

जैविक खेती सूचना पत्र

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जैविक खेती सूचना पत्र, राष्ट्रीय जैविक खेती परियोजना के अन्तर्गत जारी एक बहुभाषीय तिमाही प्रकाशन है। जैविक खेती के उत्थान, प्रचार प्रसार व इसके नियामक तंत्र से जुड़े लेख, नयी सूचनाएं, नये उत्पाद, विशेषज्ञों के विचार, सफल प्रयास, नयी विकसित प्रक्रियाएँ, सेमिनार-कॉन्फ्रेंस इत्यादि की सूचना तथा राष्ट्रीय व अन्तरराष्ट्रीय समाचार विशेष रूप से आमंत्रित हैं। सूचना पत्र में प्रकाशित विचार व अनुभव लेखकों के अपने हैं जिसके लिए प्रकाशक उत्तरदायी नहीं है।

Organic Farming Newsletter (OFNL) is a multilingual quarterly publication under National Project of Organic Farming. Articles having direct relevance to organic farming technology and its regulatory mechanism, development of package of practices, success stories, news related to conferences, seminars etc, and national and international events are especially welcome. Opinions expressed in articles published in OFNL are those of the author(s) and should not be attributed to the publisher.

संपादकीय

प्रिय पाठको

पिछले अनेक वर्षों से जैविक खेती विषय उत्तरोत्तर विकसित हो रहा है और सभी चाहे वे योजनाकार हों, वैज्ञानिक हो, विस्तार कार्यकर्ता हों या सामाजिक संस्थायें हों को आकर्षित कर रहा है। वैज्ञानिकों में भी इस विधा को विकसित करने की दिशा में रुझान बढ़ा है। अनेक सामाजिक संस्थान राज्य सरकारों के साथ मिलकर जैविक खेती के विभिन्न स्वरूपों को किसानों तक पहुँचाने का कार्य कर रही हैं। इस अंक में नवीन वैज्ञानिक प्रयासों पर २ लेख तथा सामाजिक संस्था - राज्य सरकार सहयोग की सफल गाथा प्रस्तुत है। अंतर्राष्ट्रीय जैविक वस्त्र मानक संस्था ने हाल ही में जैविक वस्त्र मानकों में बदलाव किये हैं। एक लेख द्वारा जैविक वस्त्र मानकीकरण प्रक्रिया का प्रारूप भी इस अंक की विशेषता है। अन्य स्थायी स्तंभों में, वर्ष २०११ में जारी विश्व जैविक खेती सांख्यिकी तथा विश्व जैविक खाद्य बाजार का झरोखा प्रमुख आकर्षण है। बायोफाच जर्मनी २०११ जो कि विश्व की प्रमुख जैविक विपणन प्रदर्शनी है पर भी एक रिपोर्ट प्रस्तुत है। इनके अलावा सभी राष्ट्रीय व अंतर्राष्ट्रीय, समाचार, अनुसंधान रिपोर्ट विभिन्न गोष्ठियों व कार्यक्रमों का विवरण तथा वर्ष २०१० में प्रकाशित पुस्तकों का सारांश भी दिया गया है। ये सभी जानकारियों अपने अलग-अलग स्वरूपों में जैविक खेती की प्रगति को दर्शाती हैं।

ए.के. यादव

संपादक

Dear Readers,

Organic farming over the years has earned a place in all the spheres of policy planning in agriculture and is attracting scientist, extension workers and civil society organizations. Growing interest of scientists in exploring the secrets of organic management is reflecting in upcoming discoveries and inclination of fraternity to validate and refine traditional practices. Civil society organizations are also joining hands with Government Departments to promote various models of organic farming. The current issue deals with both the faces. Two articles from Research Institutions on establishing the usefulness of some on-farm inputs and one success story of NGO-Government Department efforts are the main attraction of this issue. Details on recently revised Global Organic Textile Standards (GOTS) have also been provided for the benefit of readers. Other standard columns of Global and India Organic News enlist latest developments, current status of organic farming in the world and global organic food market size. A glimpse of ever growing BioFach Germany 2011, an international organic food products trade fair along with the up-to-date information on other national and international events with details on books released during the year 2010 are other added features of this issue. I hope the diversified mix of all important developments, events and happenings will give proper insight on the continuing growth of organic sector.

A.K. Yadav

Editor

Impact of bacteria isolated from organic liquid manures on seed germination and seedling vigour index of wheat and soybean

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Introduction

Now-a-days farmers are well aware about the use of organic liquid manures such as Panchagavya, Beejamrutha, Jeevamrutha and Biodigester in organic farming. Organic farming practices are gaining importance as farmers have realized the benefits of organic farming in terms of soil fertility, soil health and sustainable productivity. Panchagavya and beejamrutha are two such organic products which have received wide spread attention and acceptability among organic farming practitioners since age old days and they proved to be efficient plant growth stimulants that enhances the biological efficiency of crops and the nutritional quality of the fruits and vegetables.

Swaminathan (2007) reported the presence of naturally occurring beneficial microorganisms predominantly lactic acid bacteria, yeast, actinomycetes, photosynthetic bacteria and certain fungi in panchagavya. Its role as plant growth promoter has already been reported by Subhashini *et al* (2001) and Sreenivasa *et al* (2009). An attempt was made at the Institute of Organic Farming, University of Agricultural Sciences, Dharwad, to understand the effect of bacteria isolated from organic liquid manures such as panchagavya and beejamrutha on seed

germination in wheat and soybean respectively.

Materials and methods

Panchagavya was prepared using the ingredients viz., cowdung (5kg), cow urine (3l), cow milk (2l), curd made from cow milk (2l), ghee made from cow milk (1l), sugarcane juice (3l), tender coconut water (3l) and ripened banana (12 Nos). All the above substrates were added to a wide mouthed mud pot and kept open under shade. The contents were stirred twice a day for about 20 minutes both in the morning and evening to facilitate aerobic microbial activity. After fifteen days of incubation, the fermented product "Panchagavya" was used as a source for isolation of bacteria.

Beejamrutha was prepared using the ingredients viz cow dung, cow urine, water and lime. Cowdung (5kg) tied in a cloth was dipped in a bucket containing 50 liters of water overnight. Next day morning, the tied dung was squeezed and dipped in the water. Five litres of cow urine, a handful of soil and 50g of lime was added to this extract.

The serial dilution and standard plate count method was used for isolation of bacteria from panchagavya and beejamrutha. The plates were incubated at

28±2°C for one week and the colony counts were recorded. The predominant bacterial colonies (fifteen from panchagavya and seven from beejamrutha) grown on nutrient agar plates were subcultured on nutrient agar slants for further use.

For germination test, wheat and soybean seeds were dipped in broth of bacterial isolates from panchagavya and beejamrutha respectively for ten minutes and kept on germination paper. On 8th day, the germinated seeds were counted and the per cent germination was computed by using the formula

$$\text{Germination percentage} = \frac{\text{No of seeds germinated} \times 100}{\text{No of seeds sown}}$$

Seedling length (cm) - On eighth day of germination, ten normal seedlings were taken out carefully at random from each treatment and measured from the tip of primary root to the tip of apical shoot. The average length of ten seedlings was calculated and expressed as mean seedling length in centimeters.

Seedling vigour index - The seedling vigour index was calculated by adopting the method suggested by Abdul-Baki and Anderson (1973) and expressed in whole number treatment wise.

$$\text{Vigour index} = \text{Germination percentage} \times \text{Seedling length}$$

Results

The data obtained on seed germination percentage, seedling length and seedling vigour index in different treatments of wheat and soybean are given in Table 1 and 2 respectively. In case of wheat on 8th day after sowing, significantly higher percentage germination (99%) was noticed in the seeds treated with bacterial culture PB₉ and PB₁₅ while significantly low

germination was recorded in uninoculated seeds of wheat. Significant variation in seedling length of wheat was observed due to inoculation of different isolates. The seeds inoculated with PB₉ registered significantly higher seedling length and seedling vigour index while the seedling length and seedling vigour index was markedly lower in control T₁₆.

In case of soybean also there was significant variation between treatments with respect to percentage seed germination. On 8th day after sowing, significantly higher germination (99%) was noticed in the seeds treated with bacterial isolate BJ5 followed by BJ7 while significantly low germination was recorded in uninoculated seeds of soybean.

Significant variation in seedling length of soybean was observed due to various inoculations. Among the treatments, seeds inoculated with BJ5 registered significantly higher seedling length and seedling vigour index while the seedling length and seedling vigour index was markedly lower in control. The findings of present study support this fact and are in conformity with the study of Ramesh and Thirumurugan (2001) who revealed the effect of seed pelleting and foliar nutrition on better growth of soybean.

This study clearly indicate that organic liquid manures such as panchgavya and beejamrutha contains beneficial bacteria. Presence of such beneficial microbial biomass might have resulted in improved seed germination, seedling length and seed vigour in wheat and soybean indicating organic liquid manures as an efficient plant growth stimulants.

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Table 1 : Effect of inoculation of bacterial cultures isolated from panchagavya on seed germination, seedling length and vigour index in wheat.

Treatments	Germination percentage	Seedling length (cm)	Seedling vigour index
T1- inoculated with PB1	92	22.24	2046
T2- inoculated with PB2	88	20.6	1814
T3- inoculated with PB3	91	20.48	1864
T4- inoculated with PB4	91	24.4	2221
T5- inoculated with PB5	88	19.44	1711
T6- inoculated with PB6	87	24.29	2113
T7- inoculated with PB7	92	20.29	1867
T8- inoculated with PB8	95	26.5	2517
T9- inoculated with PB9	99	28.5	2822
T10- inoculated with PB10	95	23.64	2251
T11- inoculated with PB11	91	26.81	2440
T12- inoculated with PB12	92	27.48	2528
T13- inoculated with PB13	98	18.19	1783
T14- inoculated with PB14	90	23.65	2129
T15- inoculated with PB15	99	25.02	2477
T16- uninoculated control	85	16.5	1403
SEm ±	0.55	0.34	36.79
CD at 1%	1.61	1.00	106.27

Table 2 : Effect of inoculation of bacterial cultures isolated from beejamrutha on seed germination, seedling length and vigour index in soybean

Treatments	Germination %	seedling length (cm)	Seedling Vigour index
T ₁ - Inoculated with BJ1	95	14.68	2647
T ₂ - Inoculated with BJ2	93	14.9	2560
T ₃ - Inoculated with BJ3	90	14.62	2484
T ₄ - Inoculated with BJ4	90	15.96	2746
T ₅ - Inoculated with BJ5	99	17.11	3276
T ₆ - Inoculated with BJ6	95	14.81	2669
T ₇ - Inoculated with BJ7	98	17.05	3181
T ₈ - Uninoculated control	88	10.55	1864
S E m ±	0.579	0.116	25.96
CD at 1%	1.756	0.352	78.75

In-vitro inhibitive activity of cow urine against the plant pathogen

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Introduction

In India because of the low per-capita availability of land, and also because of the skewed distribution of the available land resources, the crop based rural economy needs to be diversified or converted into a livestock oriented mixed farming system for rapid economic development, income generation, poverty alleviation and providing employment to the rural masses. It is a known fact that the agriculture, the rural economy and land management are intricately built around livestock and livestock are important source of livelihood for small and marginal farmers with insignificant land holding. Livestock based organic farming developed in recent years can help in improvement of crop quality and reduce environmental pollution.

