finding ecologically sound, viable and sustainable farming systems for different soil and agro-climatic situations, keeping in view the needs of the present and future generations. The organic farming systems have proved to be highly sustainable. Adoption of such farming systems should not be viewed as a reversion to inefficient, less productive and traditional agricultural practices of the era prior to the green revolution. Organic farming is responsive to nature with the broad principle of "live and let live," with an intensive partnership between Agro Forestry and Animal Husbandry ensuring the production on farm of the required inputs. This is most suitable in developing countries where the cost of labour is generally low.

In view of the resurgence of interest to find alternatives to intensive agriculture in recent years, organic farming has been considered to be a sound and viable option. Plant growth and crop production is a complex process that depends on many interactions between and among organisms. Organic agriculture recognizes that crop rotation and an intensive linkage with animal husbandry is important to maintain the ecosystem balance. Many natural processes occur in nature and farmers should take advantage of them instead of destroying them with chemicals.

In the recent past, the farming community has strived to seek alternatives which can help in developing a sustainable agriculture system. Several methodologies have been adopted to facilitate the conversion from conventional to organic agriculture practices, as well as simultaneously initiating new ventures based on the sustainable farming concepts. The major reasons for the current conversion trend are deteriorating human and animal health, environmental degradation and the poor economic condition of the rural communities.

Based on the experience in India, the following strategies can be outlined for small farmers:

- *Help farmers to produce inputs on farms and follow proven farming systems for sustainable production*
- *Help farmers become self reliant on local seeds, manure, and indigenous technologies for plant protection.*
- *Encourage mixed farming and need-based local food security*
- *Assist farmers in 'value addition', grading, storage processing and packing*
- *Create separate local market infrastructures for organic products*
- *Increase consumer awareness on organic foods*
- *Evolve strategies to face the adverse / aberrant weather conditions.*
- *When possible, develop exports of organic products to benefit from high value foreign market*

As the group was made up of those primarily concerned with the development of organic agriculture among small rural subsistence farmers on the one hand and representatives of companies engaged in providing certified organic inputs to the organic farming sector, the discussion moved easily between both commercial organic farming concerns and those of small holders. It was mentioned that there have been experiences in Thailand where major losses were incurred by farmers shifting to organic agriculture, and that organic pesticide and other organic inputs could not always deal with the problems faced in tropical agriculture. More funding for development of more effective organic inputs dealing with pest and disease control was called for.

It was felt that the transition phase demands more attention and careful management of events in time and space. Lack of relevant and appropriate guidance is a constraint for the aspiring farmers. There is a need to regard conversion as an on-going process that requires a high level of commitment. An important factor in determining the speed of transition is the farm structure and the soil fertility. A successful approach in an area need not be successful everywhere, hence the unique features and situations of a particular site play an important role. An organizational approach towards the farm is required.

There was a consensus that organic agriculture holds considerable promise for both subsistence farmers and for the commercial sector, as organic production is focused on sustainability, biodiversity and enhanced soil fertility. The need for more consumer awareness, more product development and compliance with standards was viewed as important for further development of the sector.

Based on the Indian experience, it was recognized that intensive partnership between Agriculture and Animal Husbandry and the efficient utilization of local resources is crucial in order to maximize the use of 'On farm' resources, reducing the purchase of external inputs to the bare minimum. Farming practices like mulching, using green manure, cover cropping, inter cropping, crop rotation, strip cropping, crop indexing etc. are an integral component of the farming schedule. Scientific composting methodologies utilizing the on-farm biomass play vital role in enhancing the soil organic matter. Pest, weed and disease management strategies should be designed in congruence with the farm ecology. Access to region-specific information and traditional knowledge is important as well to understand the organic concepts of farming. A number of estates, small and big farms in all parts of the World have been converted from conventional to organic farming system efficiently. A variety of crops like coffee, spices, rice, wheat, pulses, vegetables, medicinal plants, fruits, etc. are being cultivated with more organic farming systems.

In order to enhance technology transfer it was recognized that linkages among researchers in Asia must be enhanced, and national and local networks developed and supported by the organic industry. Technology often rests in ancient traditional ways of farming, and these skills often rest among farmers at the village level. The dissemination of these skills across countries within the region would be a positive enhancement of the "organic" and "holistic" farming concepts.

Standards And Certification: How To Avoid That They Become A Barrier To Trade?

Round Table 2

Summary by Vaheesan Saminathan, Helvetas, Sri Lanka

The round table discussion focused on the existing main organic markets (United States, Europe and Japan) and different regulations and standards, which control and regulate such markets. Further, it was discussed how Asian countries, which are at almost similar levels of market development in the organic sector, could find way to the main organic markets within the frame of trade in such markets. Many participants expressed that very quite similar situation, exist regarding the preparation of certification standards and regulations in Asia.

