



ISAP News Letter

Indian society of Agribusiness Professionals

VOL. 1 • ISSUE-7 AUGUST - 2003 MONTHLY

For Private Circulation Only

Editorial...

Dear Isapians,

As you are aware, our core mission statement is to improve the productivity of the marginal, small, and medium farmers who constitute the majority among the farming community of India. The Green Revolution has ushered in quantum jump in food grains production, thereby ensuring national level food security. However, individually small farmers themselves are still insecure with repeated crop failures leading to debt and sometimes-even suicides. How to ensure their food security? This is the problem, which our planners are grappling with.

It was a pleasure to attend the 6th J.R.D.TATA Memorial Lecture delivered by Professor M.S Swaminathan. He has placed high hopes on agribusiness clinics to deliver extension services to the vast majority who have remained untouched by the Green Revolution and exhorted the young professionals to "Walk the Talk"! In the initial rush towards change we adopted the modern agricultural practices. Mono Cropping and replacement with elemental NPK has been found to give high yields in the short term but manifest a decline after repeated applications. Some of the reasons Dr M.S. Swaminathan mentioned are lack of inter-cropping with legumes as pulses, oil seeds and as forage crop which can also help boost milk production and not adhering to the recommended dosage of fertiliser. He also wants that the green revolution becomes ever green and problems like increasing salinity levels in agrarian states like Punjab given proper attention.

Today there is a growing recognition that traditional knowledge base constitutes a community's heritage as a cumulative experience of farming in a particular set of agroclimatic conditions and hence represents evolved agricultural practices. Earlier they were dismissed outright as being primitive. For example low cost innovations are being catalogued very well by Honey Bee Knowledge network, supported by SRISTI.

ISAP as a national level network, recognises the importance of the impact created by agricultural practices on the environment. Also sustainable agriculture can not be ensured by declining soil fertility levels. ISAP is committed to search for appropriate technologies which are energy efficient in terms of calorie input, calorie output, cost effective and economical, ensuring higher levels of production for the same unit area under cultivation, able to conserve water requirements and above all do not cause environmental and ecological damage or externalised costs as they are being called.

Organic Farming holds the promise of ensuring sustainable agriculture. There is a growing scientific knowledge base on organic farming and this includes traditional practices as well. ISAP has already published articles. Medicinal Plants for example are to be cultivated using organic farming methods only, since the end use for the alkaloids and other phyto chemicals is medicinal, requiring high levels of purity. There is also the need to ensure that agricultural produce is nutritious with the full complement of micro nutrients, since deficiency gets transferred to the food chain of plants to animals, finally manifesting in humans as well, leading to deficiency disorders. Organic farming also holds the promise of a micro nutrient rich crop and absence of toxic chemicals, which include excess fertilisers and pesticide residues. Organic farming enthusiasts also say that organic produce has longer shelf or storage life, even without post harvest measures like pre cooling etc. Organic farming can yield economical returns and the myth that it is expensive, has to be tackled and proved wrong.

A plant is basically a factory manufacturing carbohydrates by photosynthesis, using sun's energy, and CO₂ from the atmosphere. However certain amount of mining of nutrient elements from the soil takes place. This requires periodic replacement by mulching with organic humus and allowing bio dynamic activity in the soil with interdependent life forms called as flora (Diversity of plant life) and fauna (insects and other such life forms). The urban organic waste should ideally be turned into rich humus without the presence of toxic heavy metals and other contaminants, instead of being dumped into landfills and river streams. Segregation of urban household waste before its collection can ensure this and is the most economical option.

Hence in the context of the small farmer, agricultural practices require careful study and application of tried and tested organic farming concepts can bring the desired higher productivity. We can do this by examining the current set of practices and introducing such appropriate technologies like composting by NADEP, using bio gas plants, flat plate and parabolic dish solar cookers which reduce the demand for cooking fuel needs by offering low cost environmentally friendly renewable energy, and vermiculture, green manure and inter cropping with legumes and crop rotation to improve the soil fertility and use of non toxic bio degradable pesticides from locally available materials like cow /bullock urine, milk and plant materials like neem.

Isapians need to adopt an interactive methodology in which we learn from the farmer on traditional practices and also make available the knowledge and practices from the organised agricultural research which has not been transferred to the small farmer in particular. Hence extension services today really come to mean a cross flow of knowledge. Dr.M.S.Swaminathan wants a 'humanisation' of science and technology so that the farmer can absorb the technology and profit from it. In practical terms, Isapians have to study cultural barriers at the individual farmer's mindset, to adopting relevant appropriate technologies, which can bring in the desired results.