Cow is playing a vital role in Indian agriculture for centuries. Almost all basic needs of life were met by the cow, with contributions including farming and manure, food and nourishment, transport and medicinal uses of cow dung and urine (Swaminathan, 2007). Cow urine has immense medicinal value. The research on cow urine and its uses are gaining immense significance in cure of some diseases like cancer, renal failure and so on. Cow urine is also a powerful natural pesticide and, if used properly can save human beings from the harmful effects of pesticide residues in everything he eats and drinks. Cow urine contains uric acid

and hippuric acid in large quantities along with minerals like sodium, chloride, sulphates of calcium and magnesium, potassium hippurate etc., (Singh, 1996). Cow's urine is used to treat seeds of forage grasses to ensure better germination (Swaminathan and Sujatha, 2001). Ramachandra Reddy and Bhaskara (1995) revealed that cow's urine is a rich source of urea and acts as a nutrient as well as a hormone and cow urine contains N, K and S. The loss of N takes place from urine as ammonia. Basak et.al. (2002) reported that application of cow urine is effective in controlling Sclerotinia rot caused by *Sclerotinia sclerotiorum* of cucumber.

By considering above beneficial effects, cow urine was tested to study its deterrent activity against the pathogen *Fusarium in-vitro* at Institute of Organic Farming, University of Agricultural Sciences, Dharwad.

Materials and methods

The cow urine was collected in an aseptic container from Biofarm unit, 'C' block, Institute of Organic Farming, University of Agricultural Sciences, Dharwad and was added at different concentrations (0, 5, 10, 15 and 20%) to potato dextrose agar and the media was sterilized. In another set, the same concentration of cow urine was added after sterilization of media while pouring into Petri plates. Later the media

was poured to sterilized Petri plates and allowed to solidify. The *Fusarium* culture was collected from the Department of Plant Pathology, University of Agricultural Sciences, Dharwad and grown on PDA. The *Fusarium* culture was inoculated at the centre part of these plates using sterilized cork borer. Altogether 3 replications were maintained in each treatment. The growth of the *Fusarium*

(diameter of colony) was recorded after one week of incubation and per cent inhibition was calculated. The results indicated that growth of *Fusarium* was significantly suppressed in the plates containing 10, 15 and 20 per cent of cow urine in both sterilized and un-sterilized sets (Table 1) as compared to control in which luxurious growth of *Fusarium* was noticed.

Table 1: Growth of *Fusarium* in diameters (cm) and per cent inhibition in PDA media supplied with different concentrations of cow urine.

Cow urine concentration	Growth in diameter (cm)	Percent Inhibition
0 %	7.67	Nil
5%	7.17	6.51
10%	5.00	34.81
15%	3.27	57.36
20%	0.60	92.17

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NCOF Launches PGS-India

After thorough consultation, DAC has approved the launching of much awaited "Participatory Organic Guarantee System for India" known as PGS-India with its two separate logos, PGS-India Organic for full certified organic products and PGS-India Green for organic in-conversion products. Operational Guidelines are available from NCOF through email nbdc@nic.in and akyadav52@yahoo.com. NCOF Ghaziabad shall be the secretariat of the programme with Director NCOF as Executive authority. All Regional Centres of Organic Farming have been declared as Ad-hoc Zonal Councils. Applications are being invited from eligible agencies for authorization as Regional Councils. For details and application format please write to NCOF or any of the Regional Centre.

Success Story

Biodynamic Agriculture Movement in Village “Gordha” Dist.-Akola (M.S.)

Sanjay Roman and Rajesh Tiwari

SARG Vikas Samiti, 75 Jai Hind Colony Deopur
Dhule, Maharashtra

Background

“Village Gordha” in Taluka Telhara of Dist: Akola, Maharashtra is situated at North – West of District and near foot hills of Satpura Mountain ranges. Main business of the village is Agriculture. There are 138 families having population of 748 members. Crops grown are Cotton, Soybean, Sorghum, Pigeon pea, Green gram, Black gram and second crop as Wheat, Gram, and Sunflower etc. Some vegetables and horticulture crops are also grown such as Onion, Brinjal, Chilly and Lime.

Prior to conversion to organic, all the farmers in the village were using chemical fertilizers and pesticides in huge quantities till 2005. Under organic farming promotion programme of Department of Agriculture, a Farmer Field School (FFS) was organized for women farmers in the village, especially on Cotton crop where most of chemicals were used. Male farmers initially did not believe in organic methods however female group was convinced of outcome. Almost everybody expressed that the traditional method of composting was time taking i.e. almost one year, and laborious too. The Biodynamic composting was explained and demonstrated by SARG (a civil society organization sponsored by the Department of Agriculture). After proper training, farmers started conversion of waste farm biomass in to quality Biodynamic compost within a period of

about 70 days. The movement started with few women farmers became part of regular farm activity.

When the programme started, village was not having adequate sanitation and waste disposal facilities. Village biomass which was usually dumped along the village roads was also resulting in to unhygienic conditions and inviting many health problems. To overcome the problem all the dung heaps were arranged in the shape of 15'x 5'x 4' heaps and Biodynamic CPP inoculum at the rate of 1 kg per heap was put in the heaps by making small holes at near distances and then smeared with dung and clay slurry. Such heaps usually called as “Ukirda” were yielding good quality Biodynamic compost within a period of 70 days. The cost of locally prepared CPP was just Rs.8/- per kg and with help of 1 kg CPP one can get one ton of ready Biodynamic compost. Initially women groups were trained for making and using Jivamrut for nutrition supplement and “Top ten” herbal extract for plant protection separately. Later use of Biodynamic Liquid manure having characteristics of both Jivamrut and Top ten with addition of CPP and BD Urja (Nettle grass powder) was demonstrated. Now villagers are also using Biodynamic Liquid manure and getting good results. Use of both Composting and Liquid manure helped farmers to get rid of chemicals with at par or better productivity.

Highlights:

There are 7 self help women groups registered and functioning. They are involved in total Biodynamic Organic agriculture system. Every farmer family is making CPP, Biodynamic compost and Biodynamic Liquid manure. Farmers are also trained for making Biodynamic preparations 500 & 501. Concept of Biodynamic Planting Calendar was also taught to them and farmers are experiencing good results by following dates of sowing, harvesting and other farm activities.

The farms are under organic certification process for 2nd year. Area under full farm conversion is 48 ha and under conversion is 170 ha. Certification is being done by ECOCERT and the ICS is being done by Samruddhi Farming, a local NGO.

SARG Vikas Samiti a national level NGO started the Biodynamic activity also linked the farmers with marketing through Samruddhi farming. The cotton growers were given 10% premium on prevailing market price.

The use of organic and biodynamic practice brought down the number of irrigation from 7 to 4 in Onion and 8 to 6 in Wheat without reduction in yield.

Farmers harvesting good yields

Sri Vivek Deshmukh and Smt. Savita Deshmukh harvested 17 quintals of Wheat per acre, Gram 9 qt. per acre and Sunflower 8 qt. per acre. Smt. Jyoti Pagdhune and Megha Deshmukh harvested Cotton @ 4 qt. per acre even under non irrigated conditions. Smt. Aamle harvested Black gram 3.5 qt. per acre.

Harmony and peace organic farming way

The growth of Organic agriculture also strengthened the internal relationship of the village. Communal harmony is peculiarity of the village. There is one "Hazrat Shahdawal Shrine" worshiped by all castes and communities. There is one Ganesh Pooja and one Durga Pooja is celebrated in the village with no clashes among groups. There are no registered offences from this village, which earned them the honor of "*Tamta Mukta Gaon*" (*Peaceful village*).

Efforts brought laurels

The village has been awarded Divisional First Prize for Rs. Five Lac by Honorable President of India under "Gram Swacchata Abhiyan" in 2006 – 07. There is "**No Farmer Suicides**" in the village.

Every farmer is having Cows and farm labors having Goats. The village has been developed as Biodynamic Organic Village where farmers from other states like M.P./ other district of the state like Dhule, Yeotmal, Wshim, Amravati, Buldhana and Pune are visiting and studying the Organic practices of crop cultivation.

Dr. S.K.Goel the then Divisional Commissioner, District Collector Dr. Shrikar Pardeshi, Ex Collector Shri Eknathji Dawle, Honorable Sanjay Dhotre, Member of Parliament, Mr. Peter Proctor, and Mr. David Hogg, known biodynamic authorities visited, guided and encouraged the Biodynamic Organic Movement in the village. A team from Pune District and Divisional Commissioner Nagpur also visited and appreciated the Organic movement and dedicated efforts of the farmers in general and women farmers in particular.

