

# जैविक खेती सूचना पत्र

## Organic Farming Newsletter

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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 अन्तर्राष्ट्रीय 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 Editorial

Dear Readers

Since last 10 years organic farming is marching ahead with much faster pace and showing great promise commercially, environmentally and socially and is gradually attaining significantly important status worldwide. This is not the result of single hand efforts but it is the result of concerted efforts of Central and State Governments, promising role played by NGOs and dedicated organic farmers. Success of organic farming in terms of production and soil sustainability is based on two important factors i.e. nutrient management and pest management. Out of this nutrient management has already been elaborated everywhere in general but the documentation on pest management protocol in organic farming is still very less and need to be documented.

In this current issue efforts have been made to document and present different alternative methods for pest management in organic farming including cultural, agronomic, botanical and biological alternatives. Some innovative formulations prepared and successfully practiced by farmers have also been documented here. We hope that with this issue the pest management protocols, described here shall prove to be founding pillars in organic farming and may go hand in hand to successfully reach the farming community.

Beside this other columns of updated news on Global organic, India organic, National and International happenings and summary of important books are presented for information of readers.

A new column of **PGS INDIA News** has been introduced with this issue to update and highlight the activities carried out under PGS-INDIA Organic guarantee programme launched by Govt. of India under National Project on Promotion of Organic farming (NPOF) of Department of Agriculture and Cooperation, for empowering farmers through self certification programme.

To make this publication more colorful and informative I invite your participation in the form of Articles on research in organic farming area, field studies, success stories of farmers and your comments and suggestions.

**Dr Krishan Chandra**  
**Chief Editor**

# Pest Management in Organic Farming Some Innovations

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## Preamble

Pesticides worth more than 30 billion US dollar are being released into the global environment every year. A high proportion of these is highly toxic and has immediate adverse effects on human health, wildlife, local food sources such as cattle or fish, beneficial insects and biodiversity. These impacts come from direct exposure in use, spray drift, washing work clothes used while spraying, home pesticide storage, pesticide dumps, and persistence in the environment.

The ecological and economical problems of pests and pesticides in agriculture gave rise to several eco-friendly innovative approaches which do not rely on the use of chemical pesticides. These initiatives involved rediscovering traditional practices and contemporary grass root innovations supplemented by strong scientific analysis mainly supported by non-formal institutions like NGOs. Such innovations have begun to play an important role in development sector. One such initiative is Non Pesticidal Management (NPM). Organic pest management is a step ahead and offers complete solution for co-existence of all organisms without affecting the economic needs of each other.

In nature pest is not a problem but a symptom. Disturbance in the ecological balance among different components of crop ecosystem makes certain insects reach pest status. From this perspective evolved the Non Pesticidal Management (Ramanjaneyulu et al 2009) which is an “ecological approach to pest management using knowledge and skill based

practices to prevent insects from reaching damaging stages and damaging proportions by making best use of local resources, natural processes and community action.” NPM approaches while concentrate only on elimination of pesticide usage, organic pest management offers an added feature of excluding the use of chemical fertilizers also. Non Pesticidal Organic Management (NPOM) is mainly based on:

- Adoption of suitable cropping pattern and crop production practices.
- Understanding crop ecosystem. The type of pests and their behavior differs with crop ecosystems. Similarly the natural enemies’ composition also varies with the cropping systems.
- Understanding insect biology and behavior and adopting suitable preventive measures to reduce the pest numbers.
- Training to farmers in building knowledge and skills in making the best use of local resources and natural processes.
- Natural ecological balance which ensures that pests do not reach a critical number in the field that endangers the yield. Nature can restore such a balance if it is not too much meddled with.

As in organic management use of chemicals are prohibited, the pest management is being done by adopting following practices-

1. Cultural or agronomic alternatives
2. Mechanical alternative
3. Biological alternative
4. Botanical alternative and

5. Organically acceptable chemical alternatives.

## 1 Cultural or agronomic alternatives

### 1.1 Crop diversity-

Crop diversity is the backbone of all management practices in organic farming. Traditionally farmers have evolved mixed cropping systems, intercropping and crop rotation systems. These systems create a better environment for nutrient recycling and healthy ecosystems. On the contrary the monoculture of crops lead to nutrient mining and insect pest and disease buildup. Intercrops and mixed crop conditions provide better temporal and spatial distribution of nectar and pollens sources and more micro habitats for their special requirements. Depending upon the requirement of farmer and area, climate and crops there can be numerous combinations of crops. Rotation of pest host and non host helps in control of soil borne pest, diseases and feeding insects by creating a break between host crops.

### 1.2 Selection of cultivars and agronomic manipulation-

Use of resistant varieties and early maturing varieties, selection and use of good quality seed which is locally adopted either from traditional farmers or improved varieties released by the public sector institutions is important. Maintaining the seed in their seed banks ensure, farmers to go for timely sowing with the seeds of their choice. The seed is treated with concoctions depending on the problem for example cow urine, ash and asafoetida concoction provides protection against several seed borne diseases. With appropriate manipulation of sowing, planting and harvesting dates crop can escape the pest incidence.

### 1.3 Habitat manipulation-

Habitat manipulation refers to management of non crop vegetation such as weeds, wild grasses and other plants. Some non-crop vegetation can benefit pest by acting as secondary host plants and over wintering

sites. These plants are potential hazards and need to be removed. Non crop vegetation on hedges act as trap crops, attracting insects and limiting damage to main crops or they may release some chemical repellent also.

### 1.4 Trap crops-

When trap crops are sown on the border or in between rows along with host crop, insects gather on these trap crops and can be controlled. Farmers prefer to grow few rows of maize in cotton, cotton boll worms prefers eggs laying on maize, which can be destroyed. Farmers adopt marigold as a trap crop for the pod borer and it reduces the pest load on pigeon pea. The flowers that have been oviposited by the female moths of *Helicoverpa* can be picked up and destroyed.

## 2. Mechanical alternatives-

**2.1** Removal of affected plant or part to prevent the transmission of disease to other plants

**2.2** Collection of eggs masses and larvae to minimize the pest load

**2.3 Installation of bird percher** - to provide shelter to the birds. During rest, birds predate larvae and moth available on crops.

**2.4 Light traps** - Among the most widely used constructed traps are kerosene lamp traps or light traps. Ultra violet lamps are also very effective. These should be used immediately after emergence of moth, before they lay eggs.

**2.5 Pheromone traps** - Since sex pheromones are not directly sprayed on the crops, there is no pollution problem. The results indicated that these traps at the rate of 30 traps per ha can control many insects. The efficiency of these traps is much higher than ordinary light traps.

**2.6 Use of sticky coloured plates and other physical traps** - Different species of insects are attracted by different colors. Yellow plastic plates are effective against leaf miner and the adults of sucking pests. The flat snail is widely distributed in India and for its control a method

has been developed for controlling the snail by the use of disposable plastic soda bottles made into traps. These traps prevent the snails from climbing up into grape vine. The traps are made by cutting both the ends and splitting one side of the body longitudinally to allow it to be sleeved around stem of grape vine. The bottles are then stapled around the stem at a height of 1m above ground. The snails cannot pass through the neck to infest the vine. These snails trapped in bottles will soon die due to starvation. This is very cheap method and gives more than 94% control rate.

### 3. Biological alternatives-

Nature has its own device to balance the ecosystem. Predators (like spiders, beneficial insects), parasites (like parasites of eggs and larvae) and pathogens (like fungal pathogens e.g. *Beauria bassiana*, *Metarhizium anisopliae*, *Verticillium sp.* *Trichoderma viridi*), bacterial pathogens and viral pathogens e.g. nuclear polyhedrosis virus and granulosis virus are present in nature and are playing a major role in maintaining the pest population in undisturbed ecosystem. The potential of these can be harvested to maintain the pest population below economic level in fields. These natural enemies are very specific and safe to non target species. In an ecosystem various microorganisms are present which create an infection and kill the host. The major groups are Bacteria, Fungi and viruses.

**Fungal pathogens** - *Metarhizium anisopliae*, *M. flavoviride*, *Bauveria bassiana* and *Verticillium sp.*, are the common fungal pathogens infecting plant hoppers, leaf hoppers, stem borer, leaf folders and black bug. *Nomuraea rileyae* attacks larvae of stem borer, leaf folders, green hairy caterpillars, armyworm and case worm. It occurs in all ecosystems, under condition of prolonged high humidity and grows into insect body. The fungus grows within the host and consumes their body material as food. Due to high potential of these microorganisms in sustainable agriculture these are currently developed on large scale and are available in

market. *Paecilomyces sp* has been found to be very effective in controlling nematodes. *Trichoderma viride* and *T. harzeanum* are excellent fungal antagonists against soil borne fungal and bacterial diseases.

**Bacterial pathogens** - Many spore former and non spore forming bacteria are known to be effective against a wide range of insect pest and diseases. The crystalliferous *Bacillus thuringiensis (Bt)* has been found to be effective against several species of lepidopterous pests. *Pseudomonas fluorescens* and *Bacillus subtilis* are fast emerging as bacterial biopesticides against many soil borne and foliar diseases.

**Viral pathogens** -Viruses have been recorded from almost every species of caterpillars found in the ecosystem. The common viruses are Nuclear polyhedrosis virus (NPV) and Granulosis viruses (GV), these are host specific. The larvae become infected by eating contaminated foliage, become slow in movements and later stop feeding. NPV infected larvae turns whitish and then black and hang on plant part in inverted V shape. Spray of nuclear polyhedrosis viruses of *Helicoverpa armigera (H)* or *Spodoptera litura (S)* @ 250 larval equivalent are very effective tools to manage the *Helicoverpa* and *Spodoptera sp.* respectively. Once established they survive in nature till the pest is prevalent and are self perpetuating in nature.

### 4. Botanical alternatives-

Insect population may reach pest status if the preventive steps are not taken in time, changes in weather conditions and insects coming from neighboring farmers fields. In these situations based on the field observations farmers can take up spraying of botanical extracts and natural preparations (Green sprays) instead of chemical pesticides.