With Best Wishes

R. Santhanam 

Growing Herbs in the Home Garden

During the last few years growing herbs has earned a place in the Kitchen Garden. Freshly harvested herbs have pungent and aromatic qualities that far exceed those of their commercially obtained counterparts-whether fresh or dried.

Even after the outdoor growing season is over, you can still enjoy dried herbs in fragrant potpourris and sachets. You can also grow herbs indoors in pots on sunny windowsills, and use them for culinary purposes, fresh, dried, or frozen.

CHOOSING A SITE

Herbs flourish under the same conditions that you provide for your flower or vegetable garden. Although most herbs will grow in **partial shade**, it is better if the herb garden receives at least **4 to 6 hours of sunlight** a day. A majority of herbs will grow well under a wide range of soil conditions, with the exception of extremely wet, poorly drained soils. Note, however, that **sage**, **rosemary**, and **thyme** require a well-drained but moderately moist soil.

If the garden soil is poorly drained, you can improve the situation by modifying or amending it. Even more effective would be the use of raised beds. To improve soil fertility and tilth, add 100 to 150 Kgs. of compost per 100 square feet of soil before planting. Spade it into the soil thoroughly.

In general, herbs do better in soils of low to medium fertility, so additional fertilizer applications are not needed. Soils with high fertility tend to produce lots of foliage that resulting in less flavor.

Prepare your garden site in the same manner that you would a vegetable garden, spading it to a depth of 6 to 12 inches. Then level and rake the site to remove any large clods and debris.

GROWING HERBS IN CLAY POTS

Many herbs can be grown successfully in pots on a balcony or terrace. There are many reasons why you may want to grow herbs in pots rather than in the garden. First, many of them are small and tend to get lost in a landscape; growing them in pots brings them closer to the viewer. This is especially true of ornamental herbs that have unique qualities that should be viewed from close up. Pot growing is especially recommended for herbs that need good drainage and tend to rot in overly wet garden soils, or for tender herbs that need to be kept in-doors.

Choosing a pot. Any container is suitable for growing herbs as long as it has a drainage hole. Clay pots are often preferred because they are more porous than plastic. Other containers that work well include window boxes, strawberry jars, and hanging baskets.

Soil mix. The soil you use should be loose and well-drained. A recommended mix for container grown plants can be made by mixing equal parts of potting soil, peat moss, and farm yard manure (or vermiculite).

Choosing the plants. Small and slow-growing herbs look best in containers. Some examples are sage, parsley, Greek oregano, rosemary, marjoram, basil, thyme, chives, mint, celery and fennel. Window boxes, strawberry jars, and large pots can accommodate a combination of several herbs and flowers.

Care of herbs in containers. Watering is the most difficult part of container gardening. Plants growing in containers dry out faster than in the ground. On a hot, sunny day, a container may require water once or twice daily. Of course, the water requirements vary from plant to plant.

When the top of the soil feels dry, apply enough water to allow a small amount to come out the drainage holes in the bottom of the container. Since most herbs do not require high fertility, you should not need to fertilize them as much as you would other container-grown plants such as flowers or houseplants. During the growing season, pinch the plants back to keep them bushy and compact and remove any dead or diseased leaves to keep them healthy.

Growing herbs indoors. Herbs growing in containers can be easily moved indoors for the winter. Before doing so, the plants should be acclimatized in early fall. Gradually move them indoors a few hours at a time over the period of several days so they get adjusted to the differences in temperature and light. Herbs growing indoors should be treated differently than that out-of-doors. One of the biggest problems is providing sufficient light to keep the plants from getting spindly. Grow them in the sunniest location you have or under fluorescent lights. Since the plants will not be using as much water as they did outdoors, water only when the soil is dry; apply enough water so that some drains out the bottom of the pot. Avoid over watering which will cause the roots to rot. Check the plants frequently for aphids, spider mites, and whiteflies that are common pests on herbs grown indoors.

AVAILABILITY OF SEEDS AND PLANTS

Seeds and plants of various herbs can be obtained from local garden shops and nurseries. The seeds of the more common herbs, such as dill, basil, and parsley are usually available from local seed dealers, while the less common ones should be purchased from companies specializing in herbs.

SUMMER CARE OF THE HERB GARDEN

Weed control and provision for adequate moisture are two important cultural necessities. When rainfall is less than 1 inch per week, provide additional moisture. The use of mulch is an attractive and effective means of water need for a week and maintaining constant soil moisture and temperature for the root systems of your herbs. Mulches that you might consider include bark chips or shredded bark, compost, ground corncobs and dried grass clippings. To be effective, the mulch should be applied at least 3 inches deep around the plants.