Case Study of Biodynamic Farming: Medium Soil

Mrs. Savita Vivek Deshmukh

Village :Gordha, Tal: Telhara, Distt: Akola

Total Area: 1 acre

Crop & Variety: Cotton, Ajinkya (Mahabeej), Sorghum JK 936

Particulars	2005	2006	2007
Name of Crop	Cotton + Toor	Sorgham + Black gram	Cotton + Green gram
Use of Fertilisers	NPK Mix Fert. 18:18:10 – 2 bags + Urea 1 bag	Not applied	Not applied
Use of FYM/compost	0.5 mt. FYM	B D Compost 2 mt.	B D Compost 4 mt.
Use of Pesticides manure	Purchased from Market Endosulphan, Monocrotophos	Own Biodynamic Liquid manure	Own Biodynamic Liquid manure
Use of Soil conditioner and Growth regulator	Enzymes, Micronutrients	BD 500 & 501	BD 500 & 501
Use of BD Planting Calendar	General practice With poor plant population	Sowing as per calendar 95% germination Inter culturing & Harvesting by Calendar	Sowing as per calendar 95% germination Inter culturing & Harvesting by Calendar
Yeild	Cotton - 4qt. Toor – 1 qt.	Sorghum - 15qt. Black gram – 2.5 qt.	Cotton -5.5 qt. Green gram – 1.5 qt.
Income	Rs.10000/-	Rs.14000/-	Rs.18000/-
Expenses on inputs	Rs.2000/-	Rs.720/-	Rs.590/-
Exp. on seed & other farm activities	Rs. 4000/-	Rs.3000/-	Rs.4000/-
Net Income per acre	Rs. 4000/-	Rs.10280/-	Rs.13410/-
Rise in income	-	2.5 times	3.35 times
Family income per day per Acre	Rs.11/- per day	Rs. 28/- per day	Rs.37/-per day

Salient features of change

1. Reduction in cost of inputs.
2. Better price of produce due to Organic Certification and market linkage.
3. Preparation of BD inputs on farm.
4. Improvement in soil health and

Case Study of Biodynamic Farming: Saline Soil

Mr. Haridas Bhikaji Waghode

Village: Deori, Tal: Akot, Distt: Akola

Total Area: 3 acre (Details given per acre)

Crop & Variety: Cotton, Ajinkya (Mahabeej)

Particulars	2005	2006	2007
Name of Crop	Cotton + Green gram	Sorghum + Toor	Cotton + Black gram
Use of Fertilisers	SSP- 2 bags + Urea -1 bag	Not applied	Not applied
Use of FYM/compost	0.5 mt. FYM	Vermi and B D Compost 2 mt.	B D compost 4 mt.
Seed Treatment	Not done	By Bijamrut	By CPP
Use of Pesticides manure	Purchased from Market Monocrotophos , Acephate, Di methoate	Top Ten herbal extract and BD Liquid manure	Own Biodynamic Liquid manure + Verticillium
Use of Soil conditioner and Growth regulator	Enzymes, Micronutrients	Jivamrut	BD 500 & 501
Use of BD Planting Calendar	General practice reduction in to low germination and poor plant population	General practice reduction in to low germination and poor plant population	Sowing as per calendar 95% germination Inter culturing & Harvesting by Calendar
Yeild	Cotton – 3.5qt. Green gram – 2.5 qt.	Sorghum - 16qt. Toor – 1.2 qt.	Cotton -3.52 qt. Black gram – 3.6 qt.
Income	Rs.10000/-	Rs.11600/-	Rs.16250/-
Expenses on inputs	Rs.1900/-	Rs.600/-	Rs.720/-
Exp. on seed & other farm activities	Rs. 4000/-	Rs.3000/-	Rs.4000/-
Net Income per acre	Rs. 4100/-	Rs.8000/-	Rs.11530/-
Rise in income	-	1.95 times	2.8 times
Family income per day per Acre	Rs.11/- per day	Rs. 22/- per day	Rs.31/-per day

Salient Features

1. Reduction in cost of inputs.
2. Better price of produce due to Organic Certification and market linkage.
3. Preparation of BD inputs on farm.
4. Improvement in soil health.

The Global Organic Textile Standard (GOTS)

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Preamble

The Global Organic Textile Standard (GOTS) is the worldwide leading textile processing standard for organic fibres, including ecological and social criteria, backed up by independent certification of the entire textile supply chain. Recently a revised version of GOTS was released. Revisions include a prohibition on garment finishing methods considered harmful to workers (such as denim sand blasting), a requirement that any polyester in GOTS-certified products be made of post-consumer recycled material by 2014, permission for polypropylene to be used as an 'additional fiber material,' and more material options for accessories. In addition, the previous total ban on all chemical fabric finishes has been lifted; thus, most fabric finishes are now permitted but only if they meet the stringent general GOTS toxicity criteria. Version 3.0 also requires that water and energy use reduction goals are developed and monitored and that social compliance management plans be put into place which will ensure that minimum social criteria are met. All companies wishing to be GOTS-certified must fully comply with GOTS Version 3.0 by March 1, 2012.

Revision Process

The member organisations of the International Working Group backed by stakeholder based decision bodies / technical committees has ensured that

when integrating their respective existing organic textile standards into the GOTS, views of relevant stakeholders were considered from the beginning. The GOTS approved certification bodies were also actively involved in the GOTS revision process through the 'Certifiers Council'. In order to further broaden the basis of the GOTS, the International Working Group solicited participation by international stakeholder organizations in the ongoing process of review and revision of the GOTS. For this purpose, starting with the revision to develop standard version 3.0 in 2010 a formal stakeholder input process was established. While the review process is a continuous one, standard revisions are anticipated every two to three years. Details of the latest revision process (www.globalstandard.com) are as follows:

GOTS Version 3.0

General

GOTS latest Version 3.0 has recently been published on 1st of March 2011, 6 years after the introduction of the 1st Version. The high ecological and social requirements as well as world-wide practicability and verifiability were considered in the revision work, in order to achieve a reliable and transparent set of criteria. The information in this section provides an overview of the content and basic requirements of the standard. It does

not reflect all criteria of the standard and can therefore not be used for any official purpose.

Aim

The aim of the standard is to define world-wide recognized requirements that ensure organic status of textiles, from harvesting of the raw materials, through environmentally and socially responsible manufacturing up to labeling in order to provide a credible assurance to the end consumer. Textile processors and manufacturers are enabled to export their organic fabrics and garments with one certification accepted in all major markets.

Criteria

The consensus of the International Working Group was that a clear and unambiguous understanding of the content required that the Global Standard itself focuses on compulsory criteria only. The standard covers the processing, manufacturing, packaging, labeling, trading and distribution of all textiles made from at least 70% certified organic natural fibres. The final products may include, but are not limited to fibre products, yarns, fabrics, clothes and home textiles. The standard does not set criteria for leather products.

The key criteria for fibre production can be identified as:

- Organic certification of fibres on basis of recognized international or national standards (e.g. EEC 834/2007, USDA NOP)
- Certification of fibres from conversion period is possible if the applicable farming standard permits such certification
- A textile product carrying the GOTS label grade 'organic' must contain a minimum of 95% certified organic fibres whereas a product with the label grade 'made with organic' must contain a minimum of 70% certified organic fibres

Processing

Key criteria for processing and manufacturing include:

- At all stages through the processing organic fibre products must be separated from conventional fibre products and are to be clearly identified
- All chemical inputs (e.g. dyes, auxiliaries and process chemicals) must be evaluated and meeting basic requirements on toxicity and biodegradability/ eliminability
- Prohibition of critical inputs such as toxic heavy metals, formaldehyde, aromatic solvents, functional nano particles, genetically modified organisms (GMO) and their enzymes
- The use of synthetic sizing agents is restricted; knitting and weaving oils must not contain heavy metals
- Bleaches must be based on oxygen (no chlorine bleaching)
- Azo dyes that release carcinogenic amine compounds are prohibited
- Discharge printing methods using aromatic solvents and plastisol printing methods using phthalates and PVC are prohibited
- Restrictions for accessories (e.g. no PVC, nickel or chrome permitted, any polyester must be post-consumer recycled from 2014 onwards)
- All operators must have an environmental policy including target goals and procedures to minimise waste and discharges
- Wet processing units must keep full records of the use of chemicals, energy, water consumption and waste water treatment, including the disposal of sludge. The waste water from all wet processing units must be treated in a functional waste water treatment plant.
- Packaging material must not contain PVC. From 1st January 2014 onwards any paper or cardboard used in packaging material, hang tags, swing tags etc. must be post-consumer

recycled or certified according to FSC or PEFC

- Technical quality parameters must be met (s.a. rubbing, perspiration, light and washing fastness and shrinkage values)
- Raw materials, intermediates, final textile products as well as accessories must meet stringent limits regarding unwanted residues
- Minimum social criteria based on the key norms of the International Labour Organization (ILO) must be met by all processors

Quality assurance system

Generally a company participating in the GOTS certification scheme must work in compliance with all criteria of the standard. GOTS relies on a dual system to check compliance with the relevant criteria consisting of on-site auditing and residue testing.

Certification of the entire textile supply chain

- Fibre producers (farmers) must be certified according to a recognised international or national organic farming standard that is accepted in the country where the final product will be sold
- Certifiers of fibre producers must be internationally recognised according to ISO 65 and/or IFOAM accreditation. They also must be accredited to certify according to the applicable fibre standard
- Operators from post-harvest handling up to garment making and traders have to undergo an onsite annual inspection cycle and must hold a valid GOTS operational certificate applicable for the production / trade of the textiles to be certified
- Certifiers of processors, manufacturers and traders must be internationally accredited according to ISO 65 and must hold a 'GOTS accreditation' in

accordance with the rules as defined in the 'Approval Procedure and Requirements for Certification Bodies'

Residue Testing

- Stringent orientation values for unwanted residues are defined in the standard
- Licensed operators must undergo residue testing according to a risk assessment of contamination
- Additional samples may be taken by auditors and sent for analysis to ISO 17025 accredited labs

Label Grades

Only textiles produced and certified according to the provisions of the standard can carry the GOTS label.

The standard provides for a subdivision into two label-grades:

Label-grade 1 - organic - 95% certified organic fibres, 5 % non-organic natural or synthetic fibres

Label-grade 2: ,made with X% organic - 70% certified organic fibres, 30 % non organic fibres, but a maximum of 10% synthetic fibres (up to 25% for socks, leggings and sportswear)

The only differentiation for subdivision is the minimum percentage of 'organic' material in the final product. This is analogous to leading organic regulations in the food market, such as USDA/NOP. The remaining balance (up to 5% or 30% respectively) may be composed of non-organic fibres, including defined regenerated and synthetic fibres (25% at most for socks, leggings and sportswear and 10% for all other textile products). Blending conventional and organic fibres of the same type in the same product is not permitted.