There are wide ranges of such preparations which have been evolved by the farmers and many civil society organizations. In nature

various plants are available which contains pesticidal properties and the extracts of such plants may be use for management of pest, e.g. neem, it acts as active repellent and its various forms of extracts are effective in the management of about 200 insects, grasshoppers, leaf hoppers, plant hoppers, aphids, jassids, moth caterpillars, mealy bugs, adult bugs, fruit maggots, spider mites, pest and nematodes. Application of 5% fine spray of neem seed kernel extract on various crops like paddy, cotton, ginger, red gram, Bengal gram, can repel plant hoppers, leaf hoppers, leaf folders, ear head bug, mealy bugs, aphids, pod borer etc Termites can be managed by spraying 5% NSKE near the base of the plant or by broadcasting neem cake in the field at the time of land preparation, it can also repel the white fly on cotton. Application of 3% neem oil emulsion can manage root rot and stem rot in ground nut, jute, brinjal and onion.

### Some effective indigenous solutions for seed treatment

#### a. Botanical seed treatment

- i. **Bijamrut** – Made from cow dung, cow urine and lime is an excellent seed treatment formulation and is being used by large numbers of organic farmers in almost all crops. Bijamrut treatment provides protection against seed rot, seedling rot and some other soil borne diseases. Bijamrut treatment improves seed germination.
- ii. **Turmeric powder** – 250 gm powder in 1 lit of water for 10 kg seed. Treatment provides protection against fungal rot and wilt diseases
- iii. **Asphoetida** - 250gm in one lit. of water for 10 kg seed. Treatment provides protection against fungal rot and wilt diseases. The treatment also repels insects and ants.
- iv. **Garlic extract** – Crush 250 gm garlic cloves in 1lit of mineral oil. Keep overnight and collect filtrate. 20 kg seed can be treated with this extract.

v. **Cow urine** – Dilute one part cow urine with 5 parts water, soak the seeds for 15 min and then dry in sun. The treatment prevents soil borne diseases and increase germination.

vi. **Cow milk** – Dilute one part cow milk with 5 parts water, soak the seeds for 15-20 min, sundry and sow, this treatment help in control leaf spot disease and prevents yellowing of leaves.

vii. **Horse manure/ compost tea** – Horse manure/ compost tea is ideal for seed bed treatment in nurseries.

viii. **Wood ash** – Mix 10 gm finely powdered wood ash in 500 ml water and treat the seeds. Dry in sun and sow immediately. The treatment helps in reduction of seedling rot

ix. **BD 501 (Cow horn silica)** - Mix 1 gm finely BD 501 powder in 1 lit water, spray the suspension over seeds while keep on turning them. Dry the seeds in sun and sow immediately. The treatment helps in reduction of soil borne diseases.

x. **Horsetail (Equisetum arvense) decoction** – Boil 500 gm plant parts in 5 lit water and boil till it becomes half. Filter and store. The extract can be used for seed treatment for protection against soil borne fungal diseases such as seedling rot.

xi. **Panchgavya treatment** - 3% solution of Panchagavya can be used to soak the seeds or dip the seedlings before planting. Soaking for 20 minutes is sufficient. Rhizomes of Turmeric, Ginger and sets of Sugarcane can be soaked for 30 minutes before planting.

#### b. Biological seed treatment methods

Microbial inoculants in the form of biofertilizers and biopesticides are being used widely not only for growth promotion and nutrient mobilization, but also for protection of seeds against soil borne plant pathogens. These inoculants are applied both as seed and soil treatment. For seed treatment 5 gm of inoculants is adequate for treating one kg of seed. In case of multiple inoculations 5 gm of

each inoculants is used per kg of seed. Treatment is done by suspending the inoculants and sticker (like sugar, jiggery or gum Arabic) in water and then mixing with seeds. Treated seeds are dried in shade and sown within 4-6 hrs of treatment. Benefits of different microbial inoculants are indicated against each.

- i. **Biofertilizers such as Rhizobium, Azotobacter, KMB and PSB** – As nutrient mobilizers and growth promoter. Very high microbial population around seeds creates a barrier for pathogens to reach seeds. Azotobacter releases some fungistatic complex which helps in reduction of soil borne pathogen attack.
- ii. **Trichoderma viride** – The fungal inoculants is being used as a biological control agent against plant pathogenic fungi and is effective as seed dressing in the control of seed and soil-borne diseases including *Rhizoctonia solani*, *Macrophomina phaseolina* and *Fusarium* species. On application to seed it colonizes the seed surface and kills not only the pathogens present on the cuticle, but also provides protection against soil-borne pathogens.
- iii. **Trichoderma harzeanum** – It is also used as bio-fungicide and is suitable for application as foliar application, seed treatment and soil treatment for suppression of various disease causing fungal pathogens including *Botrytis*, *Fusarium* and *Penicillium* sp
- iv. **Pseudomonas fluorescens** – Effective strains of *P. fluorescens* (CHA0 or Pf-5, for example) possess excellent biocontrol properties and on application as seed or soil treatment protect the roots of plants against pathogenic fungi such as *Fusarium* and *Pythium*, *P. fluorescens* has also been found to be effective against some phytophagous nematodes.
- v. **Bacillus subtilis** – Some strains of *Bacillus subtilis* are effective biofilm producer around roots of treated plant,

thereby protecting their roots from various soil borne fungal pathogens. *Bacillus subtilis* inoculants have been specifically found very effective in vegetable crops especially tomato and brinjal.

### c. Permissible disinfectants and chemical alternatives

Permissible chemical alternatives are recommended for use only as last resort. Sodium hypochlorite and natural acids are mainly used as surface disinfectants to clear the seed coats free from pathogens and moulds. While sulphur and copper based formulations are effective in killing the fungal and bacterial pathogens. Depending upon the crop, soils and type of problems different combinations or alone chemicals are recommended. Some of the most widely used options are as follows:

- i. Sodium hypochlorite
- ii. Natural acids such as acetic acid
- iii. Elemental sulphur
- iv. Lime sulphur
- v. Copper salts such as Copper sulphate, copper oxychloride, Bordeaux mixture
- vi. Bicarbonates and
- vii. Mineral oils

### Some broad spectrum indigenous botanical pesticides for foliar spray:

**1. Chilly-Garlic-Cow urine extract** - In a copper container mix 3kg of fresh crushed neem leaves and with 10 lit of cow urine. Seal the container and allow the suspension to ferment for 10 days. Ground 500gm of green chillies in 1lit of water and keep overnight. In another container crush 250 gm garlic in water and keep overnight. Next day mix the neem leaves extract and garlic and chilly extract. This can be use as a pesticide on all crops against wide variety of insects. Use 250 ml of this concentrate in 15 lit of water for spray.

**2. Neem-Ipomea-Cow urine extract** - Suspend 5kg of neem seed kernal powder, 1kg karanj seed powder, 5kg chopped leaves of ipomea and 5kg of neem leaves in 200 lit drum. Add 10-12 lit of cow urine and fill the

drum with 150 litre water. Seal the drum and allow it to ferment for 8-10 days. After fermentation is over transfer the contents to a distiller and collect the distillate. This distillate will act as a good pesticide and growth promoter. Distillate obtained from 150 lit liquid will be sufficient for one acre. Dilute in appropriate doses and use as foliar spray. This can be kept for few months without any loss in characteristics.

**3. Fermented curd water (Butter milk, chaach)** – Fermented curd water is widely being used in central India for controlling the pest of cooton. To make this, bury an earthen pot in soil till neck and fill it with fresh de-feted butter milk and seal with mud plaster. Allow it to ferment for 20 days, then dilute with water and use as spray for managing white fly, jassids and aphids.

**4. Cow urine and Vermiwash** - Cow urine alone or in combination with vermiwash (1:1) diluted with water in a ratio of 1:20 and used as foliar spray is not only effective in the management of pathogens and insects but also act as an effective growth promoter for the crop.

**5. Traditional Technology with a Modern Twist (<http://www.icrisat.org>)** - Farmers in south India use indigenous methods like shaking the plants to manage the pod borer (*Helicoverpa armigera*) in pigeon pea until chemical insecticides were introduced in the early 1970s. After crop pollination and pod set, when 1–2 larvae per plant are noticed, three farmers enter the field, one to hold/drag a polyethylene sheet on the ground, while the other two shake the plants. This gentle shaking dislodges most of the caterpillars from the plants. These dislodged larvae are collected in a sack and destroyed.

**6. Concoctions** - are mixtures of various plant extracts, for example, five leaves mixture which is an aqueous extract of any five latex producing leaves is being widely used to control pests in Tamil Nadu and other parts of

south India (Prakash and Rao, 1997, Vijayalakshmi et al., 1999, Prasad and Rao, 2007)

**7. Fermented Products** - Products made by fermenting different botanicals with animal dung and urine. These products have rich microbial cultures which help in providing plant nutrients in addition to acting as pest repellents and pest control sprays. For example cow dung-urine-asafetida solution is used to manage rice blast.

**8. Innovative formulation - 1, for disease management and pest control** - Green chillies-1kg, Garlic-250 gm, Cow urine- 3 liter, water-200 liter, mix all these ingredients and ferment for thirty days. After fermentation take only 2.5 liter and add 3 liter of cow urine and dilute it with 200 liter water and use for spraying.

**9. Formulation – 2** - Garlic-1kg, green chillies- 2kg, Tobacco powder-1kg, soap powder-200 gm. Mix garlic paste in kerosene then grind green chillies and tobacco powder and soap powder with it. 400 gm of this mixture is diluted with 15 litre water and used as foliar spray.

**10. Formulation – 3** - Take 3litre of milk and mix 3kg of jaggery and mix with 100 litre water. Use this mixture for spraying on arhar for pest control .

**11. Formulation – 4** - Grind 1kg soap nuts, and mix with 20 liter water and boil well .After cooling this mixture is diluted with 100 liter water and used as spray on crops. This is very effective against caterpillars and small insects.

**12. Formulation – 5** - Cow dung -5kg, cow urine-5litre, curd 2litre, mix these ingredients well and allow it to ferment for 15 days. Then take 12 liter of this and add 2litre milk, 500gm ghee, 200 gm jaggery, coconut water of 4-5 fruits). Now allow this mixture to ferment for 7 days. Dilute 1litre of this with 50 liter of water

and use for spray. This solution is not only effective for in disease and pest management but is also an excellent growth promoter.

**13. Formulation – 6** - Coconut-5no, coconut water-5litre, curd-5litre, and water 10 liter; allow this mixture to ferment and dilute 1litre of this mixture with 10 liter water and use as spray.