WINTER PROTECTION

Sometimes herb plants succumb to the extreme temperatures but often they are killed by extreme temperature fluctuations. Here are some suggestions to ensure plant survival.

First, start out with healthy plants and maintain vigor throughout the growing season. Though many herbs tolerate poor or wet soils, the majorities prefer to grow in well-drained soils. Plants in overly wet soils will grow poorly and are subject to root rots. Soils that are heavy should be amended with organic matter to loosen the clay structure. Another method of improving drainage is to plant the herbs in raised beds.

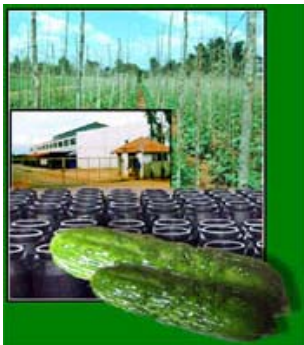
Avoid late fertilizing and pruning. Most herbs are more flavorful when the fertility is not too high. Pruning should be done during spring and summer; avoid excessively cutting the plants back in the fall. The growth serves to catch leaves that help insulate the plants. An additional mulch of evergreen branches or some other material should be placed around the plants. Avoid mulch that packs down and stays too wet during the winter, which would cause the plants to rot.

Finally, plants that are marginally hardy (such as rosemary and Greek oregano) should be dug up, potted, and over wintered indoors. They can be moved back to the garden the following spring.

Capt. S.K.BHANDARI
Chief Consultant
Agro Services & Farm Input Consultants-Dehra Dun

Gherkin Diseases and their Controls

Mildew Diseases:



Powdery mildew is a fungus disease that affects plants on a world wide scale. On crops such as the cucurbits (cucumber, gherkins, melons, courgette and pumpkins), powdery mildew is the principal disease causing yield and quality reductions in hydroponic culture. While powdery mildew does reduce growth and yields, its main effect tends to be in the reduction of quality, particularly of greenhouse crops such as cantaloupe. Fortunately, for hydroponic growers, mildew disease is easy to identify and there are a number of both 'low chemical' and fungicidal products, which can be used to prevent and control disease outbreaks.

Signs and Symptoms:

As with any disease, the first step to control is accurate identification. Powdery mildew is often confused with 'downy mildew' another disease which produces whitish clumps of fluffy spores on the leaf surface. However the two can be distinguished from each other by the symptoms and time of year at which they infect the crop. Downy mildew is also common on cucurbits and other crops such as lettuce, grapes, peas, roses and other cut flowers, where it appears as greyish white downy patches on the undersides of leaves. The first symptom of downy mildew is often the appearance of light green or yellow spots on the upper surface of the older leaves, with the spores forming on the underside of the foliage. On roses, downy mildew may appear as irregular reddish purple spots on sepals of flowers and leaves, the leaves may then develop burnt margins and drop off. On crops such as hydroponic lettuce, with a mild infection of downy mildew, the outer, wrapper leaves are usually removed at harvest and little damage occurs to the harvestable portion of the plant. If the entire plant becomes heavily infected, then total crop loss can occur.



Fig 1. Downy mildew spores the under side of a gherkin leaf.

Powdery mildew, is much more common than Downy mildew and many vegetables, bedding and fruiting plants, shrubs and even trees may be infected. As with downy mildew, the cucurbit crops are the most susceptible, but under hydroponic cultivation, lettuce is also highly prone to infection under warm, drier conditions (downy mildew being favoured by cool, moist conditions). While downy mildew tends to produce the whitish spores on the undersides of the leaves, powdery mildew covers much of both the lower and upper sides of the leaf. Areas affected with powdery mildew enlarge in a circular pattern, spreading a white dusty growth over the whole leaf surface. As

the disease advances, the leaves become brown and dried and will drop off. Infected foliage and shoots tend to become discoloured, distorted and completely covered in a powdery white growth as the disease progresses through a crop. Fruit of cucumber, cantaloupe and squash are usually free of visible infection, even when the foliage becomes white with the spread of the fungal spores, however the fruits will ripen prematurely and will lack flavour under these conditions. Later fruits will often fail to mature and will be small and often misshapen.



Fig. 2 The first signs of powdery mildew on a cucumber leaf.