If raw fibres with the certified status 'organic - in conversion' are used instead of certified 'organic' fibres, the corresponding label grades are named 'organic - in conversion' respective 'made with x% organic - in conversion materials'.

Certification Obligation for Trade operators

All traders with more than 5000 Euro annual Turnover with GOTS goods must participate. Traders with less than 5000 Euro annual turnover need to register with an Approved certifier.

Industries covered by GOTS Certification

- Ginning Industries
- Spinning Mills
- Silk reeling units
- Sizing, Weaving & Knitting Units
- Carpet Manufacturing Industries
- Dyeing and Printing Units
- Garment and made- ups Units
- Traders and Exporters
- Approval of Dyes and processing aids By GOTS.

For more information please check the website www.global-standard.org.

Mycorrhiza Biofertilizer and De-oiled Castor meal manure included under Fertilizer Control Order (1985)

With the growing commercialization of organic and biological inputs, it was being felt since long to enforce some quality control mechanism for various organic and biological inputs being sold in the market. 4 biofertilizers namely Rhizobium, Azotobacter, Azospirillum and PSB and two organic fertilizers viz: City waste compost and vermicompost were brought under the ambit of Fertilizer Control Order 1985 since 2006. Recently Govt of India vide Gazette Notification in November and December 2010 also notified the inclusion of Mycorrhizal biofertilizer and De-oiled castor meal cake fertilizer in FCO 1985. As per the notification the specification of these two inputs are as follows:

Mycorrhizal biofertilizer

(a) Form/ base - Fine Powder/ tablets/ granules/ root biomass mixed with growing substrate, (b) Particle size - 90% should pass through 250 micron IS sieve, (c) Moisture content – 8-12% maximum, (d) pH – 6.0 – 7.5, (e) Total viable propagules/ gm of product, minimum - 100 /gm of finished product and (f) Infectivity potential - 80 infection points in test roots/gm of mycorrhizal inoculum used.

De-oiled Cake meal fertilizer

(a) moisture % by weight maximum – 12, (b) colour – Brown to black, (c) Odour - Typical oily odour specific to the oil of that seed and no foul odour (d) Total ash content % maximum 15, (e) Total organic carbon % by weight minimum – 25, (e) Total NPK in % minimum – 4.5, 1.0 and 1.0 respectively.

India Organic News

Budget 2011: Finally, some money for soil health – It is after long time that a finance minister has presented a budget which provides a new direction to agriculture. Pranab Mukherjee has refrained from claiming that his budget will change the face of agriculture, but has surely made provisions that can infuse economic viability and restore sustainability. This is the first time in recent years that investment coming in areas which had all these years remained neglected like fodder development, soil health and organic agriculture, and encourage cultivation of nutri-cereals that are nutritionally rich but cultivated in harsh dry land regions. While the allocations for these new programmes is relatively small - not exceeding 1,500 crore for five schemes — it surely indicates that there is a rethinking on the destruction of the natural resource base that has acerbated over the years because of intensive farming practices. On the other side, the Government has allocated another Rs 400 crore for the second phase of Green Revolution in Assam, Bihar, Orissa, Jharkhand and eastern UP. I only hope the Agriculture Ministry is able to utilise the resources for bringing in sustainable farming system that do not poison the soils, lead to aquifers going dry, and contaminate the food chain with chemical pesticides. By reducing the interest for short-term loans to 4%, a recommendation made by the National Farmers Commission some four years back, the finance minister ensured cheaper farm credit available to farmers. He has also raised the total limit of agricultural credit by Rs1 lakh crore, from Rs3.75 lakh crore last year to Rs 4.75 lakh crore in 2011-12. At the same time, he has provided incentives to the Reserve Bank of India to extend the reach of banking to the rural areas. Although there was a lot of expectation

that Mukherjee might allow the entry of FDI in multi-brand retail, he has to be commended for not making a mention of this investment. Allowing big retail companies to enter India would have led to social and political crisis. Nowhere in the world has big retail helped farmers, and in reality has only been responsible for pushing farmers out of agriculture. In addition to agriculture, Mukherjee's decision to provide Rs 3,000 to NABARD for supporting the handloom societies and the decision to raise the wages of Anganwadi workers is certainly a step in the right direction. Let us hope that UPA-II takes bold steps by bringing in Prevention of Black marketing Act and the Essential Commodity Act into operation. (Source: Devinder Sharma, food policy expert, DNA, 01 March, 2011)

Deliciousnow.com, India's first online Gourmet food store launched (Organic Foods also Available) - India's first online gourmet store - Deliciousnow.com was launched at 'Aahar: The international food and hospitality fair' in Pragati Maidan. By bringing more than 15 leading international brands a-click-away from the consumer, Deliciousnow.com is addressing an existing demand. The launch also established many other firsts including daily delivery of Fresh breads, more than 50 varieties of cheese including AOC certified French cheese and signals the entry of some of the World's specialty brands like Maxim's de Paris (Chocolates) and Maille (French Mustard) in India. Deliciousnow.com was started with the objective of providing the very best on gourmet products to discerning consumers at their doorstep. "Through the online portal, consumers can choose a product of their liking and also view recipes and complementing items that suit their need. With over 15 international brands

deliciousnow.com will feature products under categories like Dairy, **Organic foods**, French bread & pastries, non alcoholic beverages, chocolates, vinegars and other gourmet grocery items. Most brands and products on Deliciousnow.com will be available exclusively on the website and can be purchased via the cash on delivery option as well. Building on the growing number of online shoppers and the need for internationally renowned brands, Deliciousnow.com promises to be a one stop shop for all gourmet culinary needs. (Source: afaqs.com)

Bhagalpur to produce organic silk -

With the world increasingly turning to organic and China and Thailand substantially eating into the global silk market, Bhagalpur is all set to give a big thrust to its silk industry by going organic. Bhagalpur produces and exports some of the best tussars in India. The Directorate of Handloom and Sericulture, Department of Industries, Government of Bihar, gripped with the challenges thrown by China, Thailand and other countries that produce organic silk, is going for commercial production of this variant of silk in a public private partnership. For starters, the Directorate has taken up farming of tussar food plants like arjuna and asan trees. The trees are being reared in more than 350 hectares of land under Katoria and Bounsi blocks in Banka District in Bhagalpur under a joint venture involving the Central Silk Board, the Government of India and the Directorate of Handloom and Sericulture. (Source: <http://articles.timesofindia.indiatimes.com>)

APEDA plans export-oriented processing unit in Orissa's Balangir-

Chairman of the Agricultural and Processed Food Products Export Development Authority (APEDA) Asit Tripathy said during a seminar at Balangir that the APEDA is in the process of establishing an export-oriented integrated processing and packaging unit

at an investment of Rs 5 crore to encourage entrepreneurs to tap the potential of organic farming in the Balangir region. Addressing a seminar organized by the Indian Chamber of Commerce (ICC) in association with APEDA and the State Government here, Tripathy said that only \$ 125 million of organic products is being exported from India while the total exports volume of the country is \$208 billion and agricultural exports constitute 10 per cent of it. In view of the booming import of organic products by all member countries of the Organisation of Economic Cooperation and Development and the prospect of multi-brand retail on the threshold of receiving permission which is likely to revolutionize organic products market, entrepreneurs must seriously consider the option here. Agriculture Minister of Madhya Pradesh Ramkrishna Kusmariya said that organic farming is economically viable, good for the environment and is a feasible way for achieving healthy populace, better environment and economic prosperity. State Agriculture Secretary UP Singh described Odisha as a natural choice for organic farming and disclosed that the Odisha Seed Certifying Agency would soon be authorised to certify organic agricultural products too. He said that organic cotton, turmeric and spices cultivated in the State are in high demand in India and abroad. MP Prasanna Patsani spoke of organic farming as the way to live in harmony with nature. Chairman of the Agricultural Promotion and Investment Corporation of Odisha Ltd (APICOL) BK Rath invited corporate investment in the State. ICC Agro and Food Processing Committee chairperson Riddhima Thacker provided statistics in her welcome address to prove that the organic products' market has graduated from niche status to a broad base now. (Source: orissadiary.com)

Haryana farmers get certification for organic farming - HAFED (Haryana State

Cooperative Supply and Marketing Federation Limited) Organic Grower's Group has been awarded IC-2 level organic certificate for 204 farmers having 400 acres area predominantly under Basmati paddy crop in the district of Kurukshetra, Kaithal and Karnal. HAFED said this would reinforce the concept of organic farming among farmers in the state as the union Budget also talked about promoting Organic Farming for sustainable development of agriculture. This area of 400 acres is likely to be certified as 100 per cent organic by the end of Kharif 2011. Farmers are very enthusiastic after getting IC-2 status. They are likely to get higher prices for their crops grown on this organic soil. HAFED started its organic farming project in 2007 to promote this concept among farmers by making registration of willing farmers. The concept being new and requiring adherence to stringent certification norms took time to take shape. At present, HAFED is providing hand-holding support for organic farming on 2,500 acres land in six districts of Haryana. A group involving 750 acres with focus on Basmati Paddy is being developed in districts Kaithal, Karnal and Kurukshetra. Another group of farmers with 750 acres and focus on Desi Wheat is in Jhajjar and Mewat and 1,000 acres with focus on pulses is in district Sirsa. Farmers under these projects are being provided advisory services and organic certification free of cost by HAFED. This cost is being borne by HAFED, which is about Rs 10,000 per hectare area. Due to the high dropout by the farmers in the initial stages, HAFED had to actually incur more on this account. Grower Group Organic Certification is a process that has to meet strict conditions, under section 5 of National Program for Organic Production (NPOP), all the group members are bound together in a group. There are two internal audits every year and one external audit. The external inspection is done by APEDA accredited organic certification agency according to

National Programme for Organic Production (NPOP) standards. Complete certification is a three stage process- C1, C2 and C3/Organic, managed through voluminous record keeping and updation of records on "Tracenet" software of APEDA. The crop produced through such scientific methods of organic certification is 100 per cent organic, nutritious and safe for the human consumption and has high market value. Another advantage of organic methods is that apart from good quality crop, the farm residue is transformed into useful 'asset' through composting and herbal preparations that may be used as an alternative/substitute for chemical inputs, prohibited under organic farming. Farmers covered under organic program will be able to command better prices for their produce at this certified organic land (Source: Buisness-Standard.com)