**14. Formulation – 7** - Aloe vera leaves-3kg, Custard apple leaves 3kg, leaves of papaya plant-3kg, water 15 liter. Boil this mixture till it becomes 10 liter. .Allow it to cool and mix 1kg turmeric powder and keep it overnight and mix with 1litre water and use as spray.

**15. Formulation – 8** - NPV-25 ml, Jaggery-100gm, Cowurine-150 ml, Indica-15 gm, water 15 litre. Spray this mixture on cotton, arhar and chickpea when crops is in flowering stage at an interval of 15 days. It is very much effective against American ball worms and pod worms.

**16. Formulation - 9**

**Dashparni ark** - Neem leaves-5kg, Custard apple leaves-2kg, Karanj leaves-2kg, castar leaves-2kg, nirgudi leaves -2kg, ipomea leaves-2kg, dhatura leaves-2kg, Lantana-2kg, cowurine 5litre, cowdung-3kg, green chillies-2kg, garlic-500 gm, water-2litre. Take all these ingredients in plastic tank and allow it to ferment for 20 days. Take 2-5 liter of this mixture and mix with 200 liter water and use for pest control. This extract can be kept up to 4 months in good condition.

**17. Formulation – 10** - Cowdung-5kg, ipomea leaves-2kg, custard apple seeds- 2kg, cow urine -5litrer, water 200 litre. Allow this mixture to ferment for 5days and use as spray. It is effective against mealy bugs.

**18. Formulation – 11** - Bitter gourd leaves-2kg, garlic paste-250 gm, cow dung-3kg, cow urine-5litre, water 200litre. Allow this mixture to ferment for 1 month and spray for disease as a pesticide.

**19. Formulation – 12**

**Panchagavya** - Cow dung-1 part, milk ½ part, curd-1/4 part, ghee-1/10 part, water-5 parts. Paqrchgavya solution is best for seed treatment and improving resistance against diseases.

**20. Formulation – 13** - Papaya leaves-2kg, drum sticks leaves- 2kg, cow urine 4litre and water 200 litre, allow this mixture to ferment for overnight and filter and use for spray on crops. This is best effective against downy mildew.

**21. Formulation - 14**

**Organic bordo paste- for horticultural crops** - Cow dung-20kg, cow urine-10 litre, neem oil-100 ml, asafetida powder-100 gm. Prepare paste of these ingredients and use to apply on stems of horticultural plants.

**Organically acceptable Chemicals for pest management through foliar spray**

Although use of synthetic chemicals are prohibited in organic pest management, but there are few exceptions. Following chemicals are those exempted chemical alternatives which can be used in organic farming under exceptional circumstance as last resort:

- a. Sea salt and salty water
- b. Elemental sulphur, lime sulphur
- c. Copper salts / inorganic salts (Bordeaux mixture, copper hydroxide, copper oxychloride (used as fungicide, maximum dose 8 kg per ha per year).
- d. Chlorides of lime and soda
- e. Light mineral oils
- f. Permanganate of potash
- g. Sodium bicarbonate
- h. Carbon di oxide and nitrogen gas as storage preservative
- i. Soft soap (liquid dish washing soap)
- j. Ethyl alcohol,
- k. Natural acids (Vinegar)
- l. Homeopathic and Ayurvedic preparations

Overall success of organic farming is basically depend on the building Healthy Soils.

Healthy soils give healthy crop. Chemical fertilizers especially nitrogenous fertilizer makes the plants succulent and increases the sucking pests like brown plant hopper in rice. Production practices, such as putting on crop residues or other biomass as surface mulch, using compost and green manures,

intercropping of legumes in cropping systems, and biocontrol of insect, pests and diseases, use of innovative pesticidal formulations for pest and disease as a preventive measures, all these practices help to enhance yields and sustain soil fertility and health .

### List of some important plants with important pests managed and their preparations-

Plant	Part of plant used and pest controlled
Karanj (Pongamia pinnata)	Karanj oil is insecticidal and bactericidal and effective against wide range of pests on various crops.
Genda (Tagetes sp.)	Excellent nematode repellent. Crushed roots can control root rot, nematodes brown rust in paddy, wheat.
Mahua (Madhuca longifolia)	Mahua oil can prevent stem rot and roots rots of various crops like jute, potato, ground nuts, aqueous leaf extract is also equally effective.
Lantana (Lantana camera)	Leaf extract is effective against leaf minor of crops like brinjal, tomato, chilli, crucifers, onion.
Cahulai (Amaranthus blitum and A. tricolor)	Leaf dust and leaf extract can prevent brown rust of wheat and paddy
Jatropha (Jatropha curcas)	Extract of species is effective against wide range of pests in all crops, oil cake is excellent manure and soil insect repellent
Ipomea (Ipomea raptans)	Leaf dust and leaf extract are effective against white fly, sheath rot, ear head bug, brown rust, burn spots in paddy, wheat and cotton.
Methi (Trigonella foenumgraceum)	Fresh leaf extract is effective against wide range of pests
Onion (Allium cepa)	Bulb dust is effective against many fungal diseases and pest of rice, wheat, fruit trees, pea and to prevent leaf curl, powdery mildew and other fungal growth
Drum stick (Moringa oleifera)	Root and leaf extracts are effective against root rot and bacteria in vegetables and fruits
Sitaphal (Custard apple)	Seed and leaf extract spray can prevent diamond back moth, pod borer and insects in brinjal, rice and wheat
Datura (Datura metal)	leaf extract is excellent anti fungal agent and effective against brown rust in paddy and wheat
Castor (Recinus communis)	Oil is repellent of weevil, aphids, caterpillars in maize. Oil cake is good manure and insect repellent
Bael patra (Aeglomarmelos)	Leaf extract and fruit extract are repellent to wide range of leaf eating insects and sucking pests
Mustard (Brassica nigra)	Leaf extract of black mustard is effective against stem rot of jute
Chaulmoongra (Hydnocarpus curzii)	Oil prevents and cures stem rot and fruit rot citrus

## India Organic News

### **Experts to prepare draft of policy on organic farming**

Enthusied by Punjab Chief Minister Shri Parkash Singh Badal's promise to frame a policy to promote natural farming; organic farming enthusiasts and environmentalists have decided to prepare a draft of the proposed policy. Organic farming lovers and environmentalists have started deliberations to prepare a foolproof draft wherein earnest efforts to be made to promote organic farming, minus the use of pesticides and insecticides. CM Shri Badal had asked to prepare a draft for a policy, which could go a long way in minimizing use of fertilizers and pesticides during farming. Umendra Dutt, Executive Director of NGO Kheti Virasat Mission (KVM), said; "Organic farming enthusiasts have come out with valuable suggestions to prepare a draft where state could effectively minimize the use of pesticides and insecticides". Ramon Magsaysay award winner and water conservation activist Shri Rajinder Kumar of Rajasthan, expert farmer of Madhya Pradesh Sh. Deepak Suchde, agriculture scientist Dr Om Parkash Rupela, WHO global consultant Hemant Goswami and Coalition for GM Free India, national convener Sh. Rajesh Krishanan contributed in preparing the policy draft. (Source- Times of India TNN, Jul 28, 2013)

**Natural fertilizers gain popularity** - When it comes to applying the traditional ways of farming, the demand for [natural fertilizer](#); **Jeevamrat made from cow dung and urine** is gaining popularity in the region. Jeevamrat comprises different components like cow urine, cow dung, gram flour (besan) and jaggery (gur). It strengthens the fertility of soil three times in comparison to other fertilizers. To prepare Jeevamrat, take 10 liters of cow urine, 10 kg cow dung, ½ kg gram flour, ½ kg of jaggery and mix with water into a big utensil. The mixture is kept for three days. It is stirred clock-wise and anti-clock wise to make it uniform. Jeevamrat has all

components for better cultivation of crops and it also has hidden capability of natural pesticide. Less people know about the technique of preparing jeevamrat and promoters are making efforts to spread it so that cultivation takes place traditionally, instead of using harmful pesticides and chemicals. A survey undertaken by the Associated Chambers of Commerce and Industry had revealed that around 62% of households prefer organic products due to rising awareness. In metropolitan cities and big towns, there has been a major shift for organic products, especially fruit and vegetables and people are willing to buy fruits and vegetables grown with natural fertilizers. District Horticulture Officer PK Shukla said that natural fertilizers play a vital role in crop cultivation and people are inclined to buy products being grown through natural fertilizers. Jeevamrat is a natural fertilizer, having unlimited benefits of increasing the fertility of soil. The fruits and vegetables grown through it have a rich taste. Officials are promoting farming through natural fertilizers. Farmers, farmhouse owners and individuals are being roped in to apprise farmers about the benefits of natural fertilizers. Claiming that the land at Kaurihar, Bahdurpur, Chaka, Bahria and Soraon blocks is suitable for natural fertilizers, the horticulture department aims to spread the preparation of natural fertilizers among farmers and individuals. They aim to encourage cultivation of guava, tomato, cabbage, peas, ladyfinger, carrot, litchi and amla through organic farming. Farmers in 17 out of 20 blocks are approaching agriculture experts to adopt natural farming (Source- TNN Jul 23, 2013)

### **25,000 turn to organic farming at fair-**

Understanding the benefits of chemical free farming, more than 25000 farmers registered themselves with the state agriculture department to participate in organic farming initiatives, against the target of 800, at the

“organic fair and food festival” organized at Indira Gandhi Sports Complex, Shimla, Himachal Pradesh on Friday. Inaugurating the festival, Agriculture Minister Sh. Sujan Singh Pathania said the fair is aimed to create awareness regarding organic farming and organic products among the farmers. The Government has started many programmes to promote organic farming and production of organic farming and production of vermicompost as it would ensure chemical free products” he added. In the state, consumption of chemical fertilizers was 54 kg/ha in comparison to the national rate of 135 kg/ha, while in Punjab it was 237kg/ha. So far 13838 ha had been brought under organic farming in the state. To improve the quality of paddy, wheat in state, Rs 20 crore per annum were sanctioned under the National Food Security campaign. A crop diversification scheme costing Rs 321 crore had been launched with the assistance of Japan. For 2013 -14 fiscal year, Rs 30 crore has been allocated under this scheme, adding that 7 markets would be constructed at a cost of Rs 20 crore to improve market facilities. Various organizations displayed their organic products in 24 stalls at the festival, including 15 from the state. Technical sessions were also held to educate farmers about organic farming. (Source - Hindustan Times, 14 August 2013, Shimla)