Fig.3 Yellow spots on the upper leaf surface caused by downy mildew

Control of Mildew Diseases

Prevention:

Powdery mildew is favoured by dry atmospheric and growing conditions, moderate temperatures, reduced light intensity, good nutrition and succulent plant growth. For this reason it is a very common disease in later summer and Autumn (Fall), but it can be a problem in protected growing areas such as greenhouses, conservatories and grow rooms, on a year round scale. All mildew spores are spread via wind or air movement, and certain insects can also carry the disease. Unlike other fungal diseases, such as downy mildew, the powdery mildew spores don't require a film of water to be present on the leaf surface to germinate and infect the plant tissue. In fact, if the powdery mildew spores are in contact with water they are inhibited to a certain extent. Smaller growers can achieve some control over powdery mildew by simply spraying the leaves with a garden hose in the afternoon to help prevent infection. Powdery mildew spores germinate best in a temperature range of around 22 - 31 C (72-88F), and in shaded areas of the crop, so it is more severe in closely planted crops. If the spores, entering a growing area, make contact with a plant under conditions of reduced light intensity, a temperature of 22 - 31 C (72-88F), and absence of moisture then germination will occur within two hours, and infection will be two days later.

One of the best ways we have of preventing mildew disease is through the use of 'resistant varieties'. Resistant types of cucumbers and cantaloupes are available and should be selected for use in Summer-Autumn grown crops. Resistance to both downy and powdery mildew has been bred into a number of plant species, so it's important to check with your seed company to see what is available.

Cultural Control:

With downy mildew which requires moisture (relative humidity of at least 95%) to develop, keeping the plants dry and the growing area well ventilated when conditions are cool will help prevent the disease. Since powdery mildew can infect the crop under dry conditions, it's more important to select resistant varieties, and make sure plants are well spaced. Often a major source of mildew infection can be from plants growers buy in from a nursery - these should be carefully checked for mildew, and treated before they enter the greenhouse. Between crops, all surfaces of the growing area, beds and gullies should be disinfected with a strong bleach solution or with an anti-mildew fungicide to prevent the carry over of disease to the next crop.

Low Chemical Control:

The powdery mildew fungus is vulnerable to the action of sulphur throughout most of its life cycle. Sulphur works by 'selective toxicity' that is, it is more toxic to the parasite than to the host.

An effective sulphur application rate would be 110-220ml per 100 litres of water of a 'suspension or wettable powder' product, when the fungus is first observed, followed by repeat applications two weeks later.

Sulphur should not be applied to cantaloupes because they are sulphur sensitive. Cucumbers are somewhat sensitive to sulphur, gourds, pumpkins, squashes, watermelons and most other plant species are sulphur-tolerant.

Sulphur offers long lasting protection and is effective in the absence of moisture. The warmer the temperature, the greater the vaporisation of sulphur and since sulphur acts as a vapour one way of using it in a greenhouse is by painting it on greenhouse heating pipes during colder growing periods. During warmer growing periods, in greenhouses and other growing areas, sprays, dusts or aerosol bombs may be used.

For the control of downy mildew, copper compounds are effective, but they should be used with caution, as repeated applications can cause crop damage

Many rose and cucumber growers achieve control or prevention of mildew disease with application of silica based dusts or sprays. Silica gives a protective coat over the leaf surface and thus prevents the mildew spores from germinating and infecting the plant tissue.

Another low chemical method of control which has achieved some success for many growers is the use of sodium bicarbonate sprays (common baking soda). It is thought that the high pH of the spray which coats the leaves inhibits the growth of the mildew disease.

The current recommendations are for 2 teaspoons of baking soda per litre of water, with a good 'squirt' of a high quality liquid dishwashing detergent (or other wetting agent such as 'coco-wet'), applied as a preventative spray will give reasonable control of mildew disease.

** Fungicides for Mildew Control:

There are numerous fungicidal products for the control of mildew disease. The problem with 'chemical' control is that many of the fungicides have caused the development of resistant strains of mildew disease. Sulphur dust or flowers of sulphur poses little or no risk of inducing resistant mildew stains. Others such as Benomyl can no longer be used because resistant strains are now very widespread.

One of the chemical fungicides which is still effective against powdery mildew is 'triforine', sold under the name of 'Saprol'. Saprol is a systemic fungicide with both curative and protectant action against a range of fungal disease. This should be sprayed at the first sign of infection (at a range of 150ml/100 litres of water), and repeated 10 days later. Powdery mildew can develop resistance to Saprol, so its use should be limited to 4 applications per season, and rotated with use of another fungicide such as sulphur based products. Other fungicide products which pose less risk to inducing resistance are those containing pyrazophos, and dinocap (these may go by various trade names including Afugan or Sabithane).