Racecourse to host organic food bazaar in Mumbai - The pearly gates of the elite Mahalaxmi racecourse will finally open to the average Mumbaikar through a host of non-racing activities. To start with, the turf club will be the unlikely venue of an organic food bazaar over the next few weeks. Apart from the obvious benefit of buying fruits and vegetables free of pesticides, additives and artificial colouring, consumers will have the satisfaction of patronizing farmers, who will sell their produce directly to them for a small profit. "Several organic items like tea, coffee, furniture, dishwashing powder will also be available at our stalls," said organizer Kavita Mukhi. The bazaar will be held on March 17 and March 24, then on April 9 and April 16. (Source: The Times of India, Mumbai, March 17, 2011)

Rs 255-cr scheme to promote organic farming in Bihar-The state government has initiated a scheme to promote organic farming at an outlay of Rs 255 crore. An organic village has been created in all the districts of the state, said state Agriculture

Minister Narendra Singh at a seminar organized for farmers and entrepreneurs to encourage them to invest in production and distribution of organic produce. The scheme has started yielding results and a large number of farmers are now attracted to organic farming due to higher yield with minimum investment. "The State Government will distribute these products both within and outside the state," said the Minister. He also requested the entrepreneurs present at the seminar to purchase organic products. The state Government would extend all possible help to them in this regard. (Source:http://articles.timesofindia.indiatimes.com/2011-03-10/patna/28676508_1_organic-farming-scheme-seminar)

Farmers to cultivate guava, gooseberry in traditional way - Keeping in view the growing popularity of organic farm produce, the District Horticulture Department of Allahabad has launched an organic farming promotion programme for the cultivation of guava and Indian gooseberry (amla) crops in seven blocks of the district in March. For this purpose, the department has already started imparting training to over 400 farmers under its mission programme and aims at popularizing organic farming among the farmers in the region. The blocks where organic farming has been introduced are Bahadurpur, Kaurihar, Jasra, Saidabad, Shankargarh, Dhanupur and Bahria. District Horticulture Officer, has been entrusted with the task of monitoring the programme. (Source: <http://articles.timesofindia.indiatimes.com/>)

Dharwad varsity has a hit pest-control therapy — Homa - A lone farmer rids a vast 200 acres of farm land of all pests with the use of ancient Indian science of Ayurveda. As difficult as it may sound, the University of Agriculture Science (UAS), Dharwad, has been helping farmers do

just that for several years now. While Agnihotra or homa therapy involves organic farming, it has an added advantage: it takes care of air-borne diseases as well. Dr P W Basarkar, HOD, plant biochemistry, who has started homa therapy at UAS, Dharwad, said: "Organic farming is not new for our country. In fact, it originated in India. It is known to purify soil and water also, but this (homa) technique can purify air in surrounding areas of the farm, thus ensuring that the air-borne diseases don't harm the crops in any way." Agnihotra follows the procedure of: burning of specific organic substances in a copper pyramid; specific mantras and specific timings corresponding to one circadian rhythm of nature, sunrise and sunset. The ash of the yajna is later sprinkled on the fields. (Source: indianexpress.com)

Stress on solid waste management-Thiruvananthapuram: A slew of schemes to streamline the operation of the garbage treatment plant at Vilappil and decentralise the city's solid waste management system a budget of Rs.50-lakh has been earmarked to promote garbage disposal at source using biogas, vermicompost and other suitable technologies. The Corporation would set up small composting plants within the city to reduce the quantum of garbage transported to the centralised treatment plant at Vilappil. Plastic recycling units are being acquired and they would be established soon. Mr. Happikumar said awards for garbage collection and processing would be instituted for residents' associations and institutions. A campaign to promote segregation of waste, garbage disposal at source and to discourage the use of plastic would also be taken up. Biogas plants would be established in schools also. The budget also proposes an outlay of Rs.1 crore for a scheme to promote homestead-level farming (Source: thehindu.com)

Global Organic

The World of Organic Agriculture 2011:

Summary- According to the latest FiBL/IFOAM survey on certified organic agriculture worldwide, statistical information on organic agriculture is now available from 160 countries. There are 37.2 million hectares of organic agricultural land. The regions with the largest areas of organic agricultural land are Oceania (12.2 million hectares), Europe (9.3 million hectares), and Latin America (8.6 million hectares). The countries with the most organic agricultural land are Australia, Argentina, and the United States. Currently 0.9 percent of the world's agricultural land is organic. However, some countries reach far higher shares: Falkland Islands (35.7 percent), Liechtenstein (26.9 percent), and Austria (18.5 percent). Seven countries have more than ten percent organic land. Compared with the previous survey, organic land increased by two million hectares or six percent. Growth was strongest in Europe, where the area increased by almost one million hectares. The countries with the largest increases were Argentina, Turkey, and Spain.

Apart from agricultural land, there are further organic areas, most of these being areas for wild collection. These areas constitute 41.9 million hectares and have increased by 10 million hectares since 2008. There were 1.8 million producers in 2009, an increase of 31 percent since 2008, mainly due to a large increase in India. Forty percent of the world's organic producers are in Asia, followed by Africa (28 percent), and Latin America (16 percent). The countries with the most producers are India (677'257), Uganda (187'893), and Mexico (128'862). Almost two-thirds of the organic agricultural land of 37.2 million hectares in 2009 was grassland/grazing areas (23 million

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

Global market

According to Organic Monitor, the global market for organic food and drink is recovering from the repercussions of the economic crisis. Single-digit market growth was observed for the first time in 2009 because of the economic slowdown reducing industry investment and consumer spending power. Organic food and drink sales expanded by roughly five percent to 54.9 billion US dollars in 2009. Global revenues have increased over three-fold from 18 billion US dollars in 2000 and double-digit growth rates were observed each year, except in 2009. Healthy growth rates are envisaged to restart as consumer spending power rises and as more countries come out of economic recession. The countries with the largest markets are the US, Germany, and France; the highest per capita consumption is Denmark, Switzerland, and Austria.

Standards and regulations

The year 2010 has been a year of consolidation in the field of standards and regulations. The new EU regulation on organic production as well as the Canadian organic standard have been implemented, and the details for Canada and the US—the world's first fully reciprocal agreement between regulated organic systems—have been clarified. Regulations in new countries have only been adopted in Malaysia, but a fair amount of countries especially in Africa are in the process of elaborating legislations on organic agriculture. According to the FiBL survey on organic rules and regulations, the number of countries with organic standards has increased to 74, and there are 27 countries that are in the process of drafting legislation. The total number of certification bodies is 532, up from 489 in 2009. Most certification bodies are in the European Union, the United States, Japan, South Korea, China, Canada, and Brazil. In 2009, FAO, IFOAM and UNCTAD started the Global Organic Market Access (GOMA) project. Activities in 2010 included the promotion of south-south cooperation on organic agriculture in Asia and in Central America as well as consultations on objectives and related practice requirements for organic standards. A growing number of organic producers across the world are verified for the local market through Participatory Guarantee Systems (PGS). There are now PGS initiatives on all continents, with Latin America and India being the leaders in terms of the number of farmers involved. In the year 2010, important steps were taken in increasing official recognition of PGS by Governments, most notably in Brazil and in India.

The organic sector faces the challenge of an increasing number of other standards and brands competing for green and ethical segments of the consumer market. While sales of organically certified

products have grown, the sector has to face new market entrants making green and ethical claims.

A recent study conducted by FiBL reviewed the current state of empirical research on environmental, social, and economic impacts of sustainability certification in the agricultural sector. According to this study, sufficient evidence is available for organic agriculture, which shows a wide-range of environmental and economic benefits (but with an emphasis on the western world). For fairtrade, most studies on social and economic benefits report positive impacts on producers in developing countries. (Source – Helga Willar, Summary, In Willer, H. and Kilcher, L. (Eds.) (2011): *The World of Organic Agriculture. Statistics and Emerging Trends 2011*. IFOAM, Bonn, & FiBL, Frick)

Food Quality: A comparison of organic and conventional fruits and vegetables

- This paper addresses food quality of organic and conventional fruits and vegetables. A literature review was conducted to summarise and discuss the findings of research comparing food from the two production systems. A difference in food quality was found for nutritive value (vitamin C) and toxicity (nitrates and pesticides). A survey was performed to evaluate consumers' reasons for purchasing organic food and their understanding of the term food quality. The primary reasons found, in this survey, for buying organic food were environment, health and taste. Definitions of food quality were varied. Most responses related to sensory, safety and nutritive parameters. A market supply experiment was conducted to analyse the difference in specific internal and external quality parameters for organic and conventional Golden Delicious apples. Significant differences were found for the sugar-acid ratio, volume and colour (no difference was found for sugar, acid, pH, dry matter and firmness). Near infrared (NIR) spectral

analysis was performed to evaluate this technology's ability to predict food quality and to differentiate between organic and conventional apples. NIR spectra could weakly (74% correlation) predict sugar content in apples. Potential discrimination of organic and conventional apples was shown in data, however, statistical model could only classify at a 25% significance level. Authors conclude that there are differences between organic and conventional foods for some parameters, however, quality is influenced by factors other than organic regulations such as cultivar, climate, soil type and storage conditions. Authors have found enough evidence to support a significant difference in food quality in the findings of research and in the preferences of our survey respondents. (Source: <http://edepot.wur.nl/>)

The GLOBAL Market for ORGANIC Food & drink: Business Opportunities & Future Outlook - The global market for organic food & drink is recovering from the financial crisis. After several years of double-digit growth, the market expanded by just 5 percent in 2009. Healthy growth rates are resuming as 'mainstreaming' of organic products continues. A major driver of market growth in all geographic regions is increasing distribution in mainstream retailers. The European market for organic food & drink has been most affected by the financial crisis. Declining consumer spending power and rationalisation of

organic product ranges in food retailers caused the UK market to contract in 2009. The German market, the largest in Europe, showed no growth. In contrast, the organic products market in some countries - including France and Sweden - showed resilience, expanding by over 15 percent. Healthy growth is continuing in the North American market, which has overtaken the European market to become the world's largest this year. Supply continues to fall short in many organic product categories, leading to imports from various countries. Latin America has become a major source of organic fruits, vegetables, meats, seeds, nuts and ingredients.