**Young women farmers with mission 'Poison-free farming'**- Farming is mostly a male-dominated profession but some young women are leaving their footprints in the field of farming by adopting and promoting poison-free farming. For some of them it is passion, some want to be independent, and some want to carry forward the family tradition. Their circumstances are different but the mission is same, 'poison-free farming'. As the natural farming and environment festival is on at the community centre here, women farmers who promote organic vegetable farming were part of it. Kamaljit Kaur, 36, from Bhotna village in Barnala district of Punjab, is associated with poison-free farming for two years. She is in charge of three villages that guide others and

promote such farming. Kamaljit said, "Two years ago, Kheti Virasat Mission Director Umendra Dutt came to our village for a lecture on poison-free farming. He said that a mother who should be a protector was serving poison to her children. These words touched me and from that day I am associated with the mission. She said, "I was provided with free vegetable seeds; we grow vegetables for our household and not for commercial purposes. I now save around Rs. 3,500 per month. Most important, medical expenses have been reduced. She said, "Slowly I started motivating women from my village and now am doing it in three villages. Further, women motivate their relatives and friends to adopt our mission."Talking about organic vegetables, she said the taste of the vegetable was entirely different and it took less time to cook". Regular field classes are provided in villages to make women understand the entire process of growing vegetables and identify insects as all insects don't harm plants," said Kamaljit. Kiranjeet Kaur, 29, from Barnala district is facing a hard time due to her marital dispute, but vegetable farming has given a new direction to her life". I was depressed after the marital dispute but wanted to do something on my own so that I am not considered a burden. My father and brother bought nine marlas of land for me to start vegetable farming. I started it two months ago. We consume the vegetables at home and the rest is sold in the market. I also motivated women in the surrounding areas", said Kiranjeet. She said, "Cow dung is the best natural way to increase productivity of vegetables. After putting year-old cow dung in water for four days and keeping that in a dark room, spray it on vegetables; it helps in increased output of vegetables". Jaspreet Kaur, 20, is another budding farmer, also a student of second-year graduation. "I practice organic kitchen gardening. I provide free seeds to others so that they also adopt it. The idea came to me when my mother, a heart patient, was facing a tough time. Now her health has improved due to the use of organic vegetables", said Jaspreet. Deepika, 22, from Uttarakhand was

also there with her many varieties of beans. "Farming is in my blood; our ancestors started organic farming which has been adopted by generations," said Deepika. "I started farming when I was nine; my father is a member of the Beej Bachao Andolan and the family environment is such, that motivates me to do something innovative and useful for society". "Beans are our home production and after hard work of many generations we were able to produce so many varieties", said Deepika. (Source- Hindustan Times, Bathinda, July 27, 2013)

**Organic farming getting popular in remote south Sikkim-** At a time when the area under organic cultivation in the country is yet to cross one percent of the total agricultural land, the small hilly state of Sikkim has stolen the show as its entire agriculture is set to go organic by 2015. The state has only around 60,000 ha of farmland and already 40 percent of it is under process of conversion to organic. As part of its plan to make the entire state to organic cultivation by 2015, Sikkim has banned the use of chemical fertilizer and pesticides from 2003 itself. Sikkim can see farming rising as villagers of Maniram, south The state agriculture is giving free seeds to the farmers such as the seeds of tomato, broccoli and cauliflower. The local farmers see it as an income generator as they are getting more yields. As also organic farming is adding to the tourism potential of the state and providing additional income to farmers as the Sikkim Government has also taken up organic tourism. Nature tourism is being promoted by setting up home stays in villages that have been declared "completely organic". Maya Kumari, a farmer here, said that she earns well". Earlier, I used to sow one packet of seed which I got from seed department, but this year out of three packet seeds. I have sown 2500 seeds of tomato and it has come out well. For one packet of tomato seed, I earn around Rs. 10,000 to 12000 and with cauliflower I earn about Rs. 50,000", she said. (Source- By ANI |ANI – Wed 31 July, 2013 Gangtok).

**Indian farmer promotes 'magic farming' –** A farmer in the northern Indian state of Bihar is using magic shows to promote organic farming, Amarnath Tewary reports from Govindpur village in Muzaffarpur district. Shreekant Kushwaha, in his late 40s, is a farmer who is a trained magician and has been using his skills to convince farmers in the state to convert to organic farming methods. In the last few years, he has conducted more than 1,000 magic shows and converted thousands of farmers to organic farming to "increase both their yield and incomes". "Magic and farming are both science and need use of hands for their execution. Both become obsolete if denied new tricks", he says. Most of his magic shows begin with some popular trick like making a small ball vanish into air, or pulling a pigeon out of a hat". Once I've grabbed the attention of the crowd, I go for the real thing", he says. "I show them two boxes and tell them that one box has seeds with organic fertiliser while the other has seeds with synthetic fertiliser. Then I put a lid over both the boxes and say let's see which grows faster." "When the lid is lifted, the seeds treated with organic fertiliser seem to have grown into small plants but those treated with synthetic fertiliser have not grown at all," he says. "And then I explain why and how it is done". He says, most among the audience return home convinced that organic is the way to go. Mr Kushwaha himself learnt the benefits of organic farming in 2001 from a training camp held in his village by a non-governmental organization. He says moving to organic farming changed his fortunes: he grows rice, wheat and more recently, medicinal plants on his farm and yields are high. Once a poor farmer who could not even afford two daily meals for his family, he now owns a double-storey house, has a beautiful kitchen garden with decorative lights and flowers, a cow, a colour television, a computer and printer and a motorbike. "I couldn't go to school, but I sent my children to school for a proper education," he says, "It was all made possible once I started organic farming on my two-acre plot of agricultural land", he says".

And, now my only mission in life is to promote organic farming". The idea to promote organic farming with magic shows came to him in 2003 when "at village agriculture fair I saw a magician pulling in the crowds for his shows and keeping them interested for well over an hour with his tricks". "But when I approached the magician, he refused to teach me any tricks". Mr Kushwaha did not lose hope and went to meet Ram Ratan Sharma, a famous magician in his area. While he farmed his land during the day, he learnt magic at night, picking up more than 500 tricks in two years". The villagers and even my own family members said I was mad but I kept on", he says. In 2005, Mr Kushwaha conducted over two dozen magic shows in his village to convince farmers of the benefits of organic farming. A year later, Govindpur - a village of 150 households with a population of over 1,200 was declared the first organic village in the state by the Bihar Government. Soon, the Government-run State Bank of India adopted the village to provide all facilities to the farmers as they moved to organic farming. An unlettered farmer who could barely write his name in Hindi, Mr Kushwaha has now been felicitated by several institutions, politicians and local organizations for his "unique experiment of farming with magic". Today, he gives tips to farmers on how to make organic fertiliser to increase the soil fertility and better their yield. Farmers Shankar Ram and Rajdeo Singh are all praise for Mr Kushwaha who has done the village proud with his sheer "dedication and determination to convert all of us to organic farming". Says agriculture expert UK Sharma: "Mr Kushwaha has cast his magic spell on the farmers of the area." At present though, Mr Kushwaha is worried about the depleting number of cows and buffaloes in the village which, he says, may hamper the move towards organic farming. Cow dung and urine provide valuable fertiliser for organic farming". Cattle rearing has become quite expensive these days so many people are moving away from it and migrating from villages to find jobs in the cities," he says. "But then, there is always a new trick in

science and magic." (Source – 25 July 2013 News India)

### **Organic farming help farmers increase their resilience to climate change -**

Bundelkhand (Madhya Pradesh): Mathuralal Patel is not sure why someone in New Delhi or Mumbai would prefer vegetables from his farm to his neighbour's, but he knows that the way he grows crops is good for his soil. Using organic fertilisers, he says, helps increase the fertility of his soil, while using too many chemical fertilisers degrades the land's soil quality.

For Patel, a farmer in the Bundelkhand region of Central India, organic farming increases his resilience to respond to the risk of climate variability. Over 70 per cent of the population in this region relies on predominantly rain fed agriculture for their subsistence. While the threat of drought has always loomed over this semi-arid region, farmers and scientific experts worry that climate change may make drought conditions even more common in the future thereby increasing food insecurity and migration rates. From field trials conducted in arid, semi-arid, sub-humid and humid regions of India, Navdanya, a Non-Government research organization found that organic farming techniques can improve soil carbon levels by five per cent to 25 per cent and increase the water holding capacity of soils between two per cent to 17 per cent. Soils with higher concentration of carbon content are better able to absorb and retain water because the organic matter acts like 'sponge' absorbing excess water and retaining it in the soil. More moisture in the soil is particularly valuable for farmers in drought prone, dry regions. Organic farming systems also increase biodiversity by cultivating different genetically diverse crop varieties. Finally, the price premium that organic produce garners from the health and taste benefits perceived by city consumers allows organic farming to be financially more profitable than conventional farming. Together with using adaptation strategies such as water efficient irrigation techniques and drought tolerant

seed varieties, organic farming can help farmers cope with the impacts of the changing climate. (Source – Nicholas Monzy Martin, Development Alternatives, Zee News Saturday, 17.8.2013).

**Karnataka farmers develop non-Bt cotton seed bank** - For 52-year-old Nagappa Nimbegundi, a farmer from Makari village in North Karnataka, this Independence Day was special. After three years of relentless efforts, he has managed to revive 13 varieties of indigenous cotton and 11 other varieties of non-Bt cotton in his farm. The seed bank that he is developing is of significance, as 90% of cotton production in India has been taken over by Bt cotton, a genetically modified variety developed by an American company. Indigenous varieties have become virtually non-existent and are difficult to find even at research institutions. (Source- TNN Aug 16, 2013, NEW DELHI, TIMES of India).