****NOTE:** it is important to check with your local department of agriculture to see which fungicide products are registered for use on food crops in your area.

Source: <http://www.hydromall.com>

One of the most interesting substances exhibiting fungicidal properties is cow's milk. Researchers in Brazil discovered that aqueous solutions containing from 5% to 50% milk all demonstrated significant suppression of powdery mildew on squash plants. Sprays containing as little as 10% cow's milk were at least as effective as conventional fungicide sprays, with efficacy increasing as concentrations were increased. Hence this could be an alternative worth exploring. – R.Santhanam/ISAP

जैविक व टिकाऊ खेती हेतु केंचुआ खाद बनायें

हरित क्रांति के दौरान अत्यधिक रासायनिक उर्वरकों एवं सिंचाई के उपयोग पर आधारित कृषि से जहां खाद्यान्न उत्पादन बढ़ा है, वहीं आधुनिक भारतीय कृषि कई गम्भीर समस्याओं से जूझ रही है। निरन्तर, अनितिपूर्ण बढ़ते रासायनिक उर्वरकों के साथ-साथ कीटनाशकों के प्रयोग से भूमि का स्वास्थ्य जर्जर होता जा रहा है। फसलोत्पादन में बढ़ती लागत किसान की कमर तोड़ रही है। इसका समाधान अब प्राकृतिक संसाधनों के समुचित उपयोग एवं कार्बनिक खादों के प्रयोग से ही सम्भव होगा। हमारे यहां कृषि, वानिकी, पशुओं, शहरी तथा कृषि उद्योग के व्यर्थ कार्बनिक पदार्थों का भारी भण्डार उपलब्ध है, जिसे कार्बनिक खादों में बदला जा सकता है। आज किसी ऐसी तकनीकी की आवश्यकता है जो कार्बनिक व्यर्थ पदार्थों को कम से कम समय में खाद में बदल सके, इस क्रम में केंचुआ खाद एक अतिमहत्वपूर्ण एवं क्रांतिकारी प्रौद्योगिकी है। इससे खाद बनाने में परम्परागत विधियों की अपेक्षाकृत केवल एक तिहाई समय लगता है, वर्मी खाद की गुणवत्ता भी अन्य खादों की अपेक्षा उच्च कोटी की होती है। अतः इसके माध्यम से व्यर्थ कार्बनिक पदार्थों को तेजी से खाद में बदल कर कृषक भाई सस्ती, लाभकारी एवं टिकाऊ खेती अपना सकते हैं।

वर्मी कम्पोस्ट क्या है ?

केंचुआ का वैज्ञानिक तरिके से नियंत्रित दशाओं में प्रजनन तथा पालन वर्मी कल्चर कहलाता है, केंचुआ से विसंचित पदार्थ को वर्मीकास्ट कहते हैं। अपघटन शील व्यर्थ कार्बनिक पदार्थों जैसे भूसा, पुआल, घास, पत्ते, गोबर आदि कचरे को मिलाकर केंचुओं से प्राप्त विसंचित पदार्थ को वर्मी कम्पोस्ट कहते हैं। इस प्रकार केंचुओं की सहायता से अपघटित जीवांश पदार्थ से खाद बनाना वर्मी कम्पोस्ट कहलाता है। एक अनुमान के अनुसार केंचुए एक हजार टन कार्बनिक पदार्थ को 300 टन जैविक खाद में बदल देते हैं। गंदगी नियन्त्रण में केंचुए की अहम भूमिका है। यह रबर प्लास्टिक व धातु को छोड़कर लगभग सभी कुछ खा जाते हैं। ताइवान विश्व विद्यालय की एक रिपोर्ट के अनुसार लगभग 2 करोड़ केंचुए 800 मीट्रिक टन पल्प स्लज को एक दिन में समाप्त कर सकते हैं।

वर्मी खाद का प्रयोग क्यों ?