The fresh produce category comprises most organic food & drink sales. Fruit & vegetables like apples, oranges, carrots and potatoes are typical entry points for consumers buying organic products. Dairy products and beverages are the next most important organic product categories. The 3rd edition of Global Organic Food & Drink market report by "Organic Monitor" gives a detailed analysis of the organic products market in each geographic region. Regional reports contain market size, revenue forecasts, market drivers & restraints, regulations & standards, category analysis, sales channels breakdown, consumer behaviour, competitive analysis, retailer profiles and business opportunities.

Of Soils, Subsidies and Survival Greenpeace India Living Soil Expo

A social audit team of Greenpeace India under took an exhaustive survey in five states to assess the status and impact of policies on various aspects of soil health and soil fertility in the country. The outcome of the survey and study were discussed in a series of round table conferences during 14th to 17th March 2011. Findings of the survey have been published in the form of a book comprising of chapters on (a) Soils - indicators of life and their role in agriculture, (b) Role of organic matter and eco-fertilization, (c) Soil health - impact of chemicals, (d) Soil Health - Government policies and (e) Way Forward – An umbrella policy for ecological fertilization. For further details visit www.greenpeaceindia.org.

National and International Events

National Level Workshop on ‘MDS of Health Indicators for Soil Resources under Varied Agro-climatic Water Regime in India’ – Two days National Workshop on ‘MDS of Health Indicators for Soil Resources under Varied Agro-climatic Water Regime in India’ was organized at the Directorate of Water Management, Indian Council of Agricultural Research, Bhubaneswar during 29 – 30 January, 2011. The Workshop was organized jointly by the Directorate of Water Management and National Centre of Organic Farming, Department of Agriculture and Cooperation, Government of India, Ghaziabad. Under National Project on Organic Farming, it is propose to initiate a Nation-wide study in a network mode involving multi Institution approach to assess the biological health of soils under different agro-ecological regions, cropping systems and water regimes of India. To initiate such studies, it is essential to define the minimum data set parameters. This National Workshop was envisaged to concertize the expert opinion on developing the MDS of soil parameters with special reference to biological health for Indian soils through invited and volunteered experts in the field. The objectives were i) To critically review and analyse the strength, weaknesses, suitability of biological parameters as indicators of soil quality and, ii) To develop an MDS (Minimum Data Set) suitable to develop uniform soil quality indexing system. The Workshop was conducted in brain storming mode rather than lecture on the three main themes viz. i) Soil health of India with emphasis on biological characteristics, ii) Strengths and weaknesses of biological parameters, iii) MDS (biological parameters) required for indexing soil quality.

The Workshop was inaugurated by Sri U. P. Singh, IAS, Principal Secretary, Agriculture, Government of Orissa as Chief Guest while Dr. S. R. Singh, Ex-VC RAU & former Director, DWM, Dr. S. N. Das, Chief Soil Survey Officer, SLUSI, DAC, Government of India, New Delhi and Dr. A. K. Yadav, Director, National Centre of Organic Farming, DAC, Government of India, were the Guest of Honour. Dr. Ashwani Kumar, Director, DWM, Bhubaneswar presided the inaugural session.

The Workshop was divided into four Technical Sessions followed by Brainstorming Session. The 1st Session comprised of three lead presentations. Dr S. N. Das emphasized that soil energy system should be activated to charge the system and improve the soil's biological health. Dr. A. K. Yadav stressed on the importance of minimizing the parameters identifying the most effective parameters limited to ten numbers. The sampling and analysis protocol needs to be developed for uniformity. Dr T. K. Dangar elaborated on soil microbes and their role in soil health. Dr Dangar stressed that MDS (Minimum Data Set) should be based on ease of measurement, reproducibility and sensibility. Dr Ashwani Kumar while chairing the session commented that multitier system should be followed to decide on MDS. Starting with broad ecosystem basis to zeroing on location specific should be the approach.

In remaining technical sessions invited experts put their opinion and discussed the issues related to sampling, analyses and strength and weaknesses of various physical, chemical and especially biological parameters for inclusion in MDS. Finally a consensus was developed in identifying the most important parameters

for the MDS along with sampling strategy and sampling methods. Abstract recommendations of the workshop were as follows:

- 1) Soil may be sampled considering agro-climatic zones of India as categorized by Planning Commission
- 2) For sample collection, points identified by National Bureau of Soil Survey and Land Use Planning (NBSS & LUP), ICAR at 10 square kilometer grid/ORSAC may be considered. In this technical help will be provided by NBSS & LUP and All India Land and Soil Use Survey, DAC.
- 3) Time of sampling will be summer, rainy and winter but on fallow periods, non rainy days avoiding rhizosphere zones
- 4) The Minimum Data Set as agreed upon was:
 - a. Physical : Aggregate stability/texture/Bulk density
 - b. Chemical : pH, Organic C, EC, (CEC/Humic acid optional)
 - c. Biological :
 - i. Microbial Biomass Carbon
 - ii. Enzymatic activity (only 1st or 2nd or both, rests are optional) (in order of preference)
 - iii. Dehydrogenase
 - iv. FDA
 - v. Urease/N mineralisation
 - vi. Phosphatase (alkaline)
 - vii. Respirometric study (carbon dioxide evolution) for Metabolic quotient
 - viii. Earthworm population/biomass
 - ix. Total Extractible Glomalin Content(A Report by NCOF)

Two days workshop on “Identifying Research Issues leading to development of Organic Package of Practices for some important Cropping Systems” - Two days consultation meet on organic farming sponsored by NCOF, Ghaziabad was held during 22-23 February, 2011 at PDFSR, Modipuram, wherein 30 participants from centres of Network Project on Organic Farming

(ICAR) and special invitees from ICAR Institutes and SAUs participated. Dr A.K. Yadav, Director, NCOF Ghaziabad (U.P.) chaired the session and presented brief scenario of the organic farming in the country and preferred areas for research in organic farming. Following areas were identified as prime target for immediate research.

1. **Development of package of practices for crops and cropping systems:** In this aspect centres were advised to take most remunerative and profitable cropping systems, as per the results of Expt. 1(a) of NPOF and then try to solve the burning issues of that system with the help of four or five treatments using holistic approach for nutrient, water and pest management.
2. **Evaluation of formulations (Growth regulators, soil conditions etc.):** Various formulations have been developed by various innovative farmers and are being used as ITKs in varied agro-ecological situations. But, there are only few in-depth scientific studies as to how these formulations work in crops, as growth promoters, as a tool to combat insect pest attack and as soil vitalizers. Thus, there is a need to evaluate these formulations at selected centres by taking need based laboratory studies.
3. **Evaluation of plant protection formulations:** As discussed in item 2 above.
4. **Documentation of success stories of organic farmers** - Under this programme, survey should be conducted by scientists of Dharwad and Palampur centre to collect and document success stories of innovative organic growers who could harvest the comparable yield in comparison to conventional farming.
5. **Screening of recommended varieties of the crops** - It was agreed upon that each centre is to work for screening of varieties for organic production system.

Each selected centre will have to conduct minimum two experiments. The scientists from the various volunteer centres were asked to present the new technical programme and the following experiments were chalked out.

Expt. No. 1: Development of Package of Practices and Screening of Varieties - The appropriate cropping systems identified for evaluation and varietal screening order organic system are as follows.

Pantnagar-	Basmati rice – Veg Pea
Ludhiana-	Basmati rice – Veg Pea
	Basmati rice – Chickpea
Modipuram-	Basmati rice – Wheat
	Maize-Mustard+Lentil
Dharwad-	Sugarcane
	Soybean-wheat
Rahuri –	Sugarcane
	Soybean-wheat
Raipur –	Scented Rice – Chickpea
Bhubaneshwar –	Rice-Rice
	Rice-Groundnut
Coimbatore-	Rice-Green gram
	Cotton-Maize
Karjat –	Rice-Cowpea
	Rice-Lab lab Bean

Expt. No. 2: Evaluation of ITK – based Formulations for growth promotion and soil enrichment

Dharwad
Palampur
Varanasi

Expt. No. 3: Evaluation of ITK – based Formulations for plant protection

Dharwad
Palampur

Expt. No. 4: Documentation of Success Stories

Dharwad
Palampur
Rahuri

The scientists were advised that they should submit the detailed project

proposal as discussed in consultation meet for final approval by PDFSR. (A Report by NCOF)

IFAD Conference on New Directions for Smallholder Agriculture 24-25 January 2011 Rome, Italy - Organic Agriculture is the most appropriate way to achieve ecological, agronomic and socio-economic outcomes for smallholder farming. Chief IFOAM Food Security Campaigner, Cristina Grandi highlighted that organic agriculture, with its techniques in soil, water and biodiversity conservation, as well as its integrated and sustainable farm management, can be highly productive, achieve family food security and improve incomes. Organic agriculture is a solution not only for meeting the needs of rich niche markets but also for local markets, food security and poverty reduction.

The conference had the aim of discussing the findings of IFAD's Rural Poverty Report 2011 and to examine various options facing smallholders; what support can be extended to them and by whom; how far can they really become the engine for sustainable development of developing countries. Interestingly, small farmers organizations were practically absent in the conference; most of the 80 speakers were from UN agencies, Universities, Government agencies, research institutes, donors and private sector; only two represented farmers' organizations (Source: ifoam.org)

First International Conference on Organic Food Quality and Health Research, May 18 - 20, 2011 in Prague - Diplomat Hotel Conference Centre, Prague- The programme consists of the lectures introducing session or workshop topics, oral contributions and poster presentations.