**Managing resources the 'Disha' way** - Pitching in their might to arrest further degradation of biodiversity residents of 10 villages in Gurupurhobli of Mangalore taluk, are managing natural resources available locally. With the supported of Development Initiatives for Sustainable Human Advancement (Disha) Trust, the villagers are practicing natural resource management (NRM) since 2008. The initiative is taken up in collaboration with Anderi Hilfe Bonn, a German-based organization. Disha has established 96 self-help groups (SHGs), with 1,404 members hailing from Kandavara, Kolambe, Ulaibettu, Mallur, Addur, Mulur, Kolavur, Muttur, Kilenjar and Mudushedde of Gurupur Hobli and 10 village committees to implement NRM schemes. The schemes include water conservation, sustainable agriculture and alternative energy sources projects. The villagers have constructed several gully plugs and four check-dams in Gurupur hobli to optimize the use of water available. Chandrahas, a resident of Kandavara, said, that the villagers did not face water shortage in the summer this year. "Farmers in the village use the water from the

check dam," he added. The villagers have also rejuvenated several farm ponds and unused wells in an effort to increase the ground water level. About 125 families are part of a campaign that encourages roof water harvesting. "We are giving farmers training in organic farming. We aim at creating awareness among villagers about conservation of natural resources. The villagers are encouraged to use vermicompost and liquid manure. Several biopesticide units and kitchen gardens have been developed in the region," said Mohammad Guthigar, secretary of Disha. Disha bears 75% of the cost of NRM projects taken up by farmers who own less than 5 acres of land. "The trust also conducts skill development programmes". Anderi Hilfe Bonn has been providing funds to help the farmers to establish NRM projects. (Source- Times of India, August 12, 2013).

**Organic farming: As a climate change adaptation and mitigation strategy** -

Organic farming, as an adaptation strategy to climate change and variability, is a concrete and sustainable option and has additional potential as a mitigation strategy. The careful management of nutrients and carbon sequestration in soils are significant contributors in adaptation and mitigation to climate change and variability in several climate zones and under a wide range of specific local conditions. Organic farming, as a systematic approach for sustained biological diversity and climate change adaptation through production management, minimizing energy randomization of non-renewable resources; and carbon sequestration is a viable alternative. The purpose of potential organic farming is therefore, to attempt a gradual reversal of the effects of climate change for building resilience and overall sustainability by addressing the key issues. Research is needed on yields and institutional environment for organic farming, as a mitigation and sequestration potential. (Source- A. Sartaj Wani, Subhash Chand, Scholarly Journal of Agricultural Science Vol. 3(7), pp. 294-298, July, 2013)

## Global News

### **Participatory Guarantee Systems (PGS) Global Scenario Emergence of PGS**

Organic producers around the world have been developing methods to guarantee the organic integrity of their products for fifty years. Today, what are generally referred to as *Third-Party Certification* systems have become the dominant means of Organic Guarantee for world trade. While Third-Party Certification is an essential component to world trade, there are downsides to the system. The inherent expense and paperwork required in a multi-level system discourages most small organic producers from being certified at all. This limits local and domestic trade as well as access to organic products. Worse yet, it limits the growth of the Organic Movement as a whole. In an attempt to reduce the inequality of this trend, a number of alternative methods to guarantee the Organic integrity of products have been developed for small domestic producers, and they are growing rapidly. In 2004, a conference sponsored by MAELA and IFOAM was held in Brazil. Representatives from over 20 countries presented their approach on the "alternative" certification systems that have been developed. Thousands of small-scale producers now associate themselves with these alternatives programs, which are now collectively referred to as *Participatory Guarantee Systems* (PGS). As per the definition of IFOAM (2008) "Participatory Guarantee Systems are locally focused quality assurance systems. They certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange. In this system people in similar situation assess, inspect, and verify the production practices of each other and declare the entire holding of group as organic. PGS has number of basic elements which embrace a participatory

approach, shared vision, transparency and trust. Participation is an essential and dynamic part of PGS. Key stakeholders are engaged in initial design and then in operation of PGS, where they are involved in decision making and mechanics of PGS, stakeholders particularly the producers are engaged in a structured ongoing learning process. This process is facilitated by PGS group itself or in some situations a supportive Government or Non-government institution. The term PGS embodies the active participation of producers and other stakeholders in their organic guarantee process.

The PGS-India being essentially the same has some additional features which includes: (a) integrated with well knit institutional network, (b) entire database is available on-line to consumers for transparency (c) random residue testing strengthens trust and ensures consistent quality assurance, (d) gives certificate to in-conversion crops also and (d) provides a common platform to all groups across the country to share their experiences for better implementation. In addition Government support in bearing the cost of institutional networking, surveillance and monitoring, data management and random residue testing not only makes it a low cost intervention but also with the trust of Government system.

### **World Scenario-PGS Organic-**

Since 1985, several countries like Brazil, France, Namibia, New Caledonia, New Zealand, USA, Canada, Chile, Indonesia, Mexico, Peru, S. Africa, South Korea, Vietnam, United Kingdom, Philippines and India with their respective Govt. and NGOs are engaged in operating PGS for organic certification. Details of farmer's groups and different countries is given in Table 1

**Table 1-IFOAM-PGS Database**

Countries	Number of PGS entities/ groups	No. of Operators
Brazil	7	3694
France	1	830
Namibia	1	7
New Caledonia	1	126
New Zealand	1	150
USA	1	1100
Belize	1	25
Bolivia	3	990
Canada	1	17
Chile	1	10
Costa Rica	1	17
Indonesia	2	48
Mexico	1	771
Paraguay	1	60
Peru	1	1000
South Africa	3	299
South Korea	1	NA
The Philippines	1	10,500
United Kingdom	1	NA
Vietnam	1	183

(Source-PGS MAP IFOAM )

### PGS in India

The Ministry of Agriculture, Government of India, National Centre of Organic Farming and FAO have undertaken a technical cooperation program for promotion of organic agriculture. One of the important components of this program was to explore and develop PGS as a means of Organic Guarantee for products produced and consumed within India. The first PGS model for India was developed based on existing models around the world. It especially borrowed and built on the strengths of existing successful PGS programs in Brazil, New Zealand and the United States. The first draft of the synthesized Indian program was completed in May 2006. Based upon this document and strategies drawn, it was decided that PGS will be operated on pilot scale by some civil society organizations. Organic Farming Association of India (OFAI) was chosen as the key stakeholder to spear

head the program. Since then this NGO based PGS model is being managed by PGS council of India and has approved the PGS scheme through 10 different facilitation council i.e. Integrated Institute of Rural Development, Aurangabad, OFAI, Keystone foundation, Deccan Development Society, Chetana Vikas, CCD, Timbaktu Collective, Grass Roots and Green foundation. During last 8 years these facilitation councils have successfully brought up this PGS with their sincere efforts to attain a good position. More than 5000 farmers in different states have been enrolled under the program and are being certified. Details of farmer groups attached with this NGO based PGS model are given in Table 2.

### PGS-India Organic Guarantee system promoted by the Govt of India

Keeping in view of the limited spread of PGS initiative under NGO model, Government of India during 2010 initiated a Nation-wide program for promotion and spread of PGS under a national Program named as PGS-India. In tune with international trends and IFOAMs PGS guidelines PGS-India system is also based on the similar principles of participation, shared vision, transparency and trust. In addition it gives a PGS movement a National recognition and institutional structure without affecting the spirit of PGS. PGS-India program provides two types of certificates. PGS-Organic certificate is granted to those which have successfully completed the conversion period and have achieved the level of organic. PGS-Green certificate is granted to those groups which are running under conversion period and have grown the crops as per PGS standards.

The programme is being operated by the National Centre of Organic Farming (NCOF) a sub-ordinate office of the Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India as PGS secretariat. Six Regional centers located at Bangalore, Bhubaneswar, Hisar, Imphal, Jabalpur and Nagpur under the NCOF is working as Zonal councils. Each Zonal council

looks after 3 to 7 states. Regional Councils are the main agencies dealing with the Local Groups. In states where there is no Regional Council, these Zonal Councils shall also act as default Regional Council, till a regular RC is created in that state.

As per the programme the Local Group is the main functional unit responsible for all activities, inspections and decision making. Regional Councils help local groups in their capacity building and decision endorsement. Zonal councils are purely monitoring and surveillance units with no role in decision making. PGS Secretariat is the custodian of data, policy making and program operation unit. Details of various Regional Councils along with their registered groups, number of operator's total area and total production during the year 2012-13 is given in Table 3. The groups registered so far under these Regional Councils have been in In-conversion status and has been granted with PGS-Green certificates.

**Table 2- PGS groups and total operators under NGO based PGS Model in India**

Facilitation agencies	States	Number of groups	Number of operators
Organic Farming Association of India	Himachal Pradesh	2	12
	Kerala	1	8
	Uttar Pradesh	4	31
	Pradesh	7	49
	West Bengal		
Keystone Foundation	Tamil Nadu	14	118
Convenant Centre For Development (CCD)	Andaman & Nicobar	6	90
	Maharashtra	6	58
	Odisha	9	152
	Tamil Nadu	7	107
Green Foundation	Karnataka	8	54
Institute For Integrated Rural Development	Karnataka	5	57
	Maharashtra	79	1470
	Tamil Nadu	16	316
	West Bengal	53	318
Timbaktu Collective	Andhra Pradesh	51	797

Deccan Development Society	Andhra Pradesh	37	185
Chetna Vikas	Maharashtra	14	84
Pan Himalayan Grassroots Development Foundation	Uttarakhand	40	485
Institute For Cultural Research & Action	Karnataka	68	496
Maharashtra Organic Farmers Federation	Maharashtra	44	304

(Source-PGS organic council newsletter,vol 5,issue 1,March 2013)

**Table 3** Number of groups, number of farmers, total area of all the groups under each Regional Council and production by these groups under each RC.