केंचुआ कृषकों का मित्र एवं भूमि की आंत कहा जाता है। यह सेंद्रिय पदार्थ, ह्यूमस व मिट्टी को एक सार करके जमीन के अंदर अन्य परतों में फैलाता है, इससे जमीन पोली होती है व हवा का आवागमन तथा जलधारण की क्षमता बढ़ जाती है। केंचुए के पेट में जो रासायनिक क्रिया व सूक्ष्म जीवाणुओं की क्रिया होती है उससे भूमि में पाये जाने वाले नत्रजन, स्फुर, पोटाश, कैल्शियम व अन्य सूक्ष्म तत्वों की उपलब्धता बढ़ती है, सामान्य खाद के मुकाबले इस खाद में एन्जाइम, हार्मोन, ऑक्सीजन, एन्टीबायोटिक्स, ह्यूमिक, एसिड्स, तथा लाभकारी सुक्ष्म जीव पाये जाते हैं। खाद में पोषक तत्वों की मात्रा— नत्रजन 7 गुना, स्फुर 11 गुना एवं पोटाश 14 गुना बढ़ता है।

वर्मी कम्पोस्ट कैसे बनायें :-

- ⇒ किसी ऊँचे स्थान पर जहां पानी न भरता हो नर्सरी बेड तैयार करें। बेड को लकड़ी से हल्के से पीटकर पक्का व समतल बना लें।
- ⇒ इस तह पर 2-3 इंच मोटी बालू रेत या बजरी की परत इसके बाद बालू रेत की परत के ऊपर 6 इंच मोटी दोमट मिट्टी की तह बिछायें। दोमट मिट्टी न हो तो काली मिट्टी में राक पाउडर पत्थर की खादान का बारीक चूरा मिलाकर बिछा सकते हैं।
- ⇒ इस पर सबसे पहले सूखे घास, भूसा, नीदा पुआल, गन्ने की पत्ते की दो इंच मोटी परत बिछा दें। इसके ऊपर 2-3" पकी हुई गोबर की खाद डालते जायें, 4-6 बार घास व गोबर की तह बिछाकर पानी डालना चाहिए ताकि गोबर की गर्मी खत्म हो जाये।
- ⇒ 100 वर्गफुट नर्सरी बेड के लिए 4-5 हजार केंचुओं की आवश्यकता होती है। इस प्रकार तैयार बेड में केंचुओं को फैला दें एवं पानी डाल दें।
- ⇒ केंचुओं को डालने के बाद ऊपर से गोबर व पत्ती की 6-8 इंच की सतह बनाकर ऊपर से मोटी टाटपट्टी से ढक दें।
- ⇒ झारे से टाट पट्टी पर नियमित पानी का छिड़काव करें ताकि 45-50 प्रतिशत नमी हमेशा बनी रहे। साथ ही बेड का तापमान 25-30° से. होना चाहिए।
- ⇒ सप्ताह में एक दिन नर्सरी बेड का कचरा ऊपर नीचे करना चाहिए।
- ⇒ नर्सरी बेड की छन बास की चटाई या घासफूस से ढक दें, ताकि तेज धूप एवं वर्षा से बचाया जा सके।
- ⇒ इस विधि से डेढ़ माह 45-50 दिन में खाद तैयार हो जाता है यह चायपत्ती के समान दानेदार दिखता है एवं मिट्टी के समान सौंघी गंध आती है।
- ⇒ 4-50 दिनों बाद पानी छिड़कना बंद कर खाद के छोटे-छोटे ढेर बना दें ताकि केंचुए खाद के निचले सतह पर चले जायें, एवं गेहूँ छानने के छन्ने से खाद को छान लें। छनी खाद को प्लास्टिक की बोखियों में उपयोग के समय तक रख सकते हैं। अगली

बार के लिए आपके पास 2 बेड़ हेतु केचुएं उपलब्ध रहेंगे। यही विधि वर्ष भर अपनाकर स्वयं ही उत्तम गुणवत्ता की खाद तैयार कर सकते हैं।

प्रमुख सावधानियाँ :-

1. जिस कचरे से खाद तैयार करना है उसमें कांच, पत्थर, प्लास्टिक धातु के टुकड़े नहीं होना चाहिए।
2. उपयुक्त नमी व तापमान बनाये रखें व केंचुओं को खाने हेतु नियमित अच्छी किस्म का सेन्द्रिय पदार्थ देते रहना चाहिए, ताकि उनकी क्रियाशीलता कम न हो।
3. खाद हाथ से अलग करें कभी भी गैंती, कुदाली, खुरपी या राड का इस्तेमाल नहीं करना चाहिए।
4. तैयार खाद को रासायनिक उर्वरकों की बोरियों में न भरें।
5. भूमि में केचुआ खाद उपयोग के बाद रासायनिक खाद व कीटनाशकों का प्रयोग नहीं करें।