Conference sessions

The Conference will focus on the State of the Art in Research on Organic Food Quality and Health in the following areas,

reflecting topics of the conference sessions:

- Quality and safety of organic plant and animal products
- Impact of processing on organic quality and safety
- Standardization of novel methods
- Organic food authenticity
- Impact of organic food on animals
- Impact of organic food on humans
- Organic related health concepts

Workshops

Workshops focused on following topics will be organised:

- Organic food quality concepts
- Quality challenges for organic food production chain in Africa, Asia and South-America
- In vitro (laboratory) tests on the health impact of organic food
- TPOrganics – Food quality and health research
- Dairy products - quality and health implications

BioFach and Vivanness 2011, Nuremberg, Germany - BioFach, the World Organic Trade Fair, and Vivanness, the Trade Fair for Natural Personal Care and Wellness, witnessed 44,592 visitors to the Exhibition Centre Nuremberg Messe, Nuremberg, Germany from 16–19 February 2011. The professional audience from 131 countries was delighted with the four-day display of innovative organic food, eco-textiles and natural cosmetics. Some 1,150 media representatives from 37 countries reported on the exhibitions all over the world. Inspiring congress events provided a lively exchange of views. The internationality of the visitors rose to 43 %. Besides Germany with 24,954 trade buyers, the countries represented strongly were: Austria (1,795), Italy (1,417), France (1,344), the Netherlands (1,233) and Switzerland (906). The 2,544 exhibitors at the exhibition traveled from 86 countries. The international share was 70 %. Besides Germany with 752 exhibitors, Italy (419), Spain (181), France (184), Austria (104)

and the Netherlands (86) were convincing with their strong contingents of exhibitors. The BioFach Congress and Vivanness Forum provide knowledge transfer at both exhibitions every year. 8,601 congress participants sourced information at 158 events. An average of 50 people were interested in each of the individual presentations and panel discussions. 582 congress visitors discussed the key topic of feeding the world. Knowledge and job recruitment also play a key role for the future generation of organic market players. The exhibition duo devoted a separate area to the topics of Training – Work – Prospects for the first time in 2011. The focus was on connecting people, job recruitment in the organic sector and training strategies for the future.

India's participation in Biofach Germany is growing in size over the years. Initially Indian exporters of organic products used to take individual spaces/stalls at the fair but since last few years APEDA is coordinating the India Pavilion at BioFach. In 2008, International Competence Centre for Organic Agriculture (ICCOA) entered into a MoU with the organizing company of BioFach, Nurnberg Messe to organize BioFach in India and twice the same has been organized in India at Mumbai. This year BioFach India is proposed at Bangalore from 10.11.11 to 12.11.11. With combined effort of ICCOA and Nuremberg Messe this has successfully projected India as an important hub for sourcing of organic products. With an increasing demand for organic products especially in EU, US and Japan many countries world over are making an onset in the development of organic products. India, being an agricultural nation and backed by a legacy of organic farming has a potential to make a mark in the international market. However this large framework has brought forth the need for certification and maintaining strict quality standards in organic products.

Namaste and welcome India! - The international organic sector meets next time in Nürnberg from 15–18 February 2012, when the world-leading exhibition BioFach focuses on India as Country of the Year. (A report by Manoj Menon, ED, ICCOA, India)

BioFach China 2011 – BioFach China is the leading Organic Trade Fair in China is organized by the China Green Food Development Center and NürnbergMesse. BioFach China - the International Organic Trade Fair and Conference has developed into the leading exhibition in the Asian Organic Market since its premiere in 2007. The show is recognized by international producers and traders to:

- Find distributors or buyers among 12,000 trade visitors
- Be together with more than 350 exhibitors in an space of 12,000 sqm
- Talk to around 15 local or international certifiers and get up-dates on global organic policies
- Study the chinese market and sales channels by attending conferences with 5 hot topics
- Communicate with more than 200 experts to discuss organic technologies

(Source: www.ifoam.org)

Middle East Natural & Organic Product Expo - MENOPE is the one and only exhibition of its kind across the Middle East with exclusive focus on natural and organic products. The expo over the years has helped many global companies launch into the Middle East market. Indeed, MENOPE 2011 is a not to be missed trade show, a proven platform to explore the Middle East market, the fastest growing for organic and natural products. MENOPE attracts serious trade buyers from across the region – from the Gulf countries as well as from the wider market of Middle East, African and Asian countries including India. The show is held every year in the cosmopolitan city-state of Dubai, the trade

and re-export hub of the entire region. MENOPE 2010 attracted scores of trade visitors with the enthusiastic response affirming once again the significance of the show as a buyer-seller meeting ground.

EUCARPIA 2nd Conference of the "Organic and Low-Input Agriculture"

Section entitled "Breeding for resilience: a strategy for organic and low-input farming systems" was organized during 1-3 December 2010 at Centre, Paris. The conference was intended to take inspiration from the ecological sciences to highlight the use of biodiversity in agriculture while taking advantage of the new tools in genomics. The symposium dealt with breeding strategies for organic and low-input farming systems with special emphasis on approaches that allow for more resilience in response to global change.

Focal theme of the discussions during the conference was:

- Breeding for adaptability under global change
- Improving resilience of agro-ecosystems based on genetic diversity
- New insights into the genetic bases of local adaptation and their use in breeding
- Breeding for diverse environments and products
- Regional participatory plant breeding

Proceedings of the conference can be downloaded free from https://colloque.inra.fr/eucarpia2010_organici/Home-page/News/Download-the-proceedings.

Agritech Asia- International Exhibition and Conference, September 6-8, 2011-

The Agritech Asia exhibition and Conference will be held in Mumbai. Kenes and Radeecal Communications initiated a platform for bringing together the very latest agriculture technologies and professionals to interact, understand buyer-seller needs, and bring awareness

to all segments of end users. Agritech Asia will take place on September 6-8, 2011 at the Bombay Exhibition Centre, NSE Complex in Mumbai. The event is open to all companies and organizations with products or services related to the Agri Ecology, Organic Agriculture etc. For details visit: www.agritechasia.com

National Symposium-cum-Brainstorming Workshop on Organic Agriculture on March 22-23, 2011-

National Symposium-cum-Brainstorming Workshop on Organic Agriculture is being organized at CSK, Himachal Pradesh Krishi Vishwavidyalaya, Palampur (HP) during 22-23 March, 2011. The workshop is being jointly organized by the National Centre of Organic Farming, CSK, Himachal Pradesh Krishi Vishwavidyalaya, Palampur and Organic Agriculture Society of India. The objectives of the programmes are: to critically review and analyze the SWOT of organic agriculture, to share the experiences of various stakeholders, to develop strategies for making organic agriculture evergreen and ever-economic. Major area of the workshop will be: production techniques for enhancing the productivity and economics of organic agriculture, Homa farming, Bio-dynamic farming, organic inputs, post harvest handling and processing of organic produce, organic production and consumption chain, organic certification, organic produce marketing, organic producers' self-help groups success stories etc. For participation and further details please contact: Dr. J.P. Saini, Additional Organizing Secretary, Department of Organic Agriculture, College of Agriculture, CSK, HPKV, Palampur-176062 (HP) e-mail: drjpsaini@gmail.com 09418457591(M), 01894-231827 (R), 230402 (O).

Palampur-176062 (HP) e-mail: drjpsaini@gmail.com 09418457591(M), 01894-231827 (R), 230402 (O).

Organic Mela at Semmozhi Poonga, Chennai being organized by Safe Food Alliance (SFA) is proposed for 19th March 2011. The event will feature (a) Fresh healthy Organic millet dishes to savour, (b) Diversity of traditional seed varieties – interaction with farmers who conserve such diversity, (c) Information and sale of traditional millets and rice, (d) A focus on harmful pesticides and alternatives to these, (e) Information on the status of GM crops in India, implications and alternatives, (f) Hands on Natural Dyeing experience! (g) Organic cotton handwoven shirts & kurtas on sale, (h) Interactions with prominent personalities from different walks of life – activists, farmers, cine-stars, musicians and others. (i) Related publications The event is being organized to mark the occasion of World Consumer Rights Day. This year, SFA and many other organizations have joined together to highlight Consumer's Right to Safe Food, The livelihood security of millions of Indian farmers and Sustainable agriculture without the use of harmful synthetic inputs and with conventional seeds. Technologies developed in collaboration with farmers have been shown to be successful in producing more than enough for the food security of our nation. Lakhs of farmers spread across thousands of villages of AP are practicing it and producing pesticide-free food. Karnataka is following, rightly. Commitment from the Government to create support and extension services is necessary for replicating this model throughout the country.

Entries invited for Directory on Organic Farming / Biofertilisers

RedMax Media Pvt. Ltd., Delhi is compiling a Directory of Agencies working in the fields of organic farming and biofertilisers. The Directory will include Name, Address and Brief Description of the concerned agencies / individuals / farmers. Interested agencies, organizations, Departments and Enterpreneurs may contact: RedMax Media Pvt. Ltd., WZ-61, Street No. 11, Lajwanti Garden, New Delhi-46 Ph/fax. 011-65267777, e-mail: ncof.directory2011@gmail.com for necessary insertion

Book Reviews

The World of Organic Agriculture 2011 - Statistics & Emerging Trends 2011 Willer, H. and Kilcher, L. (Eds.): IFOAM, Bonn, & FiBL, Frick - The 12th edition of The World of Organic Agriculture documents recent developments in global organic agriculture. It includes contributions from representatives of the organic sector from throughout the world and provides comprehensive organic farming statistics compiled by FiBL and IFOAM that cover surface area under organic management, specific information about land use in organic systems, numbers of farms and other operators as well as selected market data. The book also contains information on the global market for organic food, the latest developments in organic certification, information on standards and regulations as well as insights into current and emerging trends for organic agriculture by region. Special features include chapters on beekeeping as well as on voluntary standards. In addition, the volume contains a number of country reports: Armenia, Australia, Canada, Chile, China, Costa Rica, Indonesia, Kazakhstan, Republic of Korea, Pacific Islands, Switzerland, Tunisia, Uganda, United States and Ukraine. The purchase of the book includes free download of the pdf version, access to excel sheet with selected data and power point presentations.(AKY)

Microbes at Work - From Wastes to Resources Edited by Heribert Insam, Ingrid Franke-Whittle, Marta Goberna Publication Springer 2010 329pp ISBN 9783642040429 Price £135.00 - Among the goals of environmentally sound waste treatment is the recycling of organic wastes. The most practiced options are composting and anaerobic digestion, both processes being carried out by

microorganisms. This book provides an overview of the various ways microbes are doing their job and gives the reader an impression of their potential. The sixteen chapters of this book summarize the advantages and disadvantages of treatment processes, whether they are aerobic like composting or work without oxygen like anaerobic digestion for biogas (methane) production. These chapters show the potential of microorganisms to create valuable resources from otherwise wasted materials. These resources include profitable organic, humus-like soil conditioners or fertilizer components which are often suppressive to plant diseases. Composts may thus improve soil carbon sequestration, or support sustainable agriculture by reducing the need for mineral fertilizers or pesticides. If anaerobic digestion is used, the biogas produced may replace fossil fuels. Thus, proper biological waste treatment with the help of microorganisms should contribute to a reduction of anthropogenic greenhouse gas production.(Jacket)

Sociology, Organic Farming, Climate Change and Soil Science Edited by Eric Lichtfouse Publ. Springer 2010 478 pp ISBN 9789048133321 Price £135.00 -Sustainable agriculture is a rapidly growing field aiming at producing food and energy in a sustainable way for humans and their children. Sustainable agriculture is a discipline that addresses current issues such as climate change, increasing food and fuel prices, poor-nation starvation, rich-nation obesity, water pollution, soil erosion, fertility loss, pest control, and biodiversity depletion. This book gathers review articles that analyze current agricultural issues and knowledge, and propose alternative solutions. It will therefore help all scientists, decision-makers, professors, farmers and

politicians who wish to build a safe agriculture, energy and food system for future generations.(AKY)

Handbook of Organic Farming, P.D. Gera, Abhishek Publications, 2010, 328 p, ISBN : 81-8247-308-9, Price Rs. 995.00 - The organic farming is a tested heritage with us. It not only improves our land/soil and increases production, but saves the eco-system from the chemical pollution, as it does away with the use of hazardous, expensive chemical fertilizer, pesticides and herbicides. The book is particularly designed to know that what is organic farming how it is good and how we save our mother earth from hazardous chemical and take care of our health also as now a days what so ever we eat, it may be fruits, vegetables etc are either produced by chemicals or chemical is sprayed on it. In this handy book the author has explained the basics of organic farming like. Methods of Organic Farming and Climate change, Organic Fertilizer, Organic Gardening and Farming Techniques etc. (DG)

Natural, Organic, Biological, Ecological and Biodynamic Farming Edited by V.N. Tiwari, D.K. Gupta, S.R. Maloo and L.L. Somani, Agrotech Pub, 2010, 420 p, ISBN : 81-8321-156-7, Price Rs. 1,980.00 - Organic farming methods are widely used in all three groups of countries (developed, developing and underdeveloped) in the world. In developing and underdeveloped countries organic farming is mostly preferred due to lack of chemicals and economics while, in developed countries it is accepted for avoiding demerits of chemical fertilizers and pesticides and protecting environment. Organic farming is crop rotations, use of biofertilizers and animal manures, and biological pest control. However, indiscriminate and increasing use of chemical fertilizers and pesticides has led to serious problems in agro-ecosystem such as pest resistance,

secondary pest outbreak, pest resurgence, destruction to eco-cycles and endemic soil fauna and dying of soil etc. The present book will be helpful for understanding characteristics of biofertilizers, Vermiculture and biocontrol agents, their production techniques and applications and thus, solve the above problems. This book is a need of modern agriculture. The book contains 30 chapters each contributed by authorities in their field of specialization highlighting their vast experience relevant to natural, organic, biological, ecological, and bydynamic aspects of no-chemical farming. Considering the vast scope and huge export potential of organic foods from India, such types of information on status, strategy and scope in the form of a book was a longfelt need. Since, this is the beginning of popularizing such technologies, the outcome of this book will serve the purpose of the target audience. This book should be of interest and use to students, teachers, researchers of agricultural colleges and universities, administrators and extension officers, consultants, rural development and training centres and other agencies who are involved in production and promotion of organic food. The book will serve as a good reference book on Organic Food Production." (Jacket)

Organic Farming by Archana Singh, Pointer, 2011, xii, 260 p, ISBN : 81-7132-647-1, Rs. 1,700.00 - Organic farming in the form of agriculture includes crop rotation, application of green manure, compost, bio fertilizers, biological pest and diseases control to maintain soil productivity and restrict the use of synthetic fertilizers and pesticides. Infact the organic farming rely on the management of the soil. It enhances the chemical, biological and physical properties of the soil and the increasing amount of nutrition in soil plays a key role in suppressing weeds, pests and diseases in eco-friendly manner. The present book

Organic Farming incorporates critical review and research articles on management of organic farming. Important articles are on Ancient Plant Protection Practices: Relevance As On Now, Organic Agriculture: Global and Indian Scenario, Organic Farming in India: Perceptive and Prospects, Standards and Certification and Inspection in Organic Agriculture, Organic Farming: Status and Scope in Special Reference to Indian Agriculture. Valuable information on Exploitation of Traditional Knowledge in the Management of Crop Diseases under Organic Agriculture in India, Plant Growth Promoting Rhizobacteria for Biocontrol of Plant Diseases, Pest Management in Organic Farming, Kunapjala (Organic Manure and Pesticide) for Crop Health. The detailed information is given on Bio fertilizers: Its Production and Application in Organic Farming. Plant Growth Promoting Rhizobacteria (PGPR) Associated with Plant Nutrition, Mycorrhizal Inoculation of Potential Medicinal Plants, Biogas Manure (BgM) a Rich Source of Plant Nutrients and Substitute to Inorganic Fertilizers, Impact of Organic Cultivation on Soil Health for Long Term Sustainability, Sustainable Crop Production through Organic Farming, its Waste and Management, Organic Culture and GM Technology, Certified Organic Farming: Evolution and Regulations, Socio Economic Impact of Organic Farming: Concept, Measurement and Issues. One article is more relevant in the present scenario which is related to human health, as pesticides and chemicals polluted the food and drinking water which cause many human diseases out of which one important disease like Diabetes: The Chronic Health Hazard of Non Organic Farming. The sufficient information is given on Organic Live Stock Production and Food Production Method and Animal Health. The text covers available information on principles and practices of organic farming related to agriculture and livestock. The book will be useful and

widely accepted by students, teachers, researchers, Botanists and Agriculturists and to all those who are interested and concerned with the organic farming.(DG)

Organic Farming : Principles, Prospects and Problems - Edited by Suresh N. Deshmukh, Agrobios, 2010 360p, ISBN : 81-7754-363-6, Rs. 795.00

- The Green Revolution based on High Yielding Varieties which require heavy doses of chemical inputs and irrigation, helped our country to tide away the serious gap between the demand and supply of food grains. No doubt it was a great success story but that success has taken a heavy toll of ecosystem. Non-judicious use of chemical inputs for boosting crop production has unleashed havoc and is posing danger to whole ecosystem. It has not only polluted soil and water to the point of health hazards but affecting the quality of food products. Organic farming is seen as a solution to this problem, but it is still not fully understood by the farmers and their mentors. This book aims at clarifying different aspects of organic farming. There are 20 chapters in this book, the first being essentially introductory in nature. Success of organic farming depends upon the replenishment of social fertility. The common notion that nutrients are given to the plant crop has to be changed. The fact is nutrients are to be given to the soil and that too in a balanced way -- needs to be emphasized. Taking this into consideration a chapter on soil world has been included. The success of commercial organic farming depends upon a certification from recognized certified agency and hence a chapter on soil world has been included. For the benefits of organic farmers chapters on 'Present Indian Scenario' and 'International Scenario' have been included. Post harvest technology is the most neglected activity in India and hence has been covered in details. Economics of organic farming, frequently asked

questions by farmers, do's and don'ts etc. have also been discussed."(AKY)

Organic Horticulture : Principles, Practices and Technologies H.P. Singh and George V. Thomas, Westville Pub, 2010, xx, 420 p, 39 b/w figs, tables, ISBN : 81-85873-61-9, Rs. 1,800.00 - "The book contains valuable information on the status of organic horticulture -- national and international scenario, principles, practices, prospects of organic farming, technological advancements made in organic farming of fruits, plantation crops, tuber crops, vegetables and spices, input management and biomass recycling comparison of organic and conventional agriculture, soil health management, plant health management, issues, quality control and certification. Additional information provided on the certification process, accreditation agencies, certification agencies and sample certification form will help to familiarize the farming community with the certification process and the agencies involved. This book will be of immense use to all those interested in organic horticulture." (Jacket)

Plant Protection Practices in Organic Farming Edited by Ajay Sharma and Rajeshwar S. Chandel, International Book Distributors, 2010, xiv, 566 p, tables, ISBN : 81-7089-365-8, Rs. 2,500.00 - "The key to successful organic food production lies in plant protection from various biotic enemies. In the book entitled "Plant Protection Practices in Organic Farming" a sincere effort is being made to provide the society all the practices which can be used in reducing the pest populations from our agricultural/horticultural ecosystems and in turn may also reduce the pesticide pressure being exerted on our environment. In the first chapter the authors have mentioned the importance of the organic farming and why it is so much need in the present day scenario. This

chapter also covers the information on the various guidelines set for the practicing organic farming. In the second chapter the pesticide residues pertaining in different crops are highlighted. Third and fourth chapters contain exhaustive information on the biocontrol agents of various insect pests and the biopesticides available in the market to manage these pests respectively. In the fifth chapter the concept of nutrient management for the plants has been discussed. Sixth chapter is based on the information pertaining to the protected cultivation and the different structures used in this type of cultivation. Seventh and eighth chapters deal with the insect pests and diseases encountered in the poly houses respectively and their management with out the use of chemical pesticides. The insect pests and disease of vegetables, temperate fruits, subtropical fruits and potatoes are covered in the separate chapters. Insect pests management of spices and cereal crops are covered in chapters sixteen and seventeen. The eighteenth chapter is on cultivation and utilization of medicinal plants. In the nineteenth chapter the wild fruits are discussed as they can be an important source in increasing the biodiversity in an area. The next chapter deals with how to minimize the post harvest losses in different crops. In the modern world biotechnology is playing an important role in the human life. The plant science is also not devoid of this important science. The transgenic plants and GMO's are important in the plant science. In the last chapter, role of biotechnology has been discussed in reference to the plant protection and its role in producing a crop organically. All these chapters are of immense importance to the farmers, Orchardists and plant scientists and can act as a valuable source filling the gap that is prevailing in the know how producing the crop organically and to protect it from its enemies i.e. insects and diseases." (jacket)