Regional Councils	Number of groups	Total number of operators	Area (in ha)	Production (in Tons)
SERP	22	243	185.86	1427.34
Saptgiri, RDS	1	10	23.20	30.00
BIRDS KVK	1	10	17.56	1176.25
APOF	4	63	124.69	628.30
Mysore Green Exports	12	224	744.7	666.72
Manacard u SSS	15	837	888.56	1369.57
TVSCRT Hosur	34	341	292.00	NA
Makkal Nala Sangam	5	125	50.62	2650
Neem Foundation Nagpur	6	72	182.6	NA
PSADVK Jabalpur	2	84	338	65.40
Total	102	2009	2847.79	8013.58

**Organic farms stand to grow, new study says** - Morgantown-based environmental

consulting firm Downstream Strategies just released a new study titled “Overcoming the Market Barriers to Organic Production in West Virginia, USA”. Organic farming is a form of agriculture that relies on techniques such as crop rotation, green manure, compost, and biological pest control. Organic farmers do use fertilizers and pesticides but exclude or strictly limit the use of chemicals like synthetic fertilizers, pesticides, and plant growth regulators. It’s really an old idea that’s been revitalized in a big way since the 1990s, but it’s still rare in West Virginia. Downstream Strategies’ new study details obstacles and steps that can be taken to overcome the challenges, farmers in the state face getting their produce certified as being organically grown. “The first thing that we found is that there are hardly any certified organic farmers in West Virginia”, says Evan Hansen of Downstream Strategies. “We were only able to identify six of them. We were able to identify an additional seven that were in transition to certification. Whereas neighboring states have substantially more certified organic farms, Hansen says one reason there are so few here is that West Virginian farms are typically smaller operations. “Half of WV farms sell less than \$5,000 a year and they have very little incentive to be certified organic because a lot of them know their customers and there’s really no need to do the extra paperwork and spend the extra money to be certified”. Hansen explains that there’s also an exemption where farmers who don’t sell more than \$5000/year don’t need to be certified to prove that they grow organically. If they employ organic farming techniques they can label their food organic but not “certified organic”. Hansen says there are several other reasons why we see so few certified organic operations. “There’s some suspicion about the government-based organic certification process and some misconception about it. So there’s a little bit of a lack of trust and a need for better information to be distributed to farmers so that they could better evaluate whether it’s a good option for them”. Hansen maintains that certification could translate to bigger payouts for farmers,

and therefore growth in the state’s food economy. “There’s definitely demand for organic produce in some parts of the state. I know at the Morgantown Market that there are organic growers there and they’re doing well. But there are also opportunities if farmers want to expand their farms, to distribute the organic produce. Getting on the organic band wagon usually means buying a ticket from regional distributors and Hansen says that not only means jumping through paper hoops, it also often means a commitment both financially and in terms of the quantity of food. “So it’s a real commitment not only in terms of the paperwork and the cost of certification, but often growing more food and taking on other burdens that they don’t have to take on right now. But there could be a payoff where they sell more at higher prices and there are markets regionally that WV Farmers can sell into. Farmers should really explore those markets and see if that might be a way to make a transition to organics and actually make more money in the long term.” Downstream Strategies reports that their study is “*being released as the West Virginia Legislature seeks ways to support the local food economy. A proposed resolution, which was used to set the Joint Committee on Agriculture and Agribusiness agenda for interims (Res. 139), highlights the importance of expanding agricultural production for the economy of West Virginia. According to the resolution, if West Virginia producers provided just 75% of the state’s produce, \$93 million in additional sales and 1,330 in-state jobs could be generated.*” (Source- By Glynis Board, West Virginia Public broadcasting, July 25, 2013)

**Philippe van den Bossche, Impact Investor and Advocate of Sustainable Agriculture, Discusses Global Organic Farming Initiative** - Impact investor and advocate of sustainable agriculture, Philippe van den Bossche, discusses the World Wide Opportunities on Organic Farms (WWOOF) global initiative. According to an August 4, 2013 article published by [The News Tribune](#), entitled, “Ohio organic farms draw

international volunteers,” a global movement, called the World Wide Opportunities on Organic Farms (WWOOF), is bringing together a diverse group of people looking to take part in and learn more about the organic farming industry. The program, which consists of thousands of farms in fifty different countries, is an international network that “connects travelers with organic farmers who are willing to offer room and board in exchange for volunteer work on their land.” as well as in the United States. There are currently 13,500 members at 1,600 farms across the country. Michael Horst’s farm in West Toledo, one of the two organic farms in Ohio, attracted a number of “green-minded globetrotters” to his property. The diversity of his visitors has become a vital tool in keeping his farm well-rounded. He says he has learned gardening practices, “like the Native American tradition of inter-planting corn, beans, and squash in the same mounds to enhance the soil’s fertility, expanding the crops on his land. “Organic farmers and enthusiasts are able to work together on farms all over the world. As these enthusiasts travel from farm to farm, they are able to share their knowledge and the tips they have learned, further increasing global awareness about the benefits of utilizing organic farming practices. (Source-New York, NY (PRWEB) August 13, 2013).

**The European Commission looks at possible revamp of organic farming legislation** - The European Commission review is due in September to reconsider the EU’s rules on organic farming, including a likely review of certification standards and an assessment of the potential risks posed by genetically modified crops. The Commission’s forthcoming roadmap could open the door to update a 2007 regulation and a decade-old action plan on organic farming, a tiny but politically important farm sector in the EU. Organic farmers were largely exempted from changes to the post-2013 [Common Agricultural Policy](#), agreed at the end of June, though many environmental groups expressed dismay that the future [CAP didn’t go further](#) in compelling conventional farmers to adopt

natural growing practices. Europe’s leading organic farm group, the International Federation of Organic Agriculture Movements, or IFOAM, has welcomed the upcoming roadmap as a potential to strengthen the sector. “The Commission’s review of the legislative and policy and framework for organic food and farming provides the opportunity to build on the success of the organic sector,” Christopher Stopes, president of IFOAM EU, [said in a statement](#) at the European Organic Congress in Vilnius last month. Stopes called for “the development of the organic regulation in a way that enables expansion – more land organically farmed, more organic food eaten by all European citizens. This bold ambition depends on innovation and well informed development. A new organic action plan can lay the foundations for this whilst the new CAP is implemented and new legislative proposals for organic regulation are made.”Organic farming remains a tiny part of European agriculture despite strong national support programmes in Austria, Sweden, Estonia and a few other countries. Some 10.6 million hectares – or 2.2% of EU farmland - is organic, according to the [Research Institute of Organic Agriculture](#), in Frick, Switzerland. Organic farming distinguishes itself from conventional agriculture in its restricted use of fertilisers and insecticides for crops and antibiotics for livestock; a ban on genetically modified crops; an emphasis on crop rotation and native plants to protect soil quality; and allowing farm animals to roam free and eat a diet of pasture grasses or organic feed. Farmers who want to promote their production as ‘organic’ must comply with the EU’s planting and husbandry rules. The upcoming roadmap, due to be outlined in September, is expected to look at several policy areas, including: Enforcement and monitoring of organic foods certification and labeling; Setting international standards on organic production in trade matters (Source-[www.euractiv.com/cap/commission-looks-possible-revamp-news-529734](http://www.euractiv.com/cap/commission-looks-possible-revamp-news-529734) Published 07 August 2013)

### **Feeding Kenya through organic farming -**

On arrival to Mzee Benson Kinyua's farm in Rongai, Nakuru county in western Kenya, the atmosphere changes drastically. The sun's blazing heat is defused by cooling breezes from surrounding trees. This surreal atmosphere is a far cry from what many Kenyan families living next to towns experience each day. Kinyua, says it is all part of a conscious plan. "I depend solely on the environment for food, and so I have to protect it." His formula for a peaceful coexistence with nature, has taken hold in many communities worldwide. He practices organic farming, which relies on simple, locally available and low-cost environmentally friendly agricultural techniques. It prohibits the use of synthetic fertilizers and pesticides, whose mismanagement adversely affects the environment and human health. Just like most Kenyan families, he is a small-scale farmer who produces food on limited land. Most of his agricultural yield is for home consumption and the surplus is sold to generate income for other needs such as school fees, health and groceries. For Kinyua, organic farming was a common sense transition that has changed the life of his family. He began the practice in 2004, after undergoing training at the Kenya Institute of Organic Farming (KIOF). Initially, while practicing conventional farming, I spent so much of the family finances on manufactured fertilizers and pesticides. But now, I don't need to buy anything. I fertilize my soils with compost manure made from what I primarily considered waste such as animal droppings, vegetable remains, dry leaves, ash and bones." Once applied, it continually enriches the soil with key nutrients (potassium, nitrogen and phosphorous) necessary for plant growth. The manure also produces humus, which binds soil particles. "This enables my farm to withstand erosion from intense floods and winds that previously destroyed my crops," he says." You know, when I used to rely on conventional pesticides, I would have sleepless nights imagining the effects those chemicals would have on the family, and especially the kids, if used inappropriately." He

now uses biological methods. "The Mexican marigold weeds - mixed with pepper and other crop residues - are effective against whiteflies and spider mites that attack vegetables. Practices like rotating legumes with cereals, and using pyrethrin sprays from pyrethrum are also valuable," he says. As for diseases, he says organic matter from compost manure increases soil micro-organisms that naturally suppress them, while mulching with dry grass also helps. Such simple techniques have protected his family from the effects of pesticide poisoning, which causes cancer, birth defects and damage to the nervous system. Since organic farming advocates for diversity, Kinyua says that his family is always assured of sufficient food and income. "I plant maize, beans, cassava, bananas, kales, tomatoes among other food crops all year round. I also rear animals such as cows, goats, rabbits, ducks and chicken," he says. Kinyua says organic farmers need to be aware of available solutions for combating post harvest crop losses, which is often more than 50 percent for most of them." I use metal silos, which are affordable simple structures. They can store up to 25 sacks of maize for many years without using any pesticides or chemical preservatives. They also protect grains against humus and attacks from rodents, insects and birds," he adds. "Organic farming has made me realize that nature provides us with so much. Farmers only need to have knowledge and skills for harnessing the gifts," says Kinyua. Despite using such simple farming methods that conserve the environment, the farmer still reaps huge profits. "We now have outlets such as green groceries, restaurants and supermarkets that specifically sell organic products. And they are on high demand for their health and nutritional value," he says. Apart from increasing soil fertility, organic farming controls pests and diseases, saves the environment from chemical deposits, makes ground water clean and safe and saves the farmer on money that would have been used on expensive farm inputs such as fertilizer. The farmer also produces safe and nutritious foods that fetch better prices in the market.(Source-

NAIROBI, July 24, [English.news.cn](http://English.news.cn), By Ejjidiah Wangui)

**Soil Carbon blowing in wind-** Australian soils are losing about 1.6 million tonnes of carbon per year from wind erosion and dust storms affecting agricultural productivity, our economy and carbon accounts, according to new research. Top soil is rich in nutrients and carbon but is increasingly being blown away by events such as the 'Red Dawn' in Sydney in 2009. When wind lifts carbon dust into the atmosphere it changes the amount and location of soil carbon. Some carbon falls back to the ground while some leaves Australia or ends up in the ocean. CSIRO research scientist Dr Adrian Chappell and an international team of experts in wind erosion and dust emission recently calculated the extent of these carbon dust emissions. "Carbon stored in our soils helps sustain plant growth. Our modelling shows that millions of tonnes of dust and carbon are blowing away, and it is uncertain where all that ends up," Dr Chappell said. "We need to understand the impact of this dust carbon cycle to develop more accurate national and global estimates of carbon balances and to be able to prepare for life in a changing climate. "Australia's carbon accounts, and even global carbon accounts, have not yet taken wind or water erosion into consideration and when this happens it could have significant impacts on how we manage our landscapes. While soil organic carbon lost through dust is not a major contributor to Australia's total emissions, it is a major factor in our deteriorating soil health."Carbon is an essential ingredient for the healthy soils which underpin Australia's capability to produce enough food to feed 60 million people. Understanding the movement of carbon through the landscape is a necessity if we are to improve the quality of our soils and support farmers and land managers to store carbon. This is not an issue for Australia alone. Other countries will also need to know the fate of their wind-blown carbon; countries like the USA and China with larger dust emissions will likely face similar challenges when including wind borne dust in their carbon accounting.

With the frequency and intensity of dust storms likely to increase in Australia, the impact of wind erosion would also increase. This redistribution of carbon needs to be better understood so we can improve our land management practices to better protect our soils. Recent research estimated that the 'Red Dawn' dust storm that passed over the eastern coast of Australia on 23 September 2009 cost the economy of New South Wales A\$300 million, mainly for household cleaning and associated activities. (Source - Dr Chappell, CSIRO Principal Research Scientist 2 August 2013,CSIRO)

### **Sustainable Technologies Safeguard the soil in Cuba**

- The furrows are hard to make out in fields of the Finca de Semillas, a farm on Havana's outskirts, because its administrators, Esmilda Sánchez and Raúl Aguilar, protect every centimetre of soil with mulch. "This technique has done the most to boost our yields," said Sánchez, one of 1,200 farmers who have benefited from a pilot project for the improvement and conservation of soil, water, and forestland in order to adapt to climate change. "The earth holds the humidity, something that is very much needed in our area, which is affected by drought," she added. The project, which has been coordinated since 2010 by the state Soil Institute, includes the planting of forest areas on farms, appropriate mechanization strategies, a search for new sources of water, no-till farming, live barriers, mulch, and bio-products. "Because we didn't know better, we used to plant without taking into account the direction of the slope, and without creating barriers, the rain washed away all of the nutrients from the soil." said Aguilar, an ex-welder who has been working for the last eight years on this 30-hectare parcel of land, which belongs to a state cooperative. This was the first of the 35 pilot farms scattered throughout the country as part of the project, which is supported by the United Nations Development Programme. "Through each one of these, the principles of sustainable land management are spread in practice," Dagoberto Rodríguez, the director general of the Soil Institute, told IPS. "Now we are

including alternatives for addressing every type of soil, water and forest problem in the country. We also cover different the forms of production,” he added, referring to cooperatives, state farms, and farms run by individuals to whom unproductive state land has been distributed. Every agricultural unit receives training, technical assistance, and supplies, oriented towards solving the specific problems it faces. At the same time, these units are becoming a reference point for the rest of the rural community where they are located. The Cuban archipelago was not blessed with fertile land. According to Soil Institute data, only 28 percent of Cuba’s soil is highly productive for agriculture. Of the rest, 50 percent is in the fourth category of productivity, one of the lowest, Rodríguez said. The country’s main limiting factors are salinity, erosion, poor drainage, low fertility, natural compaction, acidity, very low organic material content, poor retention of humidity, and desertification, according to the National Office of Statistics and Information. Also, centuries of agriculture have affected Cuba’s soil, where the economy depended on sugarcane monoculture until the early 21st century. In fact, the agro-ecological and conservationist movement is only a little over 20 years old here. Heavy rains and lengthy droughts are eroding Cuba’s land, Rodríguez said. Both are more and more frequent and will intensify with the advance of climate change. For example, a hurricane can drop half of a given area’s annual rainfall in 24 hours, he said. The technologies established by the Soil Institute to prevent rill erosion – pits or paths caused by water flow – are not effective against the precipitation that is being received by areas such as the basin of the River Cauto, which flows through the eastern provinces of Granma and Santiago de Cuba. The entire coast and southern plains of Cuba are threatened by coastal flooding and the consequent salinisation of soil. Based on Soil Institute figures, by 2050 the average salinity of that area, now estimated at five (according to the way soil salinity is measured), will have risen to seven if the effects of global warming are

not mitigated, said Rodríguez. In that case, large expanses of farmland would be lost, and many tracts would have to be planted with crops that are tolerant of the new conditions, he said. Hence the importance of promoting comprehensive management of all natural resources involved in agriculture, he stressed. “The main problem was a lack of knowledge among farmers about techniques for improving and conserving soil, water, and forests,” said Raimundo Suárez, an engineer who works with the Polígono Nacional. He told IPS that promoting new practices was easier among non-traditional farmers. “Mentalities have changed with the results obtained,” Suárez said. “The most direct benefit obtained has been a reduction in costs by weight and increased yields and income,” he said. At Finca de Semillas, plantain, sweet potato, and papaya crops used to yield 7.1, 6, and 5.8 tons per hectare, respectively. Today, Sánchez and Aguilar harvest 10.2 tons of plantain, 8.2 of sweet potato, and 18.4 of papaya per hectare. For 17 years, Leonardo Cardoso has been heading Las Estrellas, a parcel of land that belongs to the state farm Monumental, part of the Polígono. His fruit production, such as mango, guava, loquat and avocado, and his lumber trees depend on rain, his only source of water, he told IPS. Two priorities on the farm, located on a high slope, are preventing soil from washing away and making maximum use of rainwater. For this purpose, the two farmers he oversees take measures such as creating barriers to erosion made of plants or rocks, or using organic material and earthworm humus. (Source-By Ivet González ,INTER PRESS SERVICE NEWS AGENCY, HAVANA, Aug 20 2013 (IPS).

**Rodale Institute: Organic Methods Proven Superior** - When rain gets scarce, we turn a tap, and water flows readily from hoses and sprinklers in yards across the nation, making it easy for us to take the resource for granted. But with climatologists predicting weather extremes in all corners of the globe in the next century, wise water use will become even more critical for all American gardeners and farmers. Hardiness zones have already

changed in just the past 20 years; warm-region growing conditions are moving farther and farther north. And drier conditions are racing north, as well. Drought already costs U.S. citizens \$6 billion to \$8 billion a year on average, and according to a study from the National Center for Atmospheric Research, we could face extreme drought within just 30 years. This could mean devastating crop failures, water shortages, and widespread water restrictions. With a warmer, drier environment on the horizon, turning on the hose or sprinkler to quench a thirsty garden might not be an option. In response to the changing climate, the big three chemical-producing companies—DuPont, Monsanto, and Syngenta—are in a heated race to be the first to release a drought-tolerant variety of corn. Both genetically modified and standard-bred hybrids are in the works. They may claim feeding an ever-expanding world population as their altruistic motivation, but making millions from drought-stricken farmers makes for a lucrative incentive: Feeding the bottom line is any public corporation's duty. While drought-tolerant varieties are a valuable piece of the puzzle, another solution already exists—one that farmers and gardeners can practice immediately, without paying for specialized seeds. And it's a solution that has scientific research to back it. The [Rodale Institute's Farming Systems Trial \(FST\)](#) has been tracking the performance of organically grown grain crops (such as corn and soybeans) and conventional, synthetic-chemical-reliant grain crops for the past 30 years. As America's longest-running side-by-side comparison of these farming systems, the FST has revealed that crops grown organically are truly healthier and hardier in the long run, and better able to cope with weather extremes. Organic fields in the FST produce just as much as the chemical-reliant fields, despite claims that organic farming uses more resources to produce less food. But it is the performance of the organic fields during drought years that is truly amazing. In four out of five drought years, the organically grown [corn](#) produced significantly more than the conventionally

grown corn. The organic corn of the FST was even more successful under drought conditions than the drought-tolerant seed varieties were in the industry trials. The Rodale Institute's organically managed fields produced between 28.4 percent and 33.7 percent more corn than conventionally managed fields under drought conditions. "The organic matter in soil acts like a sponge, providing water reserves to plants during drought periods and preventing water from running off the soil surface in times of heavy rains," says Rita Seidel, agro-ecologist and FST project leader at the Rodale Institute. "This organic matter has significantly increased in the FST organic fields and is actually diminishing in the conventional fields." Even in times of severe water shortage, not only can organic fields produce a more successful crop, but they continue to contribute to our drinking water reserves. In the FST, the organic fields recharged groundwater at rates 15 to 20 percent higher than the conventional fields. Whether you are cultivating 40 acres or 40 square feet, [compost](#), mulches, and cover crops create a well-balanced, fertile soil that can absorb more water, which buffers plants from drought stress. And avoiding toxic herbicides and pesticides and synthetic fertilizers keeps the community of soil microbes actively processing organic matter. Thirty years of research proves that organic farming and gardening grows food and grows it well even during extreme weather conditions. Good news, for in the face of a warmer, drier future, the more we can rely on our soil rather than our hoses, the better off we'll be. So why does the FST's organic crop outperform the chemical crop? "The current toxic-chemical approach to growing our food destroys the life of the soil with pesticides, herbicides, and high levels of inorganic fertilizers," says Elaine Ingham, chief scientist at the Rodale Institute. "They are destroying the support system, developed by nature over the last 4 billion years, that grows healthy plants." That natural support system of organic practice is what makes those crops more drought-tolerant. Fertile soil, rich in organic matter and microbes, creates a more stable environment

for plants. Rather than crop failure in times of stress, the organically cultivated plants can rely on the soil to provide what the weather has not. (Source-The article [Rodale Institute: Organic Methods Proven Superior published by The Sleuth Journal – Real News Without Synthetics](#) Sunday, August 18, 2013 4:05)

**Effect of organic, conventional and mixed cultivation practices on soil microbial community structure and nematode abundance in a cultivated onion crop -**

Responses of the soil microbial and nematode community to organic and conventional agricultural practices were studied using the Teagasc Kinsealy Systems Comparison trial as the experimental system. The trial is a long-term field experiment which divides conventional and organic agriculture into component pest-control and soil treatment practices. Authors hypothesized that management practices would affect soil ecology and used community level physiological profiles, microbial and nematode counts, and denaturing gradient gel electrophoresis (DGGE) to characterize soil

microbial communities in plots used for onion (*Allium cepa* L.) cultivation. Microbial activity and culturable bacterial counts were significantly higher under fully organic management. Culturable fungi, actinomycete and nematode counts showed a consistent trend towards higher numbers under fully organic management but these data were not statistically significant. No differences were found in the fungal/bacterial ratio. DGGE banding patterns and sequencing of excised bands showed clear differences between treatments. Putative onion fungal pathogens were predominantly sequenced under conventional soil treatment practices whilst putative soil suppressive bacterial species were predominantly sequenced from the organic pest-control treatment plots. Organic management increased microbial activity and diversity. Sequence data was indicative of differences in functional groups and warrants further investigation. (Source-Kim Reilly\*, Eileen Cullen, Journal of the Science of Food and Agriculture, ©2013 Society of Chemical Industry, Article first published online: 7 JUN 2013, DOI: 10.1002/jsfa.6206).

### **Steel Giant takes to organic farming**

In a one of its kind initiative, iron and steel giant Shyam group has started organic farming in its plant at Jamuria in Burdawan district to cater to the kitchen requirement of around 3000 staff who work in the plant. The plant covers an approximate area of 400 acres of which the company identified around one acre of surplus land on the premises to utilize it for growing different kind of vegetables to meet the canteen requirements. At present they have initiated organic farming on pilot scale on 15cottahs and are able to meet around 30% of their canteen requirements. When the full one acre would be utilized, which they are hopeful of in another three years, the plant would meet 75% of its canteen requirements, as added by Arun Talwar, Corporate social responsibility (CSR) and Brand In-charge of the Jamuria Plant. As the area comprises of sandy loam soil, it has made the task of agriculture difficult. But as Talwar puts it, a combination of cow dung and cakes of mustard oil, neem after being mixed with the soil has increased the fertility. This farming has become the part of their CSR project. The farm produces cauliflowers, brinjal, cucumber, lady finger, papaya, gourd and other leafy vegetables. Company officials buoyed by the success of the project, now plan to replicate this idea in their future plants. (Source-Wed, 14 Aug 2013, Hindustan Times)

## National and International Events

**The Farmer Training Program from May 5 to October 31, 2014** - is a 6-month intensive program for aspiring farmers and food systems advocates that provides a hands-on, skill-based education in sustainable agriculture. This full-time program offers participants the unique opportunity to manage their own growing site, take classes from professors and expert farmers, and rotate as workers and learners on successful, diverse farms in the Burlington area. This program will provide an intense, supportive experience where participants leave with a Certificate in Sustainable Farming, a deeper understanding of agricultural management and small-scale farming, and the entrepreneurial skills to start their own operation. The Farmer Training Program is designed by UVM Food Feed (Sustainable food system and the University of Vermont) for aspiring farmers and those interested in sustainable, local food systems. Strong applicants:

- Are looking for a career in sustainable farming and food systems
- Want to play an active role in the sustainable food movement
- Value a comprehensive education in all aspects of the business of farming, including marketing and distribution
- Want a hands-on farm education
- Want to learn from Vermont's vibrant small-scale, diversified farming community

Tours of the program will include an opportunity to meet staff, see the Hort Farm and work alongside current farmer training students. Interested people can Email at [farmer@uvm.edu](mailto:farmer@uvm.edu) indicating their interest in taking a tour.

**BIOFACH NORTH AMERICA** - Located at Natural Products Expo East, BioFach America - All Things Organic delivers the largest organic buying audience in the United States. With a qualified audience of more than 20,000 industry members, your organic products will

be seen, tasted, and tried by this huge audience of potential customers at Baltimore during dt 26.9.2013 to 28.9.2013. BioFach America - All Things Organic, delivers cutting edge organics finished products, raw materials, market intelligence and education that tradeshow and conference attendees won't find anywhere else in North America. IFOAM (International Federation of Organic Agriculture Movements) is proud to be the Patron of BioFach, who applies strict admission criteria to guarantee the constantly high quality of the products on display. For details visit [events@ifoam.org](mailto:events@ifoam.org)

### **Asia-Pacific Regional Symposium Entrepreneurship and Innovation in Organic farming, Bangkok, 2-4 December 2013**

- As organic farmers in Asia and the Pacific face the challenges of dynamically growing markets that are increasingly complex, their capacity to adapt to change, take entrepreneurial initiative and conceive of new solutions becomes crucial. Hosted by IFOAM and FAO from December 2 - 4 in Bangkok, Thailand, this Symposium will address the different successful strategies adopted by organic farmer entrepreneurs to ensure their competitiveness in a series of presentations and workshops complemented by a field trip. There are also corporate sponsorship opportunities available. More information can be found at [ww.ifoam.org](http://ww.ifoam.org).

### **The International conference on Organic Agriculture in Mountain ecosystem**

- Taking action on the Rio+ 20 declaration "The future we want is organic", the Government of Bhutan, Navdanya, the Millennium Institute, and the International Federation of Organic Agriculture Movements (IFOAM) invite you to

### **The International Conference on Organic Agriculture in Mountain Ecosystems, March 5<sup>th</sup>- 8<sup>th</sup>, 2014, in Thimphu Bhutan**

Rich in biodiversity and home to nutritious crops, mountain ecosystems are threatened by deforestation, soil degradation as well as erosion, melting and receding of glaciers. This conference aims to draw attention to the special needs of mountain ecosystems and highlight how going organic can help tackle pressing problems such as climate change, water exploitation, and the displacement of farmers. A diverse line-up of thought leaders, researchers, scientists and farmers will come together to discuss the latest scientific findings, technological progress and devise models to strengthen organics in mountain range areas. The Conference Objectives are

- To create an international platform for the presentation of the best and latest knowledge, scientific findings and technology development on the contribution

of organic agriculture to food security, ecological security and livelihood security.

- To focus on the special conditions in mountain ecosystems and special sustainable and equitable development needs of mountain communities in the area of food and agriculture in the face of climate and other major challenge.
- To strengthen and consolidate Bhutan's policy by taking steps towards "Organic Himalaya" and develop models for the Himalayan and other mountain range countries and areas.

Registration is scheduled to open in September at which point detailed information on travelling to Bhutan will also be provided. For more details contact [communications@ifoam.org](mailto:communications@ifoam.org)

#### **"CERTIFICATE COURSE ON ORGANIC FARMING"**

To create first generation organic agriculture extension workers and field worker, to develop rural trainers on organic management practices with special focus on cropping system management, nutrient management and plant protection etc., National Centre of Organic Farming, Ghaziabad has started 3 residential **Certificate Course on Organic Farming** courses each of 30 days duration at its campus Ghaziabad from the year 2013-2014. The courses are normally organized during July, September and December.

**Eligibility of Participation:** The course will be open for rural youth having Degree/Diploma in Agriculture. SAUs/Educational Institutes can also sponsor their undergraduate students for such course.

**How to Apply:** Duly typed application can be submitted on A-4 size paper **clearly indicating choice of duration of course** to the Director, National Centre of Organic Farming, Sector 19, Hapur Road, Ghaziabad-201002 (UP) along with detailed Bio-Data and a passport size photograph (duly attested by gazetted officer) pasted on the Bio-Data, supported by attested photocopies of Educational Qualifications (Degree / Diploma in Agriculture) **10 clear days before the commencement of the course**. The applications can either be submitted directly or through the institutions where the applicant is presently pursuing his studies. **However, a signed, scanned copy of the application must be sent to email id [nbdc@nic.in](mailto:nbdc@nic.in) with subject line "Application for Certificate Course"**. During the stay of participant at NCOF, Ghaziabad, lodging and boarding charges shall be borne by this centre, however, NO TA/DA shall be paid for attending this course. Selection of participant will be on first come first serve basis and it will be the sole discretion of Director, NCOF to change / postpone or cancel any of the course, circumstances, if so warrants.

The date of commencement of each course will be advertised in the national newspapers and also in the website of this office at <http://ncof.dacnet.nic.in>.

## Books Reviews

**The World of Organic Agriculture, Statistics and Emerging Trends 2013** by Willer, Helga, Julia Lernoud and Lukas Kilcher (Eds.) FiBL, IFOAM, 2013, 344 pages - The 14th 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 that cover surface area under organic management, specific information about land use in organic systems, numbers of farms and other operator types 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 in Africa, Asia, Europe, Latin America, North America and Oceania. In addition, the volume contains a number of country reports: Albania, Australia, Canada, Hungary, Kosovo, Montenegro, Serbia, Pacific Islands, and the United States. (SM)

**New FAO publication "Organic Agriculture: African Experiences in Resilience and Sustainability"** published by FAO in May 2013, edited by Raymond Auerbach, Gunnar Rundgren and Nadia Scialabba - The new FAO publication "Organic Agriculture: African Experiences in Resilience and Sustainability" demonstrates that organic management can benefit people, the economy and ecosystems and that this can be achieved in Africa, where hunger and degradation stubbornly persist, despite decades of development efforts. The work presented in this volume stems from the conference on Mainstreaming Organic Agriculture in the African Development Agenda, held in Lusaka, Zambia, from 2 to 4

May 2012. Participants of this Conference shared research results confirming that organic agricultural practices "increase yields, improve livelihoods and food security, conserve indigenous knowledge, plant varieties and animal breeds, as well as socio-cultural development, and provide much greater resilience in times of climate extremes, such as drought and heavy rains. The different chapters document sustainability experiences, including:

- Mainstreaming organic agriculture into African development approaches;
- Community-based livestock systems combining holistic range management;
- Indigenous ethno-veterinary practices and new understanding of customary systems of resource management and;
- Smallholders' knowledge harnessed through family farmers learning groups and customized information and communication technologies.

The studies from different Sub-Saharan countries demonstrate that successful organic farming is about whole farm management, where feeding the soil feeds the plant, where optimal nutrient cycling is achieved through plant and animals management in time (i.e. rotations) and space (i.e. associations) and where quality production goes hand-in-hand with market linkages. Sound agronomy is a recipe that needs to be owned by farmers who have specific cultures and by pastoralists who have specific environments: traditional knowledge and flexible management strategies are therefore key for successful outcomes (SM).

List of participants participated in 30 days “**Certificate Course on Organic Farming**” organized during 25<sup>th</sup> July to 23<sup>rd</sup> August 2013, at NCOF, Ghaziabad

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