केंचुआ खाद की विशेषतायें :-

1. केंचुआ खाद तैयार करने में प्रक्रिया तैयार हो जाने के बाद 1-1) माह का समय लगता है।
2. केचुआ उपयुक्त नमी, तापमान व खाद्य पदार्थ मिलने पर 21 दिन में भी खाद तैयार कर देता है।
3. इसकी केवल 2 टन मात्रा प्रति हेक्टेयर क्षेत्र हेतु पर्याप्त होती है।
4. 100 वर्गफुट के नर्सरी बेड़ से प्रति माह 1 टन खाद प्राप्त की जा सकती है।
5. इस खाद में बदबू नहीं आती व मक्खी, मच्छर नहीं बढ़ते हैं।
6. इससे पर्यावरण व वातावरण स्वच्छ रहता है।

केंचुआ खाद के उपयोग से लाभ :-

मिट्टी की दृष्टि से -

1. भूमि की गुणवत्ता में सुधार होता है।
2. जल धारण क्षमता बढ़ती है।
3. भूमि का उपयुक्त तापमान बनाये रखने में सहायक होती है।
4. भूमि में उपयोगी सूक्ष्म जीवों की संख्या में वृद्धि होती है।
5. भूमि से पानी का वाष्पीकरण कम होता है।
6. केंचुआ नीचे की भूमि ऊपर लाकर उसे उत्तम प्रकार की बनाते हैं।

कृषकों की दृष्टि से :-

1. सिंचाई के अंतराल में वृद्धि व भूमि की उपजाऊ क्षमता में आशातीत वृद्धि होती है।
2. रासायनिक खाद पर निर्भरता कम होने के साथ फसल लागत में कमी आती है।

पर्यावरण की दृष्टि से :-

1. भूमि के जल स्तर में वृद्धि, रासायनिक खादों व कीटनाशकों से होने वाले प्रदूषण में कमी होती है।
2. सड़ा कचरा को केचुआ खाद बनाने में उपयोग से बीमारियों में कमी आती है।
3. इसके अलावा केचुए से औषधियां व कई उत्पाद तैयार किये जाते हैं।

इस प्रकार कृषक भाई कम लागत की बहुमूल्य वर्मी कम्पोस्ट (जैविक खाद) अपने घरों में, खेतों में तैयार कर अपनी जमीन की उर्वरा शक्ति को बढ़ा सकते हैं। एवं रासायनिक खादों के प्रयोग में कमी ला सकते हैं। जिस तरह अन्न उत्पादन को बढ़ाने हेतु हरितक्रांति का उदय हुआ था, उसी तरह पर्यावरण व रसायनों के दुष्प्रभाव को रोकने हेतु आज जैविक क्रांति की आवश्यकता है।

शेखर सिंह बघेल
मृदा विज्ञान एवं कृषि रसायन,
जबलपुर (म.प्र.)

Expert Addressal

Q. I am looking for the thornless variety of safflower. Please guide where can I get those seeds.

(From: Vijay Shah)

A. For safflower seeds please contact Mahyco through its website www.mahyco.com

(From: Dr.L.K.Pandey)

Q. A species of termite that climbs up the roofs of tiled houses and builds a wire-like nest in the reapers etc causes silent damage to wood. Their destruction value is very high. Can anybody suggest me an effective way of controlling this by non-chemical means ?

(From: Shree Padre, Journalist)

A. Termite's can be controlled by a fungus "Metarhizium anisopliae". Here in pune, it is available in shops by the trade name of "Meta-guard".

A point to be kept in mind is that, all the fungal bio-insecticides work only in moist conditions (that is if applied to soil, the soil has to be moist enough for the fungus to grow. it won't work if the soil goes completely dry).

You could try to apply Meta-guard by mixing it in a slurry of cow-dung. The cow dung might attract the termites. The best way to control still would be to destroy the termitoria and kill the termite queen, if you can find it.

(From: Shriniwas Kharche, Pune.)

Dear ISAPians

Q. I require "Culter" an early flower inducing hormone. I shall be highly grateful if any one can provide information about, where it is available and how reacts with plants.

(From: R.K.Verma)

A. This is about "Cultar"

The chemical name is Paclobutrazol, and it works as a growth promoter indirectly. In other words, it is a growth retardant, slowing down vegetative growth, which indirectly improves root growth, and can initiate flowering. Cultar is used in commercial nurseries to keep seedlings from outgrowing the nursery, especially when deadlines for transplanting cannot be met.

http://www.actahort.org/books/239/239_61.htm

http://www.actahort.org/books/239/239_30.htm

(From: John Sathiaseelan Daniel)

Join Hands with ISAP as Chapter Co-ordinators

We would like to invite you to associate with ISAP as chapter co-ordinator. ISAP is growing rapidly and currently has over 7000 member (of whom more than 100 hold Ph.Ds) all over India and abroad. It has 59 chapters, 350 NGO Partners and has answered well over 3000 queries/problems raised by members of the farming community.