It was realized that the ideal situation for organic trade would have been to have one regulation and one set of global standards regulating the organic market in the world. Since the reality is far remote from this ideal situation, the group discussed how Asian countries could more actively engage in organic trade by overcoming the 'barriers or hurdles' in meeting the requirements of different regulatory and certification standards.

Since the existing national and regional regulations and certification standards required for organic certification in the main markets act as barriers to trade in Asia, the round table went ahead in discussing about possible ways to overcome such barriers, while constantly working towards harmonizing standards and regulations. Different standards and regulations control and regulate the organic trade in the world. In a complex environment of regulatory and certification standards imposed by main organic markets, there have to be more mutual recognition among the different regulatory and certification bodies to promote active organic trade in Asia. Since there is low level of organic trade and little barrier to trade in Asia, promoting regional markets in Asia is also an option to overcome external trade barriers imposed from outside of Asia.
Though diverse environment of organic regulations and standards exists in the world, one of the main aspects observed was that the differences among regulations and standards are not that drastic, as one imagines. Therefore, more and more mutual recognition, collaboration for re-certification and mutual acceptance of each others standards based on different local agriculture situations and also agreeing on equivalency among the regulatory and certification standards need to happen. This could be achieved only through collective efforts for harmonization of standards – an active role of IFOAM in this regard was retreated. Efforts for harmonization could reduce complexity in having access to the main markets by Asian countries in the future.

In line with achieving positive results in organic trade development in Asia, the following steps were also identified by the group:

- Countries may have standards at two different levels: for export and domestic markets separately. The standards for export could be set in consideration with the regulations of the importing countries. This suggestion came up because of the reality that export markets in any countries require higher standards.
- On top of the local/domestic standards, a country could propose an additional set of standards to be met for exporting organic produce. This additional set of standards could be set taking into consideration the main markets and their regulatory requirements.
- Countries in Asia need to be given an option and possibilities for joint accreditation of national or external certification bodies by international and national bodies.

How To Develop The Domestic Organic Market In Asian Countries?

Round Table 3

Summary by Pascal Liu, Commodity Specialist, FAO, Rome

1. Constraints to the development of the organic food market in developing countries

Initiatives and projects aiming at developing the organic market should recognize the existence of various categories of obstacles in developing countries. These obstacles can be found at the levels of markets, supporting industries, institutions and technology.

a. Market challenges

A key constraint to developing the organic sector is that there is rarely a market for organics in developing Asian countries. When it exists, the local market is extremely small and confined to a few large cities. Traders and retailers are generally either not aware of organic foods or not interested in handling them. When, however, some of them agree to do a trial with those products, the low supply volumes available discourage them to continue. In addition, quality issues (in particular for perishable foods such as fruit and vegetables) deters larger modern retail stores from carrying organics. No funds for the promotion of organics are available in the retailers' budgets.

Moreover, price is an important issue in countries where incomes are low and a substantial share of the household budget is spent on food. Organic foods tend to be more expensive (but not always), especially when certification is needed. Few Asian consumers are prepared to pay the price premium. For those organic foods that are not certified, prices can be very similar to those of conventional foods, but there is a lack of trust among consumers that live far away from the production areas.

b. Challenges in the supporting industries

While conventional farmers in Asia can usually rely on an array of supporting services provided by the private and public sectors, this is not the case for organic farmers. There are few experienced private consultants. There is a lack of organic input suppliers. Farmers find it difficult to procure organic seeds, fertilizers, organic matter and biopesticides. Furthermore, certification services are scarce and may be expensive. When no local organic inspectors are present, inspectors have to come from abroad, thereby considerably raising the cost of certification.

c. Technological challenges

The technology available to organic farmers in Asia is not always appropriate. When it is imported, it may not suit the local situation due to differences in agro-ecological conditions. Different social and economic situations may also render the adoption of technology difficult. The post-harvest treatments of organic production are usually weak. The appearance of organic food is often inferior to that of conventional food. However, organic food does not need to look bad; more research is needed to improve techniques in post harvest treatments in order to improve visual quality.

These problems are compounded by the lack of interest for organic farming in the extension services. There are generally no organic specialists among the governmental extension teams. Extension service's training programmes are limited to conventional technical packages with external inputs. This implies that farmers have to learn and develop techniques on their own, with a trial and error approach.

d. Institutional challenges

Similarly to extension services, Asian research institutions tend to be geared towards conventional agriculture. They have no budget for research on organic farming. The fact that an increasing share of research is funded or carried out by large companies can only make this problem worse. Large agricultural companies in Asia are not interested in organic farming and will only fund research on conventional agriculture. A similar bias is found in the education and training systems. There are no or very few courses on organic farming at universities or technical training centres.

Participants underlined that the policies of Asian governments are not supportive of organic farming, as this production system is viewed as "going backward" towards low input and low yield traditional agriculture. There is no knowledge of organic agriculture among policy makers. In addition, the agrochemical lobby is very strong and has a capacity to influence policies.

2. Strategies to develop the organic sector in Asia

Several strategies can be utilized to overcome the numerous constraints summarized above. Innovative marketing approaches should be adopted and partnerships developed with a wide range of institutions.

a. marketing organic products

Participants recommended that organic producers utilize informal markets such as farmer markets or other direct producer to consumer systems. Community supported agriculture functions well in Thailand and Japan. An interesting example of such a system is the Tekkei system in Japan, which is a specialized organization to market the farmer products directly from producers to consumers. Farmer groups manage local stores where their products are sold. Consumers come and collect products. 70-80 percent of the retail price goes to the producer. It has been very successful and has played a crucial in the emergence of the Japanese organic industry. Subscription to a box of organic products periodically delivered at the home of the clients can be another solution.

The use of informal markets is appropriate when supply is low, as these markets usually do not demand a minimum quantity of products. Also, they are less demanding in terms of quality, which can be an advantage for a new organic farmer who does not have a good command of production techniques yet. Because informal markets are located in or close to the production areas, consumers tend to know the producers or at least trust them. This trust means that certification is not needed, which in turn reduces the price of organic products. In addition, marketing organic products in their production zone raises the awareness of local consumers on organic farming.

Nevertheless, selling through informal channels might not always be sufficient. Local markets can only absorb a limited quantity of foods. Also, when organic production entails higher costs, local consumer may not accept to pay the higher prices needed to cover these costs. People in rural areas have on average lower incomes than urban dwellers. Returns tend to be higher in large cities where the more affluent individuals live. In addition, the higher level of education of urban residents makes them more interested in the health value of organic food. Consequently, some organic farmers may look at natural food stores and large-scale retailers as possible outlets.

In order to meet the demand of these stores, organic producers can join forces and market their products together. Group marketing raises the supply volume and improves quality, thus guaranteeing more regular supply to corporate customers. This is particularly important if large modern retailers such as supermarket chains are to be targeted. It gives growers a stronger bargaining power. Group marketing also enables investments in vital equipment (e.g. trucks, cold store). Economies of scale can be achieved. Promotion is made easier through the pooling of resources. Nevertheless, certification may be needed, which may increase the marketing costs, depending on whether cheap certification services are available or not.

While selling to large-scale retailers can be more profitable than local markets, it might be risky to rely on only one type of marketing channels. Organic producers should try to diversify their outlets in order to spread risks. A marketing strategy combining informal marketing and larger scale city stores might be the safest approach.

Several participants noted that in most Asian countries consumer awareness of organic food is very low. As a result, products bearing the organic label might not appeal to consumers and attract a price premium. In this case, it was recommended to utilize other types of differentiated food markets and claims that may have a greater recognition by shoppers. In Asia, the market for foods labelled as "Safe", "green" or "low chemicals", for instance, is booming. Supermarkets have dedicated increasing shelf space to these products. Since these claims are not regulated by law, organic farmers can use them to sell their products. However, even if organic products are sold within these categories of products, they should still be labelled as organic, to prove their superior quality and gradually raise consumer awareness over time. Using these claims can be a first step towards the creation of a distinct market for organic products in the longer term. It enables farmers to reach more distant markets and access modern retail outlets such as supermarkets.

b. Building partnerships

Participants agreed that the first step to develop the domestic market is to build partnerships among organic farmers as a means to overcome the constraints outlined above. As seen above, joint marketing is a powerful tool, as it gives farmers a stronger bargaining power and enables them to meet the demand of large retailers. Group certification and the establishment of internal control systems (ICS) is a very effective form of partnership when certification is required. It makes certification more accessible to small farmers. It helps illiterate farmers with the record keeping work that is indispensable to certification. ICS can also serve other purposes than certification, such as quality control. In Japan, experienced organic farmers receive other farmers and train them, all for free. Then the trained farmers train other farmers. Government involvement is very low. Organic farmer associations could also promote international exchanges across Asian countries to share experience and techniques.

By joining forces, farmers can set up a system of joint procurement of organic inputs that may otherwise be difficult or costly to obtain. Finally, if they organize into an association, organic farmers can lobby government and may have a stronger say in agricultural policy making.

It is also important to build partnerships with the market operators along the marketing chain. Traders and retailers are essential partners, and they should be motivated to sell organic products. This can be done through farm visits, the distribution of information materials and trials with small quantities of organic products. Farmers should show traders and marketers the human dimension of organic farming. Participants suggested that they invite them to see their farm or give them brochures or CD ROMs to explain the benefits of organic farming. Backward linkages should be developed. Frequent meetings between traders and producers are needed, to get feedback from the market to producers.

Similarly, it is important that organic growers establish partnerships with consumer associations, to educate them on the benefits of organic farming. This can be done through farm visits, promotion campaigns and the use of the media. Most Asian consumers are reluctant to pay a price premium because they do not know the principles of organic farming. Consumer education is needed because they only judge the product on the appearance. Raising consumer awareness is critical to the development of the organic industry. Transparency is important. Consumers must be reassured that farmers comply with the organic standards.

Finally, organic farmer groups should support the emergence of an organic input industry, for example through joint R&D on farms or the establishment of cooperatives that will develop the production of organic inputs.

In many Asian countries, technical support for organic farming is lacking, there is no manual, lack of materials. Extension agents need more information on organic production; they lack references and information on techniques and methods. The participants felt that a solution to this problem would be to build partnerships with Research & Training Institutions, develop locally specific technologies adapted to local situation with extension services, use pilot farms, and increase local technical knowledge. Farmer association should develop training programmes on organic agriculture with agricultural schools and universities. Universities, training institutes, research institutes and governmental institutions could help. The organic industry needs solid scientific evidence that organic products are better in terms of nutrition, health and taste if it is to make such claims.

Several participants noted that although Asian Governments do not seem very supportive of organic farming, it is important to build partnerships with them. Local government could be an easier first step. Organic farmer groups could sensitize local officials on benefits of organic agriculture, and there may be joint initiatives: e.g. local organic markets, fairs. Farmers could organize information sessions in schools, organic lunches, etc. If national government agree to provide support, nation-wide awareness campaign can be effective. Many participants thought it was important to change government perception of organic agriculture, notably by showing its wider benefits to society such as employment creation, food safety and generation of export earnings. The fallacy that organic agriculture is a backward production system with low productivity should be corrected. Organic associations should demonstrate that organic farming can be very intensive with yields that are higher than conventional agriculture in some cases. The ultimate goal is to change governmental agricultural policies that are negative to the organic sector, e.g. subsidies on agrochemical inputs.

Conclusion

Developing the domestic organic market in Asian countries will be possible only by developing the organic sector as a whole. In order to do this, partnerships are needed along the marketing chain. Thus, private – private partnerships among market operators, producers and suppliers are required. Equally important are public – private partnerships, such as collaboration between organic farmers and local government. Although they may seem further ahead, public-public partnerships will also be necessary between institutions supporting the organic sector. However, the critical first step is creating partnerships among organic farmers**.**

Annexes

SEMINAR ON THE PRODUCTION AND EXPORTS OF ORGANIC FRUIT AND VEGETABLES IN ASIA

Bangkok, Thailand, 3-5 November 2003

Programme

3 November 2003

OPENING: WELCOME ADDRESSES

8.30 Mr He Changchui, Regional Representative for Asia and the Pacific, ADG, FAO
8.40 Mr Gunnar Rundgren, President of IFOAM
8.50 Mr Vitoon Panyakul, General Secretary, EarthNet Foundation

SETTING THE STAGE: OVERVIEW AND FACTS ON WORLDWIDE ORGANIC AGRICULTURE

9.00 Bernward Geier, Director of International Relations, IFOAM

IFOAM's role in supporting organic agriculture

9.15 Vaheesan Saminathan, IFOAM Asia Coordinator

9.30 Coffee break

1. THE WORLD MARKETS FOR ORGANIC FRUIT AND VEGETABLES: CURRENT SITUATION AND PROSPECTS
Chairperson: Paul Pilkauskas, FAO

9.45 **The markets in Europe**
Paul Pilkauskas, Senior Commodity Specialist, FAO
10.15 **The US and Canadian markets**
Rudy Kortbech-Olesen, Senior Market Development Adviser, ITC
10.45 **The Japanese market**
Katsushige Murayama , President of IFOAM Japan

11.15 **Discussion: market and price prospects**
Moderator: Paul Pilkauskas, Senior Commodity Specialist, FAO

12.30 Lunch break (12.30-14.00)

2. MARKET ACCESS ISSUES: STANDARDS AND REGULATIONS
Chairperson: Antonio Compagnoni, IFOAM

Standards and guidelines for organic production, processing, labelling and marketing
14.00
- Organic standards in importing countries: differences and similarities
  Gunnar Rundgren, President of IFOAM

14.30
- USDA's national organic rule
  Shelton Weinberg, World Board member, IFOAM

15.00 **Regulations for the importation and labelling of organic foods in Japan**
Kenji Matsumoto, World Board member, IFOAM

15.30 **Regulations for the importation and labelling of organic foods in the European Union**
Gerald Hermann, Vice-President, IFOAM

Questions and answers session

16.00 Coffee break

16.15 **Discussion: regulations and standards**
Moderator: Antonio Compagnoni, World Board member, IFOAM

18.00 End of Day 1

4 November 2003

3. PRODUCING AND EXPORTING ORGANIC HORTICULTURAL PRODUCTS IN ASIA
Chairperson: Paul Pilkauskas, FAO
Opening of registrations for the next day's roundtables

9.00 **Overview of organic agriculture in Asia**
Vitoon Panyakul, General Secretary, EarthNet Foundation

Producing organic horticultural products in Asia

9.30
- Assessing the profitability of converting to organic farming. Key parameters to analyse
  Pascal Liu, Commodity Specialist, FAO

10.00
- Organic vegetable production: a theme for international agriculture research
  Heidi Lumpkin, ARC (Thai University of Kasetsart)

10.30 Coffee break

11.00
- **Certification options available to producers and exporters in Asia**
  Ong Kung Wai, IFOAM, Malaysia

11.45 **Discussion: How to improve access to certification in Asia?**
Moderator: Ong Kung Wai

12.30 Lunch break (12.30-14.00)

4. ESTABLISHING AN ORGANIC EXPORT SECTOR
Chairperson: Pascal Liu, FAO

Country case studies: lessons learnt and success factors

14.00
- **India**
  - **Producer-Company partnerships for the Marketing of organic horticultural products,**
    Subhash Mehta, Advisor, Organic, Marketing and MADP, FAO India
  - **Biodynamic production of fruit and vegetables at CISH, Lucknow**
    Dr R.K. Pathak, Director, Central Institute for Sub-tropical Horticulture, India

14.30
- **China**, *Dr Zhou Zejiang, Senior Advisor, Organic Food Development Centre, China*

15.00
- **Thailand,** *Vitoon Panyakul, General Secretary, EarthNet Foundation*

15.30 **Discussion: Success factors in developing the production of organic fruit and vegetables**
Moderator: Pascal Liu

16.00 Coffee break

International support programmes for the development of organic agriculture in developing countries

- **Role of FAO in supporting organic agriculture**

16.15 *Hiroshi Hiraoka, Soil Management Specialist and Pieter Ypma, Marketing Consultant, FAO Regional Office for Asia and the Pacific*
16.45 *Questions and answers*

- **Role of the International Trade Centre**

17.00 *Rudy Kortbech-Olesen, Senior Market Development Adviser, ITC*

17.30 **QUESTIONS AND ANSWERS SESSION**
Discussion: where to find support for organic horticulture projects?

18.00 End of Day 2

5 November 2003

Simultaneous Roundtables 9.00-12.30 and 14.00-16.00

9.00

RT1: Strategies and technologies for improving production of organic fruit and vegetables in Asia

Moderator: Subhash Meta, FAO
Rapporteur: Paul Pilkauskas, FAO

RT2: Standards and certification: how to avoid that they become a barrier to trade?

Challenges in harmonization of organic standards and certification, by Ong Kung Wai, IFOAM
Moderator: Ong Kung Wai, IFOAM
Rapporteur: Vaheesan Saminathan, IFOAM

RT3: Developing the domestic market for organic fruit and vegetables in Asian countries

Moderator: Pascal Liu, FAO
Rapporteur: Pieter Ypma, FAO

12.30 Lunch break

14.00 Roundtables resume

16.00 End of roundtables, coffee break

16.30 Presentation of the findings of the roundtables to the plenary by the rapporteurs

18.00 Conclusion of the seminar

List Of Participants

Name	Country	Organization	Address	email
Alex King, Mr	Thailand	AB Food & Beverages Ltd.	11th Floor, 2535 Sukhumvit Road, Bangchak, Prakhanong Bangkok 10260	
Andreas Schaer, Mr	Thailand	AB Food & Beverages Ltd.	11th Floor, 2535 Sukhumvit Road, Bangchak, Prakhanong Bangkok 10260	
Antonio Compagnoni, Mr	Italy	ICEA		acompagnoni@interfree.it
Bernward Geier, Mr		IFOAM		
Bordin Chitkul, Mr	Thailand	Ramkhamhaeng University	Huay-Mak, Bangkapi, BKK 10240	
Chapman Keith	Thailand	RAPG/FAO Bangkok office	?	
Charles Heermans, Mr	USA	Guaranteed Organic Certification Agency (GOCA)	5464 Eighth Street Fallbrook, CA 92028	heermans@tfb.com
Charoenvit Snaeha, Mr	Thailand	Agriculture Technology and Sustainable Agriculture Policy	Agriculture Technology and Sustainable Agriculture Policy, Ministry of Agriculture, Ratchdamnern Nok Ave, Bangkok 10200	
Chatchaphon Pittayathikhun, Mr	Thailand	Chaiyaphum Plant Products Co., Ltd (S.E.A. Organic)	89/170 Moo 3 Chutamard Building, Vibhavadee-Rangsit, Talad Bangkhen, Laksi, Bangkok 10210	chat@sea-organic.com
Chayaporn Wattanasiri, Asso.Prof (Mr)	Thailand	Sukhothai Thammathirat Open Unversity	School of Agricultural Extension and Cooperative, STOU, Chaengwattana Rd, Bangpood, Pakkred, Nonthaburi 11120	agaswcha@stou.ac.th
Chhay Ngin, Mr	Thailand/Cambodia	FAO-Cambodia	FAO vegetable IPM Project in combodia, NO14 St Monireth, Toul Svay Prey II Chamkar Mon, Phnom Pehn	chhay.IPM@online.com.kh
Christopher May, Mr	New Zealand	Bioglobal Consultancy LTD	32 Radar Rd R.D.1 Whitianga	biomays@clear.net.nz
Chunmin Guo, Mr	China	China Organic Food Certification Center	No.59 Xueyuannanlu, Haidian District, Beijing 100081	cgfdc@agri.gov.cn
Direk Srisuchart, Mr	Thailand	Surinthip Rice Mill Co.ltd	34 Soi Yim-up-tham Suthisarnwinitchai Rd Dindaeng, Bangkok 10400	
Elizabeth Mondejar, Ms	Philippines	Alter trade Corporation	Blk 6-A Lily st., Bata subd, Acolod City	atcor@info.com
Emanuel De La Baune	France	Naturalia	12 Rue Franquet, 75015 Paris	info@naturalia.fr
Gerald A. Herrman	Germany	Organic Service, Consultancy	Kapuzineplatz 1 80337 Munich	g.herrmann@organic-services.com
Gunnar Rundgren	Sweden	IFOAM - President	Torfolk SE-68495 Hoje	info@grolink.se; gunnar@grolink.se
Heidi M. Lumpkin	Taiwan	AVRDC - the world vegetable center		thomas_lumpkin@yahoo.com

Henri de Pazzis, Mr	France	Pro Natura	754 Au Pierre Grand BP107 84300 Cavaillon	isabel@pronatura.com
Hicks Alastair	Thailand	RAPG/FAO Bangkok office	?	
Hiraoka Hiroshi	Thailand	RAPG/FAO Bangkok office	?	
Hui-Shang Chang, Dr (Ms)	Australia	University of New England	School of Economics University of New England Armidale, NSW 2351	hchang@pobox.une.edu.au
Nunung Nurnadiah, Ms	Indonesia	Ministry of Agriculture	3rd Floor, 21 Harcono Pm 43, Jakarta 12550	nunadiah@deptan.go.id
Jan Willem Ketelaar, Mr	Thailand/Thailand	FAO-Regional Thai Office		Johannes,Ketelaar@fao.org
Jesusa Kintana, Ms	Philippines	Department of Agriculture Agribusiness & Marketing Assistance Service	Elliptical Road, Bimman, QC,	da_aiis@hotmail.com
Jianhua Mu, Ms	China	China Green Food Development Center	No.59 Xueyuannanlu, Haidian District, Beijing 100081	cgfdc@agri.gov.cn
Jintana Kerdsongkran, Ms	Thailand	Sanco Foods (Thailand) Ltd.	94 Shinawatra Bldg 3rd Floor, Sukhumvit 23, Klongtoey Nuw, Wattana, Bangkok 10110	sancothai@hotmail.com
Jirana Osothsilp, Ms	Thailand	Bangkok Bank Public Company Ltd.		
Jutamanee Ongsakul, Ms	Thailand	Bangkok Private Co. Ltd	11/123-125 Moo 5 Lamlukka Kookot Lamlukka Pathumthanee 12130	
Kanit Suwanprasit, Ms	Thailand	APZ Corporation Limited	191 CTI Tower 10th Floor Ratchadapisek Rd., Khlong Toei Bangkok 10110	inmarco@loxinfo.co.th
Katsushige Murayama	Japan	IFOAM	509 Chinonomiya Makioka Yamanashi 404-0016	murayama@comlink.ne.jp
Kenji Matsumoto	Japan	Japan organic & Natural Foods Ass.	3-3-5-414, Takaido Nishi, Suginami-Ku, Tokyo, Takegashi Bldg 3rd Fl. 3-5-3, Kyobashi, Chuo-ku, Tokyo	matsumoto@jona-japan.org
Kormkric Phataranon-uthai,Mr	Thailand	Vicchi Group	Asia Agro Industry co.ltd, 1252 Thayan Building 15 Fl, Pattanakarn Rd, Suanluang Bangkok 10250	
Koyu Furusawa	Japan	Kokugakuin University	4-10-28, Higashi, Shibuya, Tokyo,	furusawa@kokugakuin.ac.jp
Krabuan Wattanaprechanon, Assist Prof (Mr)	Thailand	Chulalongkorn University		
Kulvadee Nimnual, Mr	Thailand	Choncharoen Farm Co., Ltd	102 Songsawad Road, Samphatawong, Bangkok 10100	

Kwang-Ha Lee, Mr	Korea	IFOAM guest/ National Agricultural Products Quality Management Service (NAQS)	433-2 Anyang 6 City, Kyeonggi-Do	kwangha@naqs.go.kr
La-or Chaowanamayt, Ms	Thailand	The Thai pineapple Public Company	212 Moo4, Phetkasem Rd., T.Aownoi, A.Muang Prachuapkirikham 77210	la-or@tipco.net
Lau Cheng Yuon, Mr	Malaysia	Agriculture Department, Sara wak	Agriculture Research Centre, Semongok, PO box 977, 93720 Kuching Sarawak	laucy@sarawaknet.gov.my
Lee Shen Cheah, Mr	Malaysia	Department of Agriculture	Jalan Sultan Salahuddin, 50632 Kuala Lumpur	cheahls@doa.moa.my
Liu Xin, Mr	China	Organic Tea Research and Development Center	Yuqi Road 1, Hangzhou 310008	prcliuxin@mail.hz.zj.cn
Masahiro Takeuchi, Mr	Japan	ISHII Food Co., Ltd	I.P Tsusho co.ltd 310-1 Shiratori, Ishii-cho, Myozai-gun Tokushima	
Mathew John	India	Keystone Foundation	GROVES HILL ROAD, KOTAGIRI 643 217, NILGIRIS, TAMIL NADU, INDIA	mathew@keystone-foundation.org
Michael Sligh	USA	RAFI	POB 4672, Chapel Hill, NC	msligh@rafiusa.org
Narin Ekwongviriya, Ms	Thailand	Green Spot (Thailand) Co., Ltd	244 Srinakarin Rd., Huamark Bangkapi Bangkok 10240	
Narongchai Yookittichai, Mr	Thailand	S.G.S. Agricultural Services		
Nart Fongsmut, Ms	Thailand	Thep Watana Chemical Co.Ltd.	293-293/1-2 Surawong Rd., BKK 10500	nart@thepwatana.com
Neil Sorensen		IFOAM		
Niino Yuji	Thailand	RAPG/FAO Bangkok office	?	
Nipat Keausakul, Mr	Thailand	Bank for agriculture and Agricultural Cooperatives		
Norma Mugar, Ms	Philippines	Alter trade Corporation	Blk 6-A Lily st., Bata subd, Acolod City	atcor@info.com
Numchai Uittayawongvanich, Mr	Thailand	Charoen Pok Pan Seed Co.ltd	36 Soi Yenchit Chand Rd, Thongwatdon Sathorn Bangkok 10120	
Nyoman Oka Triojaja, Dr	Indonesia	Ministry of Agriculture	3rd Floor, 21 Harcono Pm 43, Jakarta 12550	akbasaad@yahoo.com
Ong Kung Wai		IOAS		
Pailin Chiraphadhanakul, Mrs	Thailand	Lactasoy Co. Ltd		
Pascal Liu	Italy	FAO-Commodities and Trade Div.	Viale delle Terme di Caracalla 00100 Rome	Pascal.Liu@fao.org
Paul Pilkauskas	Italy	FAO-Commodities and Trade Div.	Viale delle Terme di Caracalla 00100 Rome	paul.pilkauskas@fao.org
Phitchaphiphat Sritrakulrak, Mr	Thailand	P.S.S. Organic (Thailand) Ltd	2013 New Petchaburi Rd., Bangkapi Huay Kwang 10320 BKK	

Pramote Luckkanapichonchat, Mr	Thailand	Vicchi Group	Asia Agro Industry co.ltd, 1252 Thayan Building 15 Fl, Pattanakarn Rd, Suanluang Bangkok 10250	
Punlert Sodsee, Ms	Thailand	Dole Thailand Ltd.	180 Moo 4 Hua-Hin Nongplub Rd., Nongplub, Hua-Hin, Prachuabkirikhan 77110	psodsee@doleasia.com
Quanhai Liu, Mr	China	China Green Food Development Center	No.59 Xueyuannanlu, Haidian District, Beijing 100081	cgfdc@agri.gov.cn
R K Pathak (Dr)	India	Central Institute for Subtropical horticulture	Rehmankhera, Lucknow -227 017 (U.P)	Director_cish@yahoo.co.in
Randall Arnst, Mr	Thailand/Laos	FAO-Lao	FAO Vegetable IPM Programme C/O FAO, PO box 1640, Vientiane, Lao, PDR	ipmrandy@laotel.com
Rudy Kortbech-Olesen	Switzerland		54, rue de Montbrillant CH-1202 Geneva	kortbech@intracen.org
Rutchanee Kunopakarn, Dr	Thailand	Rajabhat Institute Barsomdejchaopraya	1061 Itsaraparb 15 Thonburi Bangkok 10600	
Samnang Chea, Mr	Cambodia	Danida IPM Project	PO Box 2483 Phnom Penh 3	alida.danidaipm@online.com.kh
Sant Kumar, Mr	Fiji	Fiji Organic Association	PO box 9870, Nadi Airport	nwc@is.com.fj
Sarmun Boonyoi, Mr	Thailand	Sustainable Agriculture Policy	Surin Provincial Agriculture & Cooperatives Office 111 Moo 2 Tambon Noke Mueng Jompra Rd. Surin 32000 Thailand	
Sheldon Weinberg	USA		6426 Warren St Anacortes, WA 98221	shel@sheldonweinberg.com
Siridej Suwanmanon, Mr	Thailand	Nova Science Co., Ltd		
Somkiet Panjarapongchai, Mr	Thailand	Artemis & Angelio co.ltd	77/26 Sukhumwit 22 Rd, Klongtoey, Bangkok 10110	
Somkuan Payad	Thailand	Payad Kaset Chiwapap		
Su Hsin-Chang, Mr.	Taiwan	Kun Sun Machinery co.ltd	957/42 Sukhumvit 71 Klongton Bangkok	
Subhash Mehta	India		Brig Palace, 19 Palace rosad, Bangalore 560052	icap@vsnl.net
Sujin Charoonsak, Mr	Thailand	Royal Irrigation Department		
Supoj Pongwachararak	Thailand	Navarin Co.ltd	377 Prasank T.Thakree Nakhornsawan 60140	
Supoj Chaiwimol, Mr	Thailand	Agriculture Technology and Sustainable Agriculture Policy		
Tai-An Chen, Mr	Taiwan	Yuen Foong Yu Biotech Co., Ltd	No 100 Hai-An Rd, Chao-Yang country, Su-AoTown, I-Lan country, Taiwan RDC	tac@yfy.com

Thanakorn Jittangbunya, Mr	Thailand	Chia Meng Co., Ltd	119 Moo 4 T.Nong-ngu Luem, A. Chalermprakiat Nakhornratchasima	
Thitisak Termwaree, Mr	Thailand	APZ Corporation Limited	191 CTI Tower 10th Fl. Ratchadapisek Rd, Khlong Toei Bangkok 10110	inmarco@loxinfo.co.th
Ti, T.C.	Thailand	RAPE/FAO Bangkok office	?	
Tsrakassou Mawuena, Mr	Togo	C.G.P.A-KLOTO		
Uthai Cenpukdee, Dr (Mr)	Thailand	Agriculture Technology and Sustainable Agriculture Policy	National Bureau of Agricultural Commodity and Food Standards No. 3 Rajadamnern Nok Ave. Bangkok 10200	uthai@acfs.go.th
Vaheesan Saminathan	Sri lanka		Helvetas Sri Lanka No21, Raymond road, Nugegoda	hslvaheesan@eureka.lk
Vanida Kamnerdpetch, Dr	Thailand	Agriculture Technology and Sustainable Agriculture Policy	Agriculture Technology and Sustainable Agriculture Policy, Ministry of Agriculture	vanida@yahoo.com
Victoriano Tagupa, Mr	Philippines	Sustainable Agriculture Centre	Xavier University College of Agriculture Cagayan de Oro City, Philippines	vitagupa@xu.edu.ph
Vilai Atichartakarn, Ms	Thailand	Krisuda ltd part (Shine Forth Co. Ltd)	21/73 Royel City Aveneue, Soi Soonvijai Bangkapi Huayknang BKK 10110	
Vuthang Yim, Ms	Thailand/Cambodia	FAO - Cambodia	11B Str.101 Sangkat Bocung Trabek Khann Chamkamorn, Phnom Penh	vuthang.sk@online.com.kh
Wanida Chulapanichakam, Ms	Thailand	Bangkok Bank Public Company Ltd.		
Wen-Chi Chiu, Mr	Taiwan	Yuen Foong Yu Biotech Co., Ltd	No 100 Hai-An Rd, Chao-Yang country, Su-AoTown, I-Lan country, Taiwan RDC	tac@yfy.com
William Wrobel, Mr	USA	MGK	8810 Tenth Ave North, Minneapolis, MN 55427	bill.wrobel@mgk.com
Wirawat Buranakunaporn, Mr	Thailand	Export - Import Bank of Thailand		
Yan Su, Ms	Thailand/China	FAO-China		yan-su@agri.gov.cn
Yech Polo, Mr	Thailand/Cambodia	FAO-Cambodia	Srer-kmer	
Yi-Min Chen, Dr	Hong Kong	Agriculture Fisheries and Conservation Department	501…?….. Lui Tong Mei, Fan Kam Road Sheung Shui, New Territories,	ym_chen@afcd.gob.hk
Ypma Pieter	Thailand	RAPG/FAO Bangkok office	?	
Ze-jiang Zhou	China	OFDC	8 Jiang-Wang-Miao Street, Nanjing, 210042,	zejzhou@public1.ptt.js.cn
Zhen Hui Lu, Prof (Mr)	China	Hangzhou wit Assessment Co.ltd.	9th Fl Build A/8th Fl Build B, Dragon Century Plaza, No 18 Hangda Road, Hangzhou, Zhejiang, 310007	zxl@wit-int.com; hanliu314@163.net
L. Ranjith S. De Silva, Mr	Sri lanka	The Gami Seva Sevana ltd.	Office Junction, Galaha	Irsdes@eureka.lk

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