The traditional extension system has failed to address the current needs of the farmers and this is a fact documented and analysed in great detail. ISAP targets to create a network of 100,000 members who would work at taluka levels and below as micro entrepreneurs to achieve this task. We plan to put together an expert back end consisting of more than 50,000 experts.

We are working on several projects currently and they include work with SDC, JBIC, Bio-diversity, OXFAM and etc. We would also like to work in your region through workshops seminars, expert visits and campaigns.

The chapter co-ordinator is a voluntary position and ISAP helps meet expenses of activities related to its program in the co-ordinators region.

We reiterate our invitation to join this mass movement and help in supporting the farming community. Please visit www.isapindia.org to get an idea of our work.

Warm regards,

Sunil Khairnar
Executive Director

HEAD OFFICE	ADVISORY BOARD
<p>Mr.Sunil Khairnar Executive Director E mail: isap@vsnl.net</p> <p>Mr.R.Santhanam Chief Operating Officer Mobile: 33196875 E mail: santhanam@isapindia.org</p> <p>Mr.Tapan Choudary, Consultant (Mobile: 9810210676) E mail: tapan1965@yahoo.com</p> <p>Ms.Nida Khanam HRD Co ordinator (Mobile: 9810965234), E mail: isaphr@isapindia.org</p> <p>Ms.G.Rajyalakshmi, Consultant</p> <p>Mr Jitender Mehta Coordinator – Query Redress & Membership Jitender@isapindia.org & jitendermehta@yahoo.com</p> <p>Mr.Rajeev Ranjan, Co ordinator Events E mail: rajeev@isapindia.org, Mobile: 919810250597</p> <p>Mr.O.P.Sharma, Co ordinator Public Relations & Communications Mobile: 9837063272, Email: opsharma@isapindia.org</p>	<p>Dr. M.S. Swaminathan, Chairman, M.S. Swaminathan Research Foundation</p> <p>Prof. Anil K. Gupta IIM Ahmedabad</p> <p>Prof. Gopal Naik, IIM Ahmedabad</p> <p>Dr. Gopal Ghosh F.A.O., New Delhi</p> <p>Dr. Ajit Maru, ISNAR, The Hague, Netherlands</p> <p>Mr. Sopan Kanchan, Chairman, Grape Growers Federation of India</p> <p>Dr. S K Ranjhan, Director, Hind Agro Industries Ltd.</p> <p>Mr. N.S. Brar, Executive Director Punjab Agro Ind. Crop. Ltd.</p> <p>Mr. Satbir Nijjer, Managing Director, Nijjer Foods Limited</p>
REGIONAL COORDINATOR	
<p>Mr.Abhay Kumar Thakur Regional Co ordinator North E-mail: thakur@isapindia.org, Mobile: 9818001449</p> <p>Mr.K.N.Rahaman Regional Co ordinator Central L.I.G. 226/A/Sanagiri, Raisen Road, Bhopal – 462021, Madhya Pradesh E mail: rahaman@isapindia.org Tel: 0755-2758709 Mobile: 9425026455</p> <p>Mr.Shyam Badane Regional Co ordinator West 25-A, Professor Colony, Deopur, Dhule, Maharashtra – 424002 E mail: esvibi@indiatimes.com, Mobile: 9822333553</p> <p>Mr.Raj Shekar Karjagi, Regional Co ordinator South 256, Krishika, UAS, Dharwar 580005 E mail: abmkarjagi@hotmail.com Mob.: 9845733571</p> <p>Mr Mustaseem Ahmed Regional Co ordinator – North East C/o Mr Actab Ali Ahmed, Lakhiminagar, Hatigaon, Dispur, Guwahati, Assam-781006. Ph.: 0361-2230438(PP), E mail: musu3979@yahoo.com</p>	<p>Mr. Sanjiv Phansalkar Amol Management Consultants, Nagpur</p> <p>Mr. Frederick Noronha Journalist, Goa</p> <p>Mr. Abiram Seth, Executive Director(Exports), Pepsico India Holding Pvt. Ltd.</p> <p>Mr. A.K. Gupta, Additional Managing Director, National Horticultural Board, Gurgaon</p> <p>Mr. P. Saksena Chief Director(F&V & CS), National Co-operative Development Corporation, New Delhi</p> <p>Dr. TSR Murali, Technology Director, Frito Lay India, New Delhi</p> <p>Mr. Pradip Kashyap CMD, M.A.R.T. New Delhi